

Syllabus for Mid Semester Examination – II

Syllabus for Mid Semester Examination – II

(Jan -June, 2019)

Semester: 4th

Subject: Data communication and Computer Networks

Subject Code: IT-14403

Subject In charge: Rupinder Kaur

Sr. No.	Title	Details
1	Data Link Layer	Design issues, Framing, Error detection and correction codes: checksum, CRC, hamming code, Data link protocols for noisy and noiseless channels, Sliding Window Protocols: Stop & Wait ARQ, Go-back-N ARQ, Selective repeat ARQ, Data link protocols: HDLC and PPP
2.	Medium Access Sub-Layer	Static and dynamic channel allocation, Random Access: ALOHA, CSMA protocols, Controlled Access: Polling, Token Passing, IEEE 802.3 frame format, Ethernet cabling, Manchester encoding, collision detection in 802.3, Binary exponential back off algorithm
3	Network Layer	Design issues, IPv4 classful and classless addressing, subnetting, Routing algorithms: distance vector and link state routing, Congestion control: Principles of Congestion Control, Congestion prevention policies, Leaky bucket and token bucket algorithms

Syllabus for MST 2

Operating System (CS-14402)

Subject Incharge: Parminder Kaur Wadhwa

1. **Deadlocks:** Introduction to deadlocks, Conditions for deadlock, Resource allocation graphs, Deadlock prevention and avoidance, Deadlock detection and recovery. [5]

2. **Memory Management:** Background, Overlays, Logical versus physical address space, Memory management policies, Fragmentation types, Partitioned memory managements, Paging, Segmentation, Segmentation with paging, Need of Virtual memories, Demand Paging, Page replacement Algorithms – FIFO, Optimal, LRU. Thrashing, Cause of Thrashing, Local and Global page replacement. [9]
3. **Secondary Storage:** Disk structure, Disk scheduling – FCFS, SSTF, SCAN, C-SCAN, LOOK, C-LOOK. Disk Management, Disk Formatting, Boot blocks, Bad blocks. [4]
4. **File Management:** Concept of files, File types, Access methods, File attributes, File operations, Allocation methods – Contiguous, Linked, Indexed. File System Architecture, Layered Architecture, Protection mechanisms. [5]
5. **Case Studies:** Windows, UNIX and LINUX.

Semester: 4th

Subject: DBMS

Subject Code: IT-14401

Subject In charge: Kamaljit Kaur

DBMS IT-14401

1. Transaction management and concurrency control
2. Recovery System
3. NoSQL Database
4. Advanced Topics
5. Normalization

Semester: 6th

Subject: Management Information System

Subject Code: OEIT-14602

Subject Incharge: Pankaj Bhambri

Sr. No.	Title	Details
1.	Business Process Integration with IT	Introduction, Business Process Integration- Business processes-example of a complex process, Motivation for Enterprise Systems, Enterprise Resource Planning systems- finance and accounting module-human resource management module-manufacturing and operations module- sales and marketing module
2.	SCM, CRAM and International Systems	Introduction to Supply Chain Management Systems & Customer Relationships Management Systems, Challenges of Enterprise Systems Implementations, International Information Systems-Outsourcing and off-shoring, Introduction to E-commerce Technology, doing business over internet- networks-electronic data interchange (EDI)-online payment technology, E-business
3.	Managing IT Function & Decision Support Systems	Introduction, Challenges of Managing the IT function- Modern IT environment-Centralization versus Decentralization-IT security-Technology selection, Vendor Management- vendor selection-vendor contracts and service levels-Ongoing relationship management-vendor retention or termination, Understanding: DSS, MIS, ESS, Analytics and Business Intelligence techniques

Syllabus for Mid Semester Examination – II (Jan-June, 2019)

Semester:- 6th

Subject Title:- Big Data Analytics

Subject Code:- DEIT-14609

Subject Incharge:- Kiran Jyoti

Sr. No.	Title	Details
1	Apache Spark	Spark Overview, RDD Fundamentals, Spark SQL and Data Frames, Spark Job Execution, Cluster Architectures for Spark, Intro to Spark Streaming,

		Machine Learning Basics (SparkML).
2	Machine Learning	Defining Machine Learning, Applications of Machine Learning, Clustering ,Classification, Association rules, Linear Regression, Logistic Regression
3	NoSQL Databases	NoSQL Basic Operations, Working with HBase/Cassandra, Working with Document Database, Working with Titan Graph, Applications of NoSQL.
4	Case study	Recommendation Engines, Fraud Detection, Network Analysis with Graph Database

Syllabus for Mid Semester Examination – II

(Jan – May, 2019)

Semester: 6th

Subject: E-Commerce

Subject Code:DEIT-14611

Subject Incharge:Harpreetkaur

Sr. No.	Title	Details
1.	International Agencies	Role of International Agencies involved in addressing these issues and their future initiatives, United Nation Commission in International Law OECD, World Trade Organization, World Intellectual Property Organization
2.	E-Business Framework	Challenges and strategy creation, E-business blueprint creation, EBusiness project planning checklist, an execution blueprint, Failures of E-Business Initiatives
3.	Advanced Topics	Mobile Commerce, Wireless Application Protocol (WAP), Generations of Mobile Wireless Technology, Components of Mobile Commerce, Networking Standards for Mobiles, Electronic Data Interchange, E-CRM, E-SCM, , E-Security, E-Banking, E-Trading and E-Marketing
4.	Policy and Implementation	Legal and ethical policy issues, Protection of privacy and Intellectual property

Syllabus for Mid Semester Examination – II

(Jan – May, 2019)

Semester: 6th

Subject: Probability and Statistics

Subject Code: IT-14603

Subject Incharge:Harpreetkaur

Sr. No.	Title	Details
1.	Correlation Analysis:	Significance, types, Methods of correlation analysis: Scatter diagrams, Graphic method, Karl Pearson's correlation co-efficient, Rank correlation coefficient, Properties of Correlation. Regression analysis: meaning, application of regression analysis, difference between correlation & regression analysis, regression equations, standard error and Regression coefficients. curve fitting.
2.	Theory of Probability	Definition, basic concepts, events and experiments, random variables, expected value, types of probability, classical approach, relative frequency and subjective approach to probability, theorems of probability, addition, Multiplication and Bays Theorem and its application.
3.	Probability Distributions	Difference between frequency and probability distributions, Binomial, Poisson and normal distribution

Syllabus for Mid Semester Examination – II

Semester: 6th

Subject: Information Assurance and Security

Subject Code: IT-14601

Subject Incharge:Hanit kaur

Key Management: Introduction, Key Management: Generations, Distribution, Updation, Digital Certificate, Digital Signature, PKI. Diffie Hellman Key Exchange. One Way Authtication, Mutual Authentication, Neeham Schroeder Protocol.

Network Security:Intrusion Detection Systems: Introduction, Anomaly Based, Signature Based, Host Based, Network Based Systems.

Security Management and Applications:ISO 27001 Security Standard: Introduction, Evolution of standard, Organizational Context, Implementation, Certifications and benefits. Electronic Payment: Introduction,

Payment types, Smart Cards, Chip card transactions and attacks, Payment over internet, Mobile Payments, Electronic Cash.

Cyber Crimes & Laws :Introduction, Computer Forensics, Online Investigative tool, tracing and recovering electronic evidence, Internet fraud, Identity Theft, Industrial Espionage.

Syllabus for Mid Semester Examination – II (Jan-June, 2019)

Semester:- 8th

Subject Title:- Engineering Entrepreneurship

Subject Code:- IT-14703

Subject Incharge:- Pradeep Jaswal

Sr. No.	Title	Details
1	The Marketing Plan	Industry Analysis, Marketing research for the new venture, difference between a business plan and a marketing plan. Preparing the marketing plan, characteristics of a marketing plan, the marketing mix, steps in preparing the marketing plan
2	The Organizational Plan	Developing the management team, legal forms of business, tax attributes of forms of business, the limited liability company versus the S-corporation, designing the organization, building the management team and a successful organization culture, the role of a board of directors, the board of advisors.
3	The Financial Plan	Operating and capital budgets, forecasting sales, pro forma income statements, pro forma cash flow statement, pro forma balance sheet, break-even analysis, pro forma sources and applications of funds statement, software packages.
4	Sources of Capital	An overview, personal funds, family and friends, commercial banks, role of Government Agencies in small-business

		financing, research and development limited partnerships, Government grants, Private placement, bootstrap financing, financing the business, informal risk-capital market, venture capital, valuing your company, going public
5	Strategies for Growth and Managing the Implications of Growth	Growth strategies, implications of growth for the firm, overcoming pressures on existing human resources, overcoming pressures on management of employees, overcoming pressures on Entrepreneur's time, overcoming pressures on existing financial resources, using external parties to help grow a business, joint ventures, acquisitions, mergers, leverage buyouts, franchising.
6	Succession Planning and Strategies for Harvesting and Ending the Venture	Exit strategy, succession of business, option for selling the business. Bankruptcy laws for companies in India: SICA(BIFR/AAIFR) and the companies bill, Strategy during reorganization.
7	Case Study	Case studies related to successful entrepreneur

Syllabus for Mid Semester Examination – II

(January – May, 2019)

Semester: 8th

Subject: Corporate IT Management

Subject Code: DEIT-14721

Subject Incharge: Pankaj Bhambri

Sr. No.	Title	Details
1.	End user computing	End user IS services, managing network services, end user development, providing end user services, Case Study: Using network computers to reduce the total cost of ownership.
2.	Managing E-business	E-business strategy and analysis, strategic analysis, strategic objectives & strategic implementation, managing e-business infrastructure.
3.	Managing Information Security	Need of control, control strategies, types of controls, techniques of controlling information systems, threats related to internet services. Case Study: Computer Viruses.
4.	Ethical, legal and moral constraints on information systems	Management issues, Professionalism, ethics and morality, code of conduct, social issues, moral issues, legal issues, software piracy.

Syllabus for MSE-2 (Jan-June 2019)

Semester: 8th

Subject Title:- Agile Software Development (Elective –III)

Subject Code:- DEIT-14705

Subject Incharge :- Sandeep Kumar Singla

Sr. No.	Title	Details
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1	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.
2	Agile Software Design and Development	Agile design practices, Role of design Principles including Single Responsibility Principle, Open Closed Principle, Liskov Substitution Principle, Interface Segregation Principles, Dependency Inversion Principle in Agile Design, Need and significance of Refactoring, Refactoring Techniques, Continuous Integration, Automated build tools, Version control.
3	Industry Trends	Market scenario and adoption of Agile, Agile ALM, Roles in an Agile project, Agile applicability, Agile in Distributed teams, Business benefits, Challenges in Agile, Risks and Mitigation, Agile projects on Cloud, Balancing Agility with Discipline, Agile rapid development technologies.

Syllabus for MSE-2 (Jan-June 2019) MCA

Semester: 4th

Subject title: - Advanced Operating System

Subject Code:- MCA-15403

Subject In charge: - Dinesh Anand

S. No.	Title	Detail
1.	Cluster and Grid Computing	Introduction to Cluster Computing and MOSIX OS, Introduction to the Grid, Grid Architecture Computing Platforms: Operating Systems and Network Interfaces, Grid Monitoring and Scheduling, Performance Analysis, Case Studies.
2.	Cloud Computing	Introduction to Cloud, Cloud Building Blocks, Cloud as IaaS, PaaS and SaaS Hardware & Software Virtualization, Virtualization of OS – Hypervisor KVM, SAN & NAS backend concepts. Mobile Computing: Introduction, Design Principals, Structure, Platform and Features of Mobile Operating Systems (Android, IOS, Windows Mobile OS)

Syllabus for Mid Semester Examination – II (Jan-June, 2019)

Semester:- 4th

Subject Title:- E-Commerce & Web Application Development

Subject Code:- MCA-15402

Subject Incharge:- Kiran Jyoti

Sr. No.	Details
1	WWW concepts, Client/Server Computing, Web Servers and Clients, Web Browsers, Protocols and Ports, IP Address, Domains & DNS, URL, A Systematic approach to Website creation, Creating interactive and dynamic web pages, Factors in E-Commerce Website design, Web and Database integration, Website Optimization strategies E-Commerce security, threats, managing security issues through internet security protocols and standards, and Firewall
2	Review of HTML, HTML tags; text formatting; text styles; lists: ordered, unordered and definition lists; layouts; adding graphics; tables; linking documents; images as hyperlinks; frames and layers; data collection using forms. CSS: Introduction, consistent web designing using CSS Java Script: Introduction, DOM, documents, forms, statements, functions, objects, client side interactive web page design, input validation, event handling PHP: Introduction, server side dynamic programming, MYSQL database access

Master of Computer Applications

Syllabus for MST – II

Subject Name: Network Security & Administration

Subject Code: DEMCA – 15507 (6th Sem)

Teacher Name: Jasbir Singh Saini

Digital Signatures , Digital Certificates, Certificate Authority and Key management Kerberos, X.509 Directory Authentication Service.IP Security : Security Problems of IP, Security Objectives, IP Security Protocol Modes, Authentication Header, Security Payload.Firewall Characteristics, Types of Firewalls and their practical use, NAT, Email Security: PGP, S/MIME Web Security: Security Socket Layer, Transport Layer Security, Secure Electronic Transaction

Syllabus for MSE-2(April 2019)

Semester: 6th

Subject title:- Interactive Computer Graphics

Subject Code:- MCA-15501

Subject Incharge: - Dinesh Anand

S. No.	Title	Detail
1.	3-dimensional Graphics	Geometric transformations (translation, Scaling, Rotation, Reflection, Shearing), Composite transformations Parallel and Perspective Projections. Bezier curves and its properties, B-Spline curves. Fractals, Classification of fractals.
2.	Hidden line and surface elimination algorithms:	Z-buffer, Painters algorithm, scan-line, sub-division, Shading and Reflection: Diffuse reflection, Specular reflection, refracted light. Halftoning, Dithering techniques. Surface Rendering Methods: Constant Intensity method, Gouraud Shading, Phong Shading (Mash Band effect). Morphing of objects.

Semester: 6th

Subject Title:- Web Technologies

Subject Code:- MCA-15502

Subject Incharge :- Sandeep Kumar Singla

Sr. No.	Title	Details
1	Section C	Introduction to Web Services, Use of Web Services, Types of Web Services, Introduction to SOAP, Syntax of SOAP, Envelope, Header and Body, Introduction to JSON, Syntax and Use.
2	Section D	Introduction to Content Management System CMS (Types, Usages, Benefits), Introduction to Wordpress- Use, Building a simple website using Wordpress, Study of Wordpress dashboard, Customization of Wordpress website, Creation of Network Websites.

Syllabus for Mid Semester Examination – II (Jan-June, 2019)

Semester:- 6th

Subject Title:- Object Oriented Analysis and Design using UML

Subject Code:- MCA-15503

Subject Incharge:- Pradeep Jaswal

Sr. No.	Title	Details
1	UML Diagram	use case diagram, Class diagram, Object diagrams, Aggregation activities on real objects(Aggregation, Generalization relations, Association and multiplicity), Activity diagram(Activity and state diagram), Interaction Diagram(Sequence diagram, Collaboration diagram, Component diagram.)
2	OO Methodologies	OO Methodologies (Structured Analysis, Structured Design (SA/SD), Jackson Structured Development (JSD), Information Modeling Notations), OMT as SE Methodology, OO Impact, OO Style (Reusability, Extensibility, Robustness, Programming-in-the-large), User centric design and usability principles, Reverse Engineering, Difficulties and risks in use-case modeling and UI design, System testing and maintenance. Use of open source tools for UML Design such as Plant UML, Argo UML.