M.Sc. Information Technology (IT) (Semester System)

Syllabus for the Batch from Year 2022 to Year 2024

Semester – III

MIT-301: Network Protocols

Time: 3 Hrs. M. Marks: 100

Month wise Division	Syllabus Unitization
August	**SECTION–A -** Review of networking Technologies & Internetworking Concepts and Architectural Model: Application level and Network level Interconnection, Properties of the Internet, Internet Architecture, Interconnection through IP Routers Internet Addresses, Mapping internet addresses to Physical addresses (ARP) & Determining an internet addresses at Startup (RARP): Universal identifiers, three Primary classes of IP addresses, network and Broadcast Addresses, Limited Broadcast, Dotted decimal Notation, weakness in Internet addressing, Loopback addresses.
September	**SECTION–-B -** Address resolution problem, two types of Physical addresses, resolution through Direct Mapping, Resolution Through Dynamic Binding. address Resolution Cache , ARP to other Protocols. Reverse address resolution protocol, timing RARP transaction, Primary and backup RARP severs. Internet Protocol Connectionless Data Gram Delivery & Internet Protocol: Routing IP **SECTION–-C -** Datagrams: The concepts of unreliable delivery, connectionless delivery system, purpose of the internet protocol. the internet datagram. Routing in an internet, direct and indirect delivery, table driven IP routing, next Hop Routing, default routes, host specific routes, The IP routing Algorithm, handling incoming datagrams, Establishing routing tables Internet Protocol: Error and Control Message(ICMP) & Subnet and Supernet Address Extension: The internet ,control message protocols, Error reporting versus error detection. ICMP message format. Detecting and reporting various network problems through ICMP. Transparent Router, Proxy ARP, subset addressing, implementation of subnets with masks representation, Routing in the presence of subsets, a unified algorithm.
October-November	**SECTION–-D -** User Datagram Peotocol(UDP) : Format of UDP message UDP pseudo header UDP encapsulation and Protocols layering and the UDP checksum computation. UDP multiplexing, De-multiplexing and Ports. Reliable Stream Transport service (TCP) : The Transmission control Protocol, pots, Connections and Endpoint , passive and active opens the TCP segment format . TCP implementation issues.

Prescribed Book

Book Name– TCP-IP Network Administration

Author - Hunt Craig.

MIT-302: Advanced Web Technologies

Time: 3 Hrs. M. Marks: 100

Month wise Division	Syllabus Unitization
August	**SECTION–A** Fundamentals of Web Development: Introduction to HTML, CSS, JAVA SCRIPT (Client side scripting), Server Site Development using PHP and ASP.NET. , Standard Controls: Display information, Accepting user input, Submitting form data, Displaying images, Using the panel control, Using the hyperlink control.
September	**SECTION–B** Validation Controls: Using the required field validator control, Using the range validator controlusing the compare validator control, Using the regular expression validator control, Using the custom validator control, Using the validation summary controls. Rich Controls: Accepting file uploads, Displaying a calendar, Displaying advertisement, Displaying different page views, Displaying a wizard. Designing Website With Master Pages: Creating master pages, Modifying master page content, Loading master page dynamically. **SECTION–C** SQL Data Source Control: Creating database connections, Executing database commands, Using ASP.NET parameters with the SQL data source controls, Programmatically executing SQL data source commands, Cashing database data with the SQL data Source controls. List Controls: Dropdown list control, Radio button list controls, list box controls, bulleted list controls, custom list controls. Grid View Controls: Grid view control fundamentals, using field with the grid view control, Working with grid view control events extending the grid view control.
October-November	**SECTION–D** Building Data Access Components with ADO.NET: Connected the data access, Disconnected data access, Executing a synchronous database commands, Building data base objects with the .NET framework. Maintaining Application State: Using browser cookies, using session state, using profiles. Caching Application Pages and Data: page output caching, partial page caching, data source caching, data caching, SQL cache dependences.

Prescribed Book

Book Name– Advanced Web technologies using asp.net

Publisher –Kalyani Publishers

MIT-303: Linux Administration

Time: 3 Hrs. M. Marks: 100

Month wise Division	Syllabus Unitization
August	**SECTION–A -** Introduction: Introduction to LINUX, Installing LINUX, Partitions, LILO, Installing software packages. Updating with Gnome, Updating with KDE, Command line installing. File Structure: LINUX files, File structure, File & Directory permission, Operations on a file. **SECTION–-B -** Administering Linux: Creating a user A/C, modifying a user A/C, Deleting a user A/C, Checking Disk Quotas, System Initialization, System start-up & shutdown, Installing & managing H/W devices.
September	**SECTION–-B -** Setting Up A LAN: Understanding LAN, Setting up Wireless LAN, Understanding IP address, Troubleshooting LAN. **SECTION–-C -** Setting Up Print Server: Choosing CUPS, Working with CUPS Pointing, Managing Pointing, Configuring Point Server. Setting Up File Server: Setting up an NFS, SAMBA, Installing & Running send mail. **SECTION–-D -** Setting Up Web Server: Configuring the Apache Server, Starting & stopping the server, Monitoring Server Activities. Setting Up DHCP & NIS: Setting up DHCP Server, Setting up DHCP Client,
October-November	**SECTION–-D -** Setting up Network Information Service. Troubleshooting: Troubleshooting LINUX in GRUB mode

<u>Prescribed Book</u>

<u>Book Name</u> – Linux Administration

<u>Author</u> – Ikvinderpal Singh

<u>Publisher</u> – Kalyani Publishers

Month wise Division	Syllabus Unitization
August	**SECTION–A** Introduction : Concept of a system, stochastic activities, continue and discrete system, system modeling, mathematical modeling, principle used in modeling. Simulation of Systems : Concepts of simulation of continuous systems with the help of two examples; use of integration formulas; concepts of discrete system simulation with the help of two examples, Generation of random numbers, Generation of non- uniformly distributed numbers. **SECTION–-B** Simulation of Queuing Systems : Rudiments of queuing theory, Simulation of Single-Server queue, two-server queue, general queues.
September	**SECTION–-B** Simulation in Inventory Control and Forecasting : Elements of inventory theory, inventory models, Generation of Poisson and Erlang variats, forecasting and regression analysis. **SECTION–-C** Design and Evaluation of Simulation Experiments : Experimental layout and validation Simulation Languages : Continuous and discrete simulation languages, Block-Structured continuous simulation languages, expression based languages,
October-November	discrete system simulation languages, simscript, GPSS, SIMULA, Simpack, GASP IV, CSIM, factors in selection of a discrete system simulation languages. **SECTION–D** Case Studies: Analytic Vs Simulation Models, Applications to Operating Systems, Databases, Computer Networks Architectures.

Prescribed Book

Book Name – System Simulation

Author – Narsingh Deo

Publisher – Prentice Hall

MIT-305: Microprocessor and its Applications

Time: 3 Hrs. M. Marks: 100

Month wise Division	Syllabus Unitization
August	**SECTION–A** Introduction: Introduction to Microprocessor, General Architecture of Microcomputer System. Microprocessor Units, Input unit, Output unit, Memory unit and auxiliary storage unit. Architecture of 8086/8088 Microprocessor: Description of various pins, configuring the 8086/8088 microprocessor for minimum and maximum mode systems, Internal architecture of the 8086/8088 microprocessor, system clock, Bus cycle, Instruction execution sequence **SECTION–-B** Memory Interface of 8086/8088 Microprocessor: Address space and data organization, generating memory addresses hardware organization of memory address space, memory bus status code, memory control signals.
September	**SECTION–-B** read/write bus cycles, program and data storage memory, dynamic RAM system **SECTION–-C** Input/Output Interface of the 8086/8088 Microprocessor : I/O interface, I/O address space and data transfer, I/O instructions, I/O bus cycles, Output ports
October-November	**SECTION–-C** 8255A Programmable Peripheral Interface (PPI), Serial communication interface (USART and UART) – the RS- 232 C interface. **SECTION–D** Interrupt Interface of 8086/8088 Microprocessor, Types of Interrupt, Interrupt Vector Table (IVT)

Prescribed Book

Book Name – Microprocessor and its Applications

Author – Rachhpal Singh

Publisher – Kalyani Publisher

MIT-306P: Programming Laboratory-III

(Based on Advanced Web Technologies using ASP.NET)

Time: 3 Hrs.   **M. Marks: 100**

Programming Laboratory based on Advanced Web Technologies using ASP.NET and LINUX.