

Syllabus for Mid Semester Examination – I

(August – December, 2018)

Semester: 3rd

Subject: Digital Circuits and Logic Design

Subject Code: CS-14303

Subject Incharge: Harpreet Kaur

Sr. No.	Title	Details
1.	Number System Representation	Binary, Octal, Decimal, Hexadecimal, Number base conversions, 1's, 2's, rth's complements, Signed and unsigned binary numbers. Binary codes - Weighted BCD, Gray code, Excess-3 code, ASCII code and code conversions.
2.	Boolean Algebra	Boolean postulates and laws – De-Morgan's Theorem, Principle of Duality, Boolean arithmetic, Boolean expression – Boolean function, Minimization of Boolean expressions – Sum of Products (SOP), Product of Sums (POS), Minterms, Maxterms, Canonical forms, Conversion between canonical forms, Karnaugh Map minimization and Quine-McCluskey method with Don't care conditions.
3.	Logic Gates and Families	Logic Gates: AND, OR, NOT, NAND, NOR, Exclusive-OR and Exclusive-NOR gates. Realisation of logic functions using gates and Universal gates. Introduction to logic families, Specification and characteristics of logic families, Circuits of RTL, DTL, DCTL, TTL, MOS, CMOS, ECL for realisations of basic gate, Comparison of various logic families.

Syllabus for Mid Semester Examination – I

(August – December, 2018)

Semester: 3rd

Subject: Object Oriented Programming using C++

Subject Code: CS-14305

Subject Incharge: Parminder Kaur Wadhwa

Sr. No.	Title	Details
1.	Object-Oriented Programming Concepts	Introduction, Comparison between procedural programming paradigm and object -oriented programming paradigm, Basic data types, Derived data types, Constants, Tokens, Keywords, Identifiers and variables, Concepts of an object and a class, Abstraction, Encapsulation, Data hiding, Inheritance, Overloading, Polymorphism, Messaging.
2.	Control structures	Input and Output statements in C++, Various operators, Operator precedence, if statement, Switch-case, break, goto, continue, for, while and do-while loops, Dynamic initialization, Type modifiers, Type casting.
3.	Classes and Objects	Implementation of a class, Operations on objects, Relationship among objects, Specifying a class, Creating class objects, Accessing class members, Access specifiers, Static members, Use of const keyword, Friends of a class, Empty classes, Nested classes, Local classes, Abstract classes, Container classes, Bit fields and Classes.
4.	Functions and Arrays	Function components, Passing parameters, Call by reference, Call by value, Return by reference, Inline functions, Default arguments, Function prototyping, Overloaded function, Recursion, Array of objects, Dynamic allocation operators, Dynamic objects, String handling.
5.	Dynamic Memory Management using Pointers	Declaring and initializing pointers, Accessing data through pointers, Pointer arithmetic, Memory allocation (static and dynamic), Dynamic memory management using new and delete operators, Pointer to an object, this pointer, Pointer related problems - dangling/wild pointers, Null pointer assignment, Memory leak and Allocation failures.
6.	Constructors and Destructors	Need for constructors and destructors, Copy constructor, Dynamic constructors, Explicit constructors, Destructors, Constructors and destructors with static members, Initializer lists, Order of execution of constructors and destructors.

Syllabus for Mid Semester Examination – I

(August – December, 2018)

Semester: 3rd

Subject: Internet Methodology

Subject Code: IT-14301

Subject Incharge: Dr. Kamaljit Kaur

Sr. No.	Title	Details
1.	Internet Basics	Introduction to networks and Internet, TCP/IP vs OSI Model, Working of Internet, Modes of Connecting to Internet, Internet Service Providers(ISPs), Internet address, Concept of Subnetting, Standard address, DNS, IPv4 and IPv6
2.	Internet Technologies:	Introduction to various network components like Modem, Router, Bridge, Switches and Gateway, LAN Topologies, Various type of networks, Different type of communication media- Wired and Wireless Media, Troubleshooting utilities like ping, arp, trace route, nslookup, net stat etc.
3.	World Wide Web:	Introduction to Browsers, Telnet and FTP, The idea of hypertext and hyper media; How the web works: HTTP request message-response message-Web Clients Web Servers; MIME types, plugins. The standards- HTML, XML, XHTML and the W3C. Introduction to Web Servers: PWS, IIS, Apache; Microsoft Personal Web Server. Accessing, Setup & using these servers, E-mail: E-mail basics, Protocols, Format of an E-mail Message, Basic E-mail functions, E-mail clients like Netscape messenger, Outlook Express, E-mail Security.

Syllabus for MSE-I (Aug-Dec, 2018)

Semester:- 3rd

Subject Title:- DSPM

Subject Code:- IT-14303

Subject Incharge:- Ranjodh Kaur

Sr. No.	Title	Details
1	Introduction	Definition and brief description of various data structures, operations on data structures, Algorithm development, Complexity analysis, Big O notation, Time space trade-off.
2	Arrays	Linear and Multi-dimensional arrays and their representation, operations on arrays, Linear Search, Binary Search, Sparse matrices and their storage
3	Stacks	Array Representation and Implementation of Stacks, Operations on Stacks, Application of stacks: Conversion of Infix to Prefix and Postfix Expressions, Evaluation of postfix expression using stack, Balanced parenthesis checking.
4	Recursion	Recursive definition and examples of recursion, Tower of Hanoi Problem, tail Recursion
5	Queues	Sequential representation of queue, linear queue, circular queue, operations on linear and circular queue, deque, priority queue.

Syllabus for MSE-1 (Aug –Dec 2018)

Semester :- Third

Subject Title:- Social and Professional Aspects of Information Technology.

Subject Code :- IT-14302

Subject In charge :- Dr. KS Mann

S.No.	Title	Details
1	Privacy and Civil Liberties	HIPPA, FERPA and Gramm-Leach Bliley Act.
2	Intellectual Property	Patent, Copyright, Trademarks, Trade secrets, NDA and Plagiarism
3	Security and Legal issues in Computing	Data Security, System Security and Network Security, Hacker/Crackers, Computer Crimes.
4	Organizational Context	Business Process, Workflow, IT Environment, Organizational Culture and Organizations Structure.
5	Teamwork concepts and issues	Group dynamics, collaboration tools, Personality traits and Leadership styles.
6	Professional and Ethical Issues	Ethical, legal and moral constraints of information systems, Social impact of ICT on society.
7	Professional Communication	Skill of effective oral Presentation.

Syllabus for Mid Semester Examination – I

(August – December, 2018)

Semester: 5th

Subject: Theory of Computation

Subject Code: IT-14503

Subject In charge: Rupinder Kaur

Sr. No.	Title	Details
1.	Strings, Alphabets	Basics of strings, alphabets and languages, Operations on languages, Chomsky Classification of Languages
2.	Finite Automata	Introduction- Basic Mathematical Notation and techniques, Finite State systems, Basic Definitions – Finite Automaton – DFA & N DFA, Finite Automaton with ϵ - moves, Regular Languages and Regular Expression, Equivalence of NFA and DFA , Minimization of DFA, Moore and Mealy Machines.
3.	Regular grammar	Introduction- Types of Grammar, regular expressions, equivalence between regular languages, properties of regular languages and pumping lemma
4.	Context Free Languages	Introduction, Leftmost and Rightmost derivation trees, parsing and ambiguity, ambiguity in grammar and languages.

Syllabus for Mid Semester Examination – I

(August – December, 2018)

Semester: 5th

Subject: Human Computer Interaction

Subject Code: IT-14504

Subject Incharge: Pankaj Bhambri

Sr. No.	Title	Details
1.	Human and Interactive Systems	Human memory, reasoning and problem solving, emotion and psychology, effects of affect, measuring user affect, human information processing and perceptual-motor behavior, human based design of interactive systems, models of interaction, ergonomics, HCI in the software process.
2.	Cognitive and Interaction Models for HCI	Cognitive neuroscience, mental models, Cognitive architectures, The Model Human Processor (MHP), GOMS, Cognitive Complexity Theory, Task loading and stress in Human Computer Interaction, Relationship between stress and cognitive workload, mitigation of stress, Human error Identification in HCI, Interactions models, Status-event analysis.
3.	Technology, Design and Evaluation Techniques for HCI	Input Technologies and Techniques, Haptic Interface, Wearable computers, Interactive design and prototyping, User Interface Management Systems.
4.	Formal Methods in HCI & Design Issues in Critical Systems	Consequences of human errors, catastrophic effects.

Syllabus for MSE-I (Aug-Dec, 2018)

Semester:- 5th

Subject Title:- BIA (Business Intelligence & its applications)

Subject Code:- DEIT-14510

Subject Incharge:- Dr. Pradeep Kumar Jaswal

Sr. No.	Title	Details
1	Introduction	Introduction to the multidisciplinary field of data mining,. Discussion on the evolution of database technology that has led to the need for data warehousing and data mining. Applications of Data Mining.
2	Data Warehousing And OLAP	Evolution of Data Warehousing, Data warehousing Concepts, Benefits of Data Warehousing, Data Warehouse Queries, Problems of Data Warehousing, Architecture of Data Warehouse, Data Warehouse Tools and Technologies, Data Mart, Reasons for creating Data Mart, Issues in Data Mart, Designing Data Warehouse, Dimensionality Modeling, Star Schema, Introduction to Online Analytical Processing (OLAP), OLAP Applications, Benefits of OLAP, Representation of Multidimensional Data, OLAP Tools , MOLAP, ROLAP, HOLAP, DOLAP
3	Clustering	Different types of clustering Methods -Partition based clustering, Density based clustering, and Distribution based clustering, Hierarchical clustering. K-Means and DBSCAN Clustering Algorithm.

Syllabus for Mid Semester Examination – I

(August – December, 2018)

Semester: 5th

Subject: .NET Technologies (Elective-I)

Subject Code: DEIT-14514

Subject Incharge: Sandeep Kumar Singla

Sr. No.	Title	Details
1.	Introduction	.Net Framework and Fundamentals, Building Blocks of the .NET Platform(CLR, CTS, CLS), Managed Code, Microsoft Intermediate Language (MSIL), Just In Time Compiler (JIT) , Assembly, Types of Assembly, Garbage Collection, Strong Name, Global Assembly Cache (GAC), .Net Framework Development Goals
2.	Basic .NET Programming using C#:	Structure of a C# Program, Data Types, Basic Control Structures, classes and objects, Arrays, Introduction to Visual Studio .NET IDE, Compilation options -/doc, /target, /out, /bugreport, FxCOP Tool Demo, Introduction to debugging, Classes and Objects, this keyword, Static, Properties and Indexer, Inheritance Overloading (Compile Time Polymorphism), Overriding and Runtime Polymorphism, Abstract, Interface, Namespaces, Structures, System.Object, Boxing and Unboxing, Typecasting, Memory Management, Exception Handling, Collection, Basic Windows Controls, Delegates, Events and Event Handling, Assembly, Attributes, File Handling, Serialization

Syllabus for Mid Semester Examination – I

(July – December, 2018)

Semester: 5th

Subject: Discrete Mathematics

Subject Code: IT-14501

Subject Incharge: Er. Hanit Karwal

Sr. No.	Title	Details
1.	Fundamentals of Sets	Operations on sets, Subsets, Types of sets, Ordered pairs, Proofs of general identities of sets, Classes of sets and partitions, Inclusion and exclusion principle
2.	Fundamentals of Relations	Properties of relations, Types of relations, Composition of relations, Closure properties of relations, Equivalence relations, Compatibility relations, Partial order relation
3.	Fundamentals of Functions	Introduction and types of functions, Composition of functions, Invertible function, Hashing functions, Recursively defined functions.
4.	Propositional and Predicate Logic	Propositional logic, Truth tables, Normal forms (conjunctive and disjunctive), Validity of well-formed formula, Propositional inference rules, Predicate logic, Universal and existential quantifiers
5.	Combinatorial Mathematics	Basic counting principles, Permutations and combinations, Pigeonhole principle.
6.	Recurrence Relations	Solving homogeneous and non-homogeneous recurrence relations, Generating function

Syllabus for Mid Semester Examination – I (Aug-Dec, 2018)

Semester:- 5th

Subject Title:- Advanced Web Technologies (Elective1)

Subject Code:- DEIT-14516

Subject Incharge:- Kiran Jyoti

Sr. No.	Title	Details
1	HTML5 Framework- Bootstrap	Introduction: Introduction to Bootstrap, Basic HTML Template, Default Grid System, Fluid Grid system, Bootstrap CSS: Typography, Code, Tables, Forms, Buttons, Images, Icons, Bootstrap Layout Components: Dropdown menus, Button Groups, Navigation Elements, Navbar, Pagination, Alert Bars, Bootstrap Javascript Plugins: Overview, Transitions, Modal, Scrollspy, Toggleable Tabs, Tooltips, Popover, Alerts, Buttons, Collapse, Carousel, Typeahead, Affix
2	MVC Approach for Web Applications	Introduction to MVC: Introduction, Popular MVC Framework, Design Patterns

Syllabus for MST-1 (Aug-Dec 2018)

Semester: 5th

Subject Title: Advanced Computer Networks (Elective-I)

Subject Code: DEIT-14508

Subject Incharge: Dr. Amit Kamra

Sr.No	Title	Details
1.	Internetworking:	Half and Full Duplex Ethernet, Ethernet at the Data Link Layer, Ethernet at the Physical Link Layer, Ethernet Cabling: Straight-through, Crossover and Rolled Cable, Data Encapsulation, Three-Layer Hierarchical Network Model .
2.	TCP Protocols:	Internet Layer Protocols: IP, ICMP, ARP, RARP; Host to Host Layer Protocols: TCP, UDP; Application Layer Protocols: Telnet, FTP, TFTP, NFS, SMTP, LPD, X Window, SNMP, DNS, and DHCP.
3.	Switching:	Overview of Switch, Unmanaged and Managed Switches, Switch Administrative Configurations, Viewing, Saving and Erasing Configurations,

Syllabus for MSE-I (Aug-Dec, 2018)

Semester:-5

Subject Title:-Programming in Java

Subject Code:-IT-14502

Subject Incharge:- Dr. Akshay Girdhar

Sr No.	Title	Details
1	TheHistoryandEvolutionofJava	Java'sLineage, TheCreationofJava, HowJavaChangedtheInternet, Java'sMagic:TheBytecode, TheJavaBuzzwords, TheEvolutionofJava
2	AnOverviewofJava	Object-OrientedProgramming, Basic Program in Java, Java Typical Environment, Lexical Issues
3	DataTypes, Variables, and Arrays	JavaisaStronglyTypedLanguage, ThePrimitiveTypes, Integers, Floating-PointTypes, Characters, Booleans, Literals, Variables, TypeConversionandCasting, AutomaticTypePromotioninExpressions, Arrays, Strings
4	Operators	ArithmeticOperators, TheBitwiseOperators, RelationalOperators, Boolean, LogicalOperators, TheAssignmentOperator, The?Operator, OperatorPrecedence, UsingParentheses
5	ControlStatements	Java'sSelection Statements, IterationStatements, JumpStatements

Syllabus for Mid Semester Examination – I

(August – December, 2018)

Semester: 7th

Subject: Agile Software Development (Elective-III)

Subject Code: DEIT-14705

Subject Incharge: Sandeep Kumar Singla

Sr. No.	Title	Details
1.	Fundamentals of Agile	The Genesis of Agile, Introduction and background, Agile Manifesto and Principles, Plan-driven and agile development, Extreme Programming: Practices, user stories, refactoring, pair programming, testing; Agile Project Management, Scaling Agile methods
2.	Agile Scrum Framework	Introduction to Scrum, Project phases, Agile Estimation, Planning game, Product backlog, Sprint backlog, Iteration planning, User story definition, Characteristics and content of user stories, Acceptance tests and Verifying stories, Project velocity, Burn down chart, Sprint planning and retrospective, Daily scrum, Scrum roles –Product Owner, Scrum Master, Scrum Team , Scrum case study, Tools for Agile project management
3	Agile Testing	Overview, ten principles for agile testers , The Agile lifecycle and its impact on testing, Test - Driven Development (TDD), xUnit framework and tools for TDD, Testing user stories - acceptance tests and scenarios, Planning and managing testing cycle, Exploratory testing, Risk based testing, Regression tests, Test Automation, Tools to support the Agile tester

Syllabus for Mid Semester Examination – I

(August – December, 2018)

Semester: 7th

Subject: Corporate IT Management (Elective-IV)

Subject Code: DEIT-14721

Subject Incharge: Sidharath Jain

Sr. No.	Title	Details
1.	Basic concepts:	Understanding information systems - data and information, creating information, quality of information, categorization of corporate information systems.
2.	IT management:	Overview, IT infrastructure, IT management disciplines, IT managers, disadvantages of IT management.
3.	Acquiring and developing BIS:	Methods of software acquisition - initiating system development, BIS acquisition, rapid application development.
4.	Corporate Project Management:	Project management process and methodology, System Analysis, System Design, Implementation and Maintenance.
5.	Enduser computing:	End user IS services, managing network services, end user development, providing end user services

Syllabus for Mid Semester Examination – I (Aug-Dec, 2018)

Semester:- 7th

Subject Title:- Business Enterprise Application

Subject Code:- IT-14701

Subject Incharge:- Kiran Jyoti

Sr. No.	Title	Details
1	Introduction to enterprise applications	Introduction to enterprise applications and their types, integration with legacy systems, life cycle of raising an enterprise application, integration with partners, heterogeneous environment, introduction to skills required to build an enterprise application, key determinants of successful enterprise applications, and measuring the success of enterprise applications, ETL, direct data integration, middleware requirements
2	Inception of enterprise applications	Inception of enterprise applications, enterprise analysis, business modeling, requirements elicitation, use case modeling, prototyping, non functional requirements, requirements validation, planning and estimation
3	Concept of architecture	Concept of architecture, views and viewpoints, enterprise architecture, logical architecture, technical architecture - design, different technical layers, best practices, data architecture and design – relational, XML, and other structured data representations, Infrastructure architecture and design elements - Networking, Internetworking, and Communication Protocols, IT Hardware and Software, Middleware, Policies for Infrastructure Management, Deployment Strategy, Documentation of application architecture and design

Syllabus for MST-1 (Aug-Dec 2018)

Semester: 7th

Subject Title: Computer Forensics (Elective-IV)

Subject Code: DEIT-14718

Subject Incharge: Dr. Amit Kamra

Sr.No	Title	Details
1.	Computer Forensics:	Computer Forensics Fundamentals- Introduction to Computer Forensics, Use of Computer Forensics in Law Enforcement, Computer Forensics Assistance to Human Resources/ Employment Proceedings Computer Forensics Services, Benefits of Professional Forensics Methodology, Steps Taken by Computer Forensics Specialists.
2.	Computer Forensics Technologies:	Types of Military Computer Forensic Technology, Types of Law Enforcement: Computer Forensic Technology, Types of Business Computer Forensic Technology, Specialized Forensics Techniques, Hidden Data, Spyware and Adware, Encryption Methods and Vulnerabilities, Protecting Data from Being Compromised, Internet Tracing Methods, Security and Wireless Technologies, Avoiding Pitfalls with Firewalls, Biometric Security Systems.[
3.	Computer Forensics Systems:	Internet Security Systems, Intrusion Detection Systems, Firewall Security Systems, Storage Area Network Security Systems, Network Disaster Recovery Systems, Public Key Infrastructure Systems, Wireless Network Security Systems,

Syllabus for Mid Semester Examination – I

(July – December, 2018)

Semester: 7th

Subject: ICT in Agriculture and Rural Development

Subject Code: IT-14702

Subject Incharge: Yadvir Kaur

Sr. No.	Title	Details
1.	Introduction	Introduction to ICT, ICT in Agricultural and Rural Development.
2.	ICT Infrastructure, Appliances and Services	Making ICTs Affordable in Rural Areas, Mobile Money Moves to Rural Areas, M-PESA's :Pioneering Money Transfer Service, Delivering Content for Mobile Agricultural Services.
3.	Impact of Mmobile Devices on Agriculture and Rural Development	Key Benefits and Challenges Related to Mobile Phones and Agricultural Livelihoods, General Principles for Using Mobile Phones in Agricultural Projects.
4.	Increasing Productivity through ICT	Increasing Crop, Livestock, Fishery, Dairy Productivity through ICT, Preventing Yield Losses through Proper Planning and Early Warning Systems . IT Tools for India's with applications in Dairy Industry.

Syllabus for MSE-I (Aug-Dec, 2018)

Semester:- _7th^h

Subject Title:- Engineering Entrepreneurship

Subject Code:- _IT-14703

Subject Incharge:- Dr. Pradeep Kumar Jaswal

Sr. No.	Title	Details
	Entrepreneurship and the Entrepreneurial Mind-Set	The nature of entrepreneurship, entrepreneur's thinking, the intention to act entrepreneurially, Entrepreneur background and characteristics, Role models and support systems, sustainable entrepreneurship.
	Corporate Entrepreneurship	Reasons for interest in corporate entrepreneurship, managerial versus entrepreneurial decision making, establishing corporate entrepreneurship in organization.
	Generating and Exploiting New Entry opportunities	New entry, generation of new entry of opportunity, entry strategy for new entry exploitation, risk reduction strategies for new entry exploitation.
	Creativity and the Business Idea	ideas from trend analysis, trends, sources of new ideas, methods of generating ideas, creative problem solving, creativity and entrepreneurship, innovation, entrepreneurial innovation, opportunity recognition, product planning and development process, e-commerce and business startup.
	Identifying and Analyzing Domestic and International Opportunities	Opportunity recognition and the opportunity assessment plan, information sources, sources of information for start-up entrepreneurs in India, the nature of international entrepreneurship, the importance of international business to the firm, international versus domestic entrepreneurship.
	Protecting the Idea and Other Legal Issues for the Entrepreneur	intellectual property, need for a lawyer, selection of a lawyer, legal issues in setting up the organization, patents, business methods patents, startup without a patent, trademarks, copyrights, trade secrets and noncompetition agreements, licensing, product safety and liability, insurance, Sarbanes-Oxley act,

		Contracts.
	The Business Plan	planning as part of the business operation, writing the business plan, scope and values of the business plan, evaluation of the plan, presenting the plan, information needs, financial information needs, using the internet as a resource tool, using and implementing the business plan, reasons of business plan failure.

Syllabus for Mid Semester Examination – I

(August – December 2018)

Semester: - 7th

Subject Title: - Cloud Infrastructure and Services (Elective-III)

Subject Code: - DEIT-14713

Subject Incharge: - Prof. Sachin Bagga

Sr. No.	Title	Details
1.	Overview of Computing Paradigm	Recent trends in Computing: Grid Computing, Cluster Computing, Distributed Computing, computing vs. Grid computing.
2.	Introduction to Cloud Computing:	Cloud Types: The NIST Model, The Cloud Cube Model, Deployment models, Service Models, Benefits of Cloud Computing, Disadvantages of Cloud Computing, Role of Open Standards
3.	Cloud Concepts and Technologies:	Virtualization: Definition, Characteristics and benefits of virtualization, Virtualization and cloud computing
	Cloud Architecture and Services	Cloud computing reference model architecture, Common cloud management platform. Cloud service models: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).