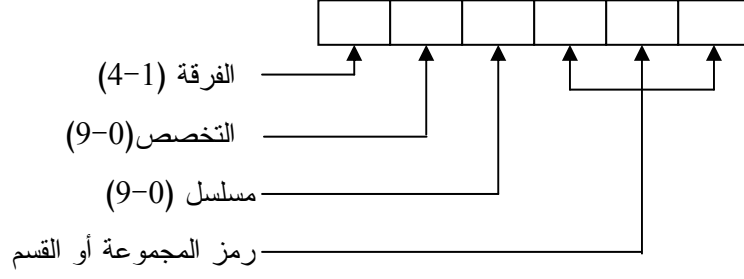


تكويد المقررات



رمز المجموعة أو القسم:

0	مشروع	مشر	5	برمجيات حاسب	برح
1	علوم طيران	علط	6	أجهزة حاسب	أجح
2	علوم أساسية	عمس	7	قواعد بيانات	قوب
3	حسابات علمية	حسع	8	نظم المعلومات	نظم
4	علوم حاسب	علح	9	موضوعات مختارة	موم

محتويات المقررات

BSC 110, BSC 111 English Language (1), (2)

The material reflects the stylistic variety that advanced learners have to be able to deal with. The course gives practice in specific points of grammar to consolidate and extend learners existing knowledge. Analysis of syntax; comprehension; Skimming and scanning exercises develop the learner's skills; comprehension questions interpretation and implication. The activities and games used develop listening, speaking and writing skills through a communicative, functional approach, with suggested topics for discussion and exercises in summary writing and composition.

CSC 240 Computational Linguistics

Introduction to natural language processing, different levels of language analysis. Linguistic background, words, verbs and phrases. Grammar and parsing, sentence structure, top-down and bottom up charts, finite state models. Feature and augmented grammar, morphological analysis, parsing with features. Auxiliary verbs, relative clauses. Human preference in parsing, deterministic parser and efficient encoding of ambiguity, statistical methods for ambiguity resolution, Arabic/English semantics and logical forms. Linking syntax and semantic interpretation using feature unification. Ambiguity resolution using selectional restrictions. Different strategies for Arabic/English Semantic interpretation and reasoning frames. Hybrid knowledge representation using knowledge about action and causality. Symbolic computation, symbol data structure, matching, search and unification algorithms. Speech processing and recognition.

BSC 120 Mathematics (1)

Precalculus review. Sets. Real-valued function. The continuity and the differentiability of a real function. Techniques of differentiation. Derivatives of the trigonometric functions. Implicit differentiation. Linear approximations and differentials. Applications of the derivative: Extreme of function optimization problems, velocity and acceleration. Integrals: Indefinite integrals, change of variables, definite integrals, the fundamental theorem of calculus, numerical integration. Applications of definite integrals: Areas, solids of revolution, arc length and surfaces of revolution, work, moments and centers of mass. Transcendental functions: Derivative of inverse function, natural logarithm function, exponential functions, inverse trigonometric hyperbolic and inverse hyperbolic functions, indeterminate forms and rule.

BSC 121 Mathematics (2)

Techniques of integration: Integration by parts, trigonometric integrals and substitutions, integrals of rational functions, integrals, improper integrals. Infinite series: divergent series, positive-term series (basic comparison test, ratio and root tests), alternating series absolute series, power series representations of functions, Maclaurin and Taylor series, applications of Taylor polynomials. Differential equations Definition, classifications and terminology, techniques of ordinary first-degree differential equations (separable, homogeneous, reducible to homogeneous, linear, differential, nonexact differential-integrating factor), applications.

BSC 125 Physics (1)

Mechanics: physics and measurements, motion in one dimension, vectors, motion in two dimensions, laws of motion, circular motion and its applications, work and energy, potential energy and conservation of energy, linear momentum and collision, rotation of a rigid body, rolling motion, law of gravity. Waves: Oscillatory motion, wave motion, sound waves

BSC 126 Physics (2)

Optics: Superposition of waves, interference, diffraction and polarization of magnetic field and law, electromagnetic waves. Selected topics: Introduction to modern physics and applications, molecules and solids, superconductivity.

BSC 127 Electronics

Electronic components and basic laws. Principles of circuit-analysis: Dividers, equivalent sources, methods of solutions, circuits with nonlinear resistance, maximum power-transfer, sinusoidal excitation and impedance concept, magnitude and phase-shift of RLC circuits. Frequency response of linear circuits, passive filter types and characteristics. Diode-circuits: half and fullwave rectifiers, Zener regulators and limiters. Transistor circuits: BJT characteristics, types, basic configuration, biasing and load line, equivalent circuits, voltage gain, input and output impedance, coupling, practical circuits, FET circuits: Characteristics, types, basic configuration, switching modes. Operational amplifiers: Principles, basic circuits: adder, follower, differentiator, integrator, comparator, schmitt-circuit, special circuits. Active filters: types, characteristics. Oscillators: Relaxation,

feedback, RC, LC, and Voltage controlled oscillators.
Display elements: Light-emitting-diodes, liquid-crystal displays, and cathode-ray tubes.

BSC 222 Mathematics (3)

Sets, sequences, algorithms and pseudo codes, propositional logic. Proof by induction. Matrices and Boolean matrices. Relations and functions. Graph theory. Posits lattices. Boolean algebra. Linear equations and matrices. Vector spaces. Inner product spaces. Linear transformations. Eigenvalues and eigenvectors. Canonical forms. Jordan forms.

BSC 223 Probability and Statistics

Sample space, probability axioms, combinatorial techniques, conditional probability, independence and Bayes, distribution functions, moments and generating function. Some probability distributions. Joint distribution, the Chebychev inequality and the law of large numbers. The central limit theorem and sampling distributions.

BSC 224 Statistical Analysis and Applications

Review of sampling theory and distributions. Estimation theory: Unbiasedness, efficiency, points estimates, confidence interval estimates (for means, proportions, differences, sums, variances, and variance ratios), maximum likelihood estimates. Tests of hypotheses and significance: Null hypothesis, type 1 and type 11 errors, level of significance, special tests of significance for large or for small samples, operating characteristic curves, quality control chart, fitting theoretical distributions to sample frequency distributions, goodness of fit. Curve fitting, regression

and correlation: Method of least squares, multiple regression, (linear generalized and rank) correlation, correlation and dependence. Analysis of variance: Purpose, one-factor experiments, variation, linear mathematical models, F-test for the null hypothesis of equal means, modifications for unequal numbers of observations, two-factor experiments, experimental design.

BSC 228 Mathematics (4)

Second and higher-order differential equations. Applications of second-order differential equations with constant coefficients. Systems of linear differential equations. Series solutions. Laplace transforms. Special functions. Partial differential equations. Boundary value problems. Fourier series and integrals. Diffusion, potential and wave equations in rectangular, cylindrical, and spherical coordinates.

SCC 231 Operations Research

Linear programming: Formulations and graphical solution. Algebraic solution: the simplex method and dual-simplex method. Sensitivity analysis. Transportation and assignment problems. Integer programming: cutting-plane algorithms, branch and bound method. Dynamic programming: Examples of the dynamic programming. Models and computations, solution of linear programs by dynamic programs. Project scheduling by PERT-CPM.

SCC 332 Numerical Computing Techniques

Computational errors. Floating-point computation. Root finding: Bisection method, Newton's method, and secant method. Approximation theory: Polynomial approximation, least squares method, interpolation, extrapolation, Numerical differentiation and integration. Initial value problems for ODE method, Taylor-series methods, and Rung-Kutta methods. Numerical solutions of nonlinear systems of equations: Boundary-value problems for ODE. Numerical solutions to partial differential equations.

SCC 430 Modeling and Simulation

Basic simulation modeling. Nature of simulation. System models & simulation, discrete event simulation. Simulation of a single-server queuing system. Simulation of an inventory system. List processing in simulation. Simulation languages. Simulation of time sharing systems. Simulation output data and stochastic processes. Building valid and credible simulation models. Principles of valid simulation modeling. Verification of simulation computer programs. An approach for developing valid & credible simulation models. Statistical procedures for computing real-world observation & simulation output data. Some practical considerations: Selecting input probability distributions. Random number generators. Generating random variables. Output data analysis for a single system.

SCC 433 Theory of Computing

Church's thesis: Grammars, the M-recursive functions, and Turing computability of the M-recursive functions. The uncomputability: The halting problem, Turing enumerability, Turing acceptability, and Turing

decidability, unsolvable problems about Turing machines and Mrecursive functions. Computational complexity: Time-bounded Turing machines. Rate of growth of functions. NP-Completeness. The complexity hierarchy. The propositional calculus: Syntax, Truthassignment, Validity and satisfiability. Equivalence and normal forms. Compactness.

CSC 340 Analysis & Design of Algorithms

Algorithm concept. Analysis and complexity. Design methods: Divide and conquer: The general method, binary search, merge sort, quick sort, selection, matrix multiplication. Greedy method: The general method, minimum spanning Trees. Dynamic programming: The general method, shortest paths, optimal search trees, and the traveling salesman problem Backtracking: The general method, the 8-queens Problem. NP-hard and NP-complete problems: Cook's theorem, NP-hard graph problems.

CSC 341 Formal Languages and Automata

Alphabets and languages. Finite representation of language. Deterministic and non-deterministic finite automata and their applications. Equivalence considerations. Regular expressions. Context-free languages. Context-free grammars. Regular languages, pushdown automata. Properties of context-free languages. Determinism and parsing top-down parsing, and bottom-up parsing. Turing machines: Computing with Turing machines, combining Turing machines, and nondeterministic Turing machines.

CSC 342 Computer Graphics

Introduction to computer graphics: History, applications, and graphics system software. Output primitives: Points, lines, circles, ellipses, character generation. Attributes of output primitives: Color and intensity, area filling, character attributes. Two-dimensional transformations: Basic transformations; translation, scaling and rotation. Matrix representations and homogeneous coordinates, Composite transformations. Windowing and clipping. Segments. Interactive input devices.

CSC 343 Artificial Intelligence

Artificial and Human intelligence: Domains of AI-symbolic processing: Semantic nets, modeling, model based reasoning, frames. Inference techniques: Implication, forward and backward chaining, inference nets, predicate logic, quantifiers, tautology, resolution, and unification. Rule based systems: quantifiers, tautology, resolution, and unification. Rule based systems: Inference, engine, production systems, problem solving, planning, decomposition and basic search techniques. AI languages: Symbolic and prolog: Objects and relations, compound goals, backtracking, search mechanism, dynamic databases, Lisp: program structure and operations, functions, unification, memory models. Fields of AI: heuristics and game playing, automated reasoning, problem solving, computational linguistics and natural language processing, computer vision, robotics. AI based computer systems: Sequential and parallel inference machines, relation between AI and artificial neural nets, fuzzy systems.

CSC 444 Expert Systems

Introduction: Knowledge based expert systems, conventional programming versus knowledge engineering. Human problem solving: Human information processing, the production system as a processing model, problem solving, varieties of knowledge, and the nature of expertise. Representation of knowledge: An informal look at a knowledge base, strategies for representing knowledge, semantic networks, object attribute value triplets, rules, frames. Representing facts and relationships using logic. Drawing inferences; inferences control, the future of representation and inference. Languages and tools: Levels of software, the languages tool continuum, AI languages and environments, knowledge engineering tools. Expert shells. Building a small knowledge system: The role of small systems, selection of an appropriate problem, development of a prototype system

CSC 445 Neural Networks

Introduction and a historical review: Overview of neurocomputing, history of neurocomputing. Neural network concepts: Basic definition, connections, processing elements. Learning laws: Self-adaptation equations, coincidence learning, performance learning, competitive learning, filter learning, spatiotemporal learning. Associative networks: Data transformation structures, Linear association network, learn matrix network, recurrent associative networks. Mapping networks: Multilayer data transformation structures, the mapping implementation problem, theorem the back-propagation neural network, self-organizing map, counter propagation network. Spatiotemporal stochastic, and hierarchical networks: Spatiotemporal

pattern recognizer neural network, the Boltzman machine network, and the neurocognition network.

CSC 447 Image Processing

Scope and applications of image are processing. Perspective transformations (Modeling picture taking, perspective transformations in homogeneous coordinates and with two reference frames). The spatial frequency domain (The sampling theorem, template matching and the convolution theorem spatial filtering). Enhancement and Restoration, image segmentation. Image representation: (Spatial differentiation and smoothing, template matching, region analysis, contour following). Descriptive methods in scene analysis. Hardware and software considerations. Applications.

CSC 448 Distributed Computing

Introduction to parallel and distributed architectures. Models of computation: SISD, SIMD, MISD, and MIMD Computers. Shared-memory SIMD computers. Interconnection-network SIMD Computers: Linear array, two dimensional array, tree. connection, perfect shuffle connection, cube connection. Analyzing algorithms. Some parallel computer algorithms: selection, merging, sorting and searching, Parallel programming languages, Parallel compilers, Parallel operating systems.

CSW 150 Fundamentals of Structured Programming

Structured program development: Problem solving, decision structures, repetition structures, top-down and stepwise refinement. Subprograms: Procedures, functions. Structured data types: one-dimension

arrays, two dimension arrays. Sets. Records. Files: Text files random handling files. Dynamic data structures (Pointers). Recursion: Recursive functions, towers of Hanoi.

CSW 251 Object Oriented Programming

Objects: Object classes and inheritance through, a design example, deriving an object oriented design. Functional oriented design: Data flow diagrams, structure charts, data dictionaries, deriving structure charts, design examples, concurrent systems design. User interface design: User interface design objectives, interface metaphors, W1A4P (Window, Icons, Menus, and Pointing) interfaces using color displays.

CSW 352 Logic Programming

Introduction: Facts, objects, and Predicates: Expressing facts, turbo prolog objects. Prolog variables: Using variables, bound and free variables, anonymous variables, compound goals, backtracking, variable rules. Using rules: Rules, variables in rules, prolog execution rules, using the trace, unification, execution control, the built-in predicate. Simple input and output Controlling execution: Success through failure; the fail predicate, exclusion using the fail predicate, recursion, and the cut. Arithmetic operations. Compound objects Dynamic database. Lists. String operations.

CSW 353 Assembly Language

Microprocessors: Architecture, ALU, registers, accumulators, memory addressing, control logic, addressing modes. Assembler instructions, pseudooperations and operators, data definitions: byte, word, immediate operands, difference between EXE and COM program files, program logic and

organization: JMP, LOOP, CALL, stack segment, Boolean operation: AND, OR, XOR, TEST, NOT, shifting and rotation, string instructions, arithmetic: processing binary data, processing ASCII and BCD data, table processing, procedures, interrupts, programming techniques, COM programming, numeric calculations, text management, screen processing, I/O libraries, linking high level languages.

CSW 354 Software Engineering

Introduction: Well-engineered software, the software process, software evolution software reliability. Human factors in software engineering: Human diversity knowledge processing, group working. Software specification and system modeling The software requirements document, requirements evolution, system contexts viewpoint analysis, model description, real-time system modeling, data modeling Requirements definition and specification: Requirements specification, nonfunctional requirements definition. Requirements validation and prototyping: The prototyping process, prototyping techniques. Formal specifications, algebraic specification. Model based specification. Software design: Top-down design, systems design, design decomposition, software design quality, design description languages.

CSW 355 Operating Systems

Introduction. Operating system structures: System components, operating system services, system structure, virtual machines, system design and implementation, system generation. Concurrent processes: Process concept, the producer/ consumer

problem the critical section problem, semaphores, language constructs, interprocess communication. CPU scheduling: Scheduling concepts, performance criteria, scheduling algorithm. Memory management: Multi programming with fixed partitions, multiprogramming with variable partitions paging segmentation. Secondary storage management: Physical characteristics, device directory, free space management, allocation methods, disk scheduling. File systems: File concept, access methods, directory systems, file protection.

CSW 456 Compiler Theory

Introduction and overview. Scanning-theory and practice: Regular expressions, finite automata and scanners, scanner generators, practical considerations, translating regular expressions to finite automata. Grammars and parsing: Context free grammars, parsers and recognizers, grammar analysis algorithms. Semantic processing: Syntax-directed translation, semantic processing techniques. Symbol tables: Basic techniques, block structured and extensions, Implicit declarations. Runtime storage organization: Static allocation, stack allocation, heap allocation, program layout in memory. Data structures: declaration processing fundamentals, action routines. Procedures and functions: If statements, loops, case statement, exception handling, passing parameters to subprograms. Code generation and optimization: Register and temporary management, interpretive code generation, generating code from trees and tags, optimizing subprogram calls, loop optimization.

CHW 160 Introduction to Computers

Computer definition, different computer types, digital computer, analog computer, general-purpose computer, special purpose computer, hybrid computer. Computer organization, computer hardware, input/output units, storage media, computer memory types, arithmetic and logical unit (ALU), computer software, computer programming, computers and networking, software development systems, Information management, database management systems and applications, operating systems. Computer Crime and Security. Computer issues and Health. Introduction to programming languages, General form of Pascal program. Expressions: arithmetic expressions. Simple data types: Real integer, Boolean, character subrange, and enumerated Data types, input and output statements. Conditional control structures: Compound statements, Boolean expressions, IF statements, Case statements. Repetition statements: While statement, repeat statement, For statement.

CHW 261 Logical Design

Basic logic concepts: Logic states, number systems, Boolean algebra, basic logical operations, gates and truth tables. Combinational logic: Minimization techniques, Multiplexers and de-Multiplexers, encoders, decoders, adders and subtractors, look-ahead carry, comparators, Programmable logic arrays and memories, design with MSI, logic families, tri-state devices, CMOS and M logic interfacing. Sequential logic: Flip-flops, monostable multivibrators, latches and registers, counters, shift registers. Analog to digital conversion, digital-to-analog conversion, data acquisition, microprocessors.

CHW 362 Computer Architecture & Organization

Basic computer organization and design: Computer instructions and their codes, timing and control execution of instructions. Input, output and interrupt. Assembly language: Programming loops, programming arithmetic & logic operations, subroutines, I/o programming. Central processor organization: Processor bus organization. Arithmetic logic unit, stack organization. Instruction formats. Addressing modes. Data transfer and manipulation, program control. Microprogram control organization: Control memory. Address sequencing. Arithmetic processor design and algorithms: Comparison and subtraction of unsigned binary numbers, addition and subtraction algorithms, multiplication and division algorithms. Input/output organization: Peripheral devices, asynchronous data transfer, direct memory access. Memory organization: Auxiliary memory, virtual memory, cache memory, memory management hardware. Pipeline and vector processing. Multiprocessors.

CHW 464 Computer Security Techniques

Overview: Characteristics of computer intrusion, points of security vulnerability, methods of defense. Basic encryption and decryption: Different types of ciphers, characteristics of good ciphers, crypt analysis. Secure encryption systems: Hard problems & complexity. Properties of arithmetic, public-key systems, single-key systems and the data encryption standard (DES), enhancing cryptographic security. Security involving programs: Information accesses problems, viruses and worms, controls against attack-, operating system control, administrative controls. Design of secure operating systems: Models of

security, penetration of operating systems, examples of security in general purpose operating systems. Database security: reliability and integrity, sensitive data, the inference problem, multilevel data security. Personal computer security: Security measures, protection for files, copy protection. Computer network security and communication security.

CHW 465 Computer Networks

Introduction: The use of computer networks, network structure, network architecture, the ISO reference model, examples of networks. Network topology: Connectivity analysis, delay analysis, backbone design, local access network design. The physical layer: The theoretical basis for data communication, the telephone system transmission and multiplexing, terminal handling errors. The data link layer: Elementary data link protocols, sliding window protocols, analysis of protocols. The network layer: Virtual circuits and datagrams, routing algorithms, satellite packet broadcasting. Local networks: Carrier sense networks, ring networks, shared memory systems. The transport and session layers: Transport protects design issues, interconnection of packet-switching networks. The presentation layer: network security and privacy, text compression, virtual terminal protocols, file transfer protocols. The application layer: Distributed data base systems, distributed computations.

DBA 270 Data Structures

Abstract Data Types (ADT). Stacks: Definition and operations, implementation of stacks with array and records, applications of stacks. Queues: Definitions, implementation of circular queues, applications of queues. Linked lists: Singly linked lists, linked stacks,

linked queues, doubly linked lists, application of linked lists. Tree structures, binary trees: binary tree traversals, binary tree search. Searching Definitions, sequential search. Sorting: Definitions, insertion sort, selection sort. Hashing: Hash functions, perfect Hash functions.

DBA 271 File Organization

File processing environment: Overview of files, blocking and buffering, secondary storage devices. Sequential access: Sequential file organization, external sort/merge algorithms. Random access: Direct addressing, hashing, perfect hashing, Dynamic hashing. Tree-structured file organization: High-balanced binary search trees, B-tree, B+ tree, indexed sequential file organization. List-structured file organization: Multiple-key, and inverted files.' The merits of these file organizations and the optimum choice for a given application.

DBA 372 Database Management Systems

An overview of database management; what is a database system, operational data, data independence, relational systems and others. An architecture of a database system: The three levels of architecture, the external level the conceptual level, the internal level, mappings, the database administrator, the database management system The internal level: Database accesses, page sets and files, indexing. Hashing, pointer chains, comparison techniques. An overview of DB2: Relational databases, the SQL language, major system components. Relational algebra: A syntax for the relational algebra, traditional set operations, special relational operations. Relational calculus: Tuple-oriented relational calculus, relational calculus vs. relational algebra, domain-oriented relational calculus,

query-by-examples. Data definition: Base tables, indexing. Data Manipulation: Simple queries, join queries, built-in functions, advanced features, update operations. The system catalog: Querying the catalog, updating the catalog. View: View definition, DML operations and view, logical data independence, advantages of views. Embedded SQL: Operations not involving cursors, operations involving cursors, a comprehensive example, dynamic SQL. Database environment: Recovery and concurrence security and integrity, database product family.

INF 280 Introduction to Information systems

Fundamental concepts, objective of information system, system definition, subsystem definition, message passing in information system, message levels data, information, knowledge, needs, characteristics, sources, data processing (DP), electronic data processing (EDP), management information system (MIS), decision support system (DSS), office automation system (OAS), executive information system (EIS), expert system (ES), computer based information system (CBIS), types of CBIS, relationships among CBISs, the evolutionary view, the hierarchical view, the contingency view, the importance of CBIS, the nature of information system in different organizations. Management concepts in CBIS, data management, the organization of data, application oriented files, database approach, decision-making concepts and tools, decision support system (DSS), building a DSS, application of DSS.

INF483 Office Automation Systems

Fundamental concepts, objective of office automation system (OAS), definition of office automation system (OAS), impetus for the automated office, planning for automated office, implementing the automated office-word processing, data storage in the automated office. Computer-based communications systems, electronic mail in automated office, voice mail, telephone, facsimile, Teleconferencing, personal computing. Micrographics. Communications networks in the automated office, problems of automating the office. The relationship of the automated office to other CBIS. People in the automating office.

INF 484 Management Information Systems

An overview of Management Information Systems (MIS), objective of management information systems (MIS), management information systems (MIS) and CBIS family. Stand-alone management information systems. A management information system model Management information systems in a total CBIS environment. Database management system, the management dimension, the managerial activities, the management control. Management information characteristics: The management dimension in processing, functional applications of management information systems (MIS). The production subsystem, the marketing subsystem, the finance subsystem the personnel subsystem the relationship of the MIS to other CBIS.

INF 485 Geographical Information Systems

Relevant GIS technologies, evaluation of GIS technology. GIS applications, representation of geographic data, relationships of graphic and

nongraphic data. Data: data types, data collection, census data, postcode based data, data from surveys, customer lists, data from remote sensing, the data collection transformation, data input, vector digitizing, verification attribute data input, raster data input data input transformation. Graphic data storage, data quality, planimetric features, topographic features, cadastral features, Parcel identification, area boundary features. Components of GIS: hardware software, configurations and data communications. GIS design philosophy, GIS implementation methodologies, hypermedia and GIS, towards a socioeconomic GIS.

INF 486 Crisis Management and Disaster Recovery

Theoretical notions: Crisis definition, classification of crises, definition of disaster, problem definition Crisis management centers. Organization, tasks, routine work, implementation cycle. Planning of potential crises: Information role, scientific management of potential crises. Disasters: Types, measures before, during and after disaster, Co-ordination among different instruments of the state during disaster recovery.

INF 487 Electronic Commerce

The course concentrates on recognizing and explaining business processes and identifying and recommending Intranet/E-Commerce opportunities that can enhance service quality and cost effectiveness topics include challenges, opportunities, internet service Providers, Intranets, Bstranets, marketing concepts in the context of the internet, basics of marketing a site on the Net, electronic purchasing and shopping models using search engines, understanding what e-customers want and the key points to satisfy them, Web-copyright

issues, ethic markets, Growth of business to business commerce, customer relationship and security considerations.

INF 488 Decision Support Systems

An overview of decision support systems (DSS), a definition of decision support systems, decision support systems characteristics, a brief example of a decision support system some differences between MIS and decision support systems, the impetus for decision support systems, decision support systems levels, institutional and ad hoc decision support systems, the decision support systems, operating and evolving a decision support systems, application of decision support systems, hardware selection of decision support systems, software selection of decision support systems.

INF 489 Information Networks

Introduction, the communication environment, communication options, Information network architecture, planning environment. Strategic planning for information networks (SPIN): the strategy phase, the feasibility phase, the analysis phase, the design phase, the implementation phase. Network management.

ASC 114 Introduction to Flight

Historical Review: Classification of aircraft, A/C main parts, Fundamentals.

Basic Aerodynamics: Incompressible and Compressible Flow, the continuity and Bernoulli Equations, the speed of sound, Mach Number, Airfoil shapes and Nomenclature, lift, Drag, and Moment Coefficients.

Elements of Airplane performance: Thrust, power, Velocity, Altitude Effects, Rate of climb and Descend, Absolute and service ceiling.

Propulsion: Type of Engines, and propellers, the thrust Equation, Jet Engines, Turbo Prop and Turbofan Engines.

ASC 315 Avionics Systems I

Introduction to control system: Control System, Analog and Digital Control Systems, Classifications of Control Systems, Examples of modern control systems.

Concepts of dynamic systems: Examples of Dynamic Systems, Definitions Related to Dynamic Systems, Modeling of Dynamic Systems, Laplace Transform, Solution of Differential Equations, Transfer Functions, Typical Inputs (Test Inputs).

Digital control systems: Introduction, Digital Computer Control System Applications, Sampled-Data Systems, Z- Transform.

ASC 316 Avionics Systems II

Digital simulation using Matlab: Introduction, Matlab Environment, Variables and Statements, Script Files and Functions, Fourth- order Runge- Kutta Procedure,

Plotting Problems Results, Signals and systems toolbox.

Analog simulation: Introduction, computing Components, Classical Analog Computer Diagrams, State- Space Analog Computer Diagrams, Magnitude and Time Scaling, Selection of Magnitude and time scale factors.

Avionics system: Instrument Landing System, Microwave Landing System. Radio Magnetic Indicator, Horizontal situation Indicator, Very High Frequency IMNI Range, Automatic Direction Finder, Distance Measuring Equipment, Area Navigation, Weather Radar, Transponder, Traffic Alert and Collision Avoidance, Long Range Navigation, Omega Navigation System (ONS), ARINC 429 BUS, Global Positioning System, Flight Control Systems.

ASC 233 Flight Safety

International Standards Definitions, Airworthiness of aircraft: certificate, Applicability, proof of compliance, Continuing airworthiness, Validity Temporary loss, Standard from, AEROPLANCES : General, Flight performance, Flying qualities ACFT Structures, ACFT engines, ACFT Instruments and Equipment. HELICOPTERS: Security Organization, Security Preventive measures. Security management of response to acts of U.L.I. , Security Equipment.

ASC 212 Flight Regulations

General Definitions and Abbreviations, General Definitions, Abbreviations, Symbols, The International Civil Aviation Organization, Introduction, Aims and adjectives of ICAO, Chicago Convention, Interventions SARP, Certificates and licenses, IAO

Governing bodies, Annexes of ICAO, Personnel Licensing.

IATA: Aims and objectives of IATA, IATA Committees, Investigation and Enforcement Procedures, Technical Reports, Penalties and sanctions, Environmental Protection, Airworthiness Directives, Preventive Maintenance, Nationality and Registration Marks.

ASC 112 Air transport Economies

Air transport Principles, Scheduled air services, Non, Scheduled air services.

The International carriage of revenue load, The privileges of the Air, One, Two, Three, Four, Five, Six, Seven privilege, Mechanism OF Air transport Economic System, Production of A.T.S. ,Marketing of A.T.S.

Economics and Economy, tools of Economic Analysis, Demand, supply and the Market, Government in the mixed Economy, Introduction to welfare Economics.

ASC 411 Aviation Information Systems

General definitions, abbreviations and Introduction to Information system. Data base, SQL application. NOTAM, AIP circular and automated data. Computer networks and information flow charts.

Aviation information system characteristics. Planning based on AIS.