THIRUVALLUVAR UNIVERSITY
M. Sc INFORMATION TECHNOLOGY
REGULATIONS
2020-2021

Program Outcomes

S.No	OUTCOMES
PSO1	**Broadly Educated and Versatile.** Able to get foundational knowledge, learning capacity, adaptability and to bear analytical and computational approaches on changing societal and technological challenges.
PS02	**Inspiring and Collaborative.** Able to be a good leader and a responsible citizen whose strengths come from an ability to draw on and contribute to diverse teams, expertise, and experiences.
PS03	**Innovative.** Drives scientific and societal advancement through technological innovation and entrepreneurship.
PS04	**Engaged.** Able to remain engaged with the existing norms and regulations prescribed by the university, technical and scientific professional communities.
PSO5	**Broadly Educated and Versatile.** Able to get foundational knowledge, learning capacity, adaptability and to bear analytical and computational approaches on changing societal and technological challenges.

SEMESTER-I

Sub.Name: Operating System **No.of Hours per week: 5**

Sub.Code: DIT11 **Credit: 3**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
I (Regulation 2021-2022)	Operating System	3	COl -The student will understand the concept of over time of operating system , various components of operating system , the role of operating system in a distributed system. CO2 - Understand the concept of hand held system , multiprocessor system, System calls, CPU scheduling algorithms. CO3 - Understand the concept of process management, Threads, Multithreading models, Process synchronization, semaphores , Deadlocks. CO4 - Understand the concept of memory management, swapping, contiguous memory allocation, paging, segmentation, virtual memory. CO5 - Understand the concept of File concepts, Access methods, file system implementation, allocation methods, free space management, disk scheduling, recovery.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	M	M	M	S	S
CO3	S	S	M	M	S
CO4	S	M	M	M	M
CO5	S	S	M	M	S

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub. Name: Object Oriented Analysis & Design **No.of Hours per week: 5**

Sub. Code: DIT12 **Credit: 3**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
I (Regulation 2021-2022)	Object Oriented Analysis & Design	3	COl- Students able to management of object oriented software projects, system design patterns. CO2 - Understand the concept of OOAD Models , TestingOOA Models, sequence and collaboration diagrams. CO3 - Understand the concept of System concept for Object modeling, Abstraction, Inheritance, Polymorphism, Encapsulation, Message Sending, Association, Aggregation CO4- Understand the concept of Use-case relationship, process of requirement, business requirement. *CO5* - Understand the concept of Construct Use Case Model Diagram-Class Diagrams and Object Diagrams-Package Diagrams-Sequence and Collaboration diagrams, State chart diagram.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	M	S
CO3	S	M	S	S	S
CO4	S	S	M	S	S
CO5	S	S	S	S	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: DBMS **No. of Hours per week: 5**

Sub.Code: DIT13 **Credit: 3**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
I (Regulation 2021-2022)	**DBMS**	3	CO1 - Students will have the complete knowledge of object oriented approach database. CO2 - Students have skills on Functional dependencies, Normalization and data base design and tools . CO3 - Understand the concept of the role of Information Systems in Organizations, the database design process, physical database design in relational databases, an overview of database tuning in relational systems, automated design tools. CO4 - Understand the concept of database system architecture and the system catalog, translating SQL queries into relational algebra, basic algorithms for executing query operations. *CO5* - Understand the concept of concurrency control techniques, database recovery techniques, database security and authorization..

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	M	M
CO2	S	S	S	S	S
CO3	S	S	S	S	M
CO4	M	S	S	S	S
CO5	M	M	S	S	S

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Object Oriented Programming Lab **No.of Hours per week: 3**

Sub.Code:DPIT26 **Credit:**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
I (Regulation 2021-2022)	Object Oriented Programming Lab		CO1 - The ability of write Programs for various object oriented concepts using C++ and Java. CO2 - The ability of implementation of class design, object creation, function overloading in C++. CO3 - The ability of OOPS concept of constructor and destructor , operator overloading, frind function implementation. CO4 - The ability of inheritance and polymorphism concept. *CO5*- The ability of string handling function, exception handling fuction implementation in JAVA. C06-The ability of database connecion and accessing injava.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	M	M
CO2	S	S	M	M	M
CO3	S	M	M	M	M
CO4	S	M	M	M	M
CO5	S	S	M	M	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: RDBMS-Lab **No. of Hours per week: 3**

Sub.Code: DPIT27 **Credit:**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
I (Regulation 2021-2022)	RDBMS-Lab	3	COl - The ability of develop various practical applications using SQL and PL/SQL. CO2-The students have the knowledge of various SQL commands, Normalization. C03 - Identify the basic concepts and various data model used in database design ER-Modeling concepts. C04- Use an SQl Interface of multi user relational DBMS package to create, secure, populate, maintain and query a database. *COS* -Formulate Query using SQL, solutions to a broad range of query and data update problems. C06 - Demostrate a rudimentary understanding of a programmatic interfaces to a database and be able to use the basic function of one such interface.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	S	M
CO2	M	M	M	M	M
CO3	S	M	M	M	M
CO4	M	S	S	M	M
CO5	S	S	M	M	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Visual Programming-Lab **No. of Hours per week: 3**

Sub.Code:DPIT28 **Credit:**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
I (Regulation 2021-2022)	Visual Programming-Lab	3	CO1 - The students will have the knowledge of software development using the visual programming languages. Concentrates on the development of software systems in Visual Basic and Visual C++. CO2 - Ability of creating project in VB by using textbox tools, command buttons, lables C03 - The ability of creating VB Project for currency exchange with india rupees by using tools like list box. C04-The ability of Writing a VB project using Ax DLL or EXE add a class module.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	M	M
CO2	S	M	M	M	M
CO3	S	M	S	M	M
CO4	S	M	S	M	M
CO5	S	M	M	M	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avo

Sub.Name: **Principles of Communication System** **No. of Hours per week: 3**

Sub.Code:DEIT14C **Credit: 3**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
I (Regulation 2021-2022)	Principles of Communication System	3	CO 1. Analyze and design amplitude modulation systems at the sub-system level. CO 2. Analyze and design angle modulation systems at the sub-system level. CO 3. Analyze and design pulse modulation systems at the sub-system level. CO 4. Apply basic methods of probability and random variables to signal-to-noise ratios

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	M	S
CO3	S	S	S	S	M
CO4	S	S	S	S	S
CO5	S	S	S	S	S

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Digital data handling **No. of Hours per week: 3**

Sub.Code:DOIT15 **Credit: 3**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
I (Regulation 2021-2022)	Digital data handling	3	CO1 - Understand the concept of automated workflow, components, File Preparation, Preflighting, Digital Imposition, preRIP, postRIP, OPI, Trapping, Postscript, PDF, Metadata, JDF, XML. CO2 - Understand the concept of data transmission fundamentals, communication media, Data interface, concept of principles of computer network. CO3 - Understand the concept of file formats and compression techniques. CO4 - Understand the concept of network protocols, network node components, principles client/server model. *COS* - Understand the concept of database management, data warehousing, data mining, data recovery and principles of network security, cryptography, fire walls.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	M	S	S		M
CO3	S	M	M	S	M
CO4	M	S	M	M	S
CO5	S	M	M	M	S

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided

SEMESTER II

Sub.Name: Visual Programming **No. of Hours per week:4**
Sub.Code: DIT21 **Credit: 3**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
II (Regulation 2020-2021)	Visual Programming	3	CO1 - Understand the concept of Visual basic and visual C++ programming. CO2 - Understand the concept of windows programming, Event driven programming, dynamic link libraries, software development kit tools. CO3 - Understand the concept of form design, VBX control, event procedures, Menu and toolbars , Active X controls, Multiple document interface, Database application. CO4 - understand the concept of frame work class, VC++ components, Model and Modeless dialogs, important VBX controls. *COS* - Understand the concept of database connectivity, Embedding controls in view, dynamic data transfer function.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	S	S
CO2	S	M	M	S	S
CO3	S	M	S	S	M
CO4	S	S	M	S	M
CO5	S	S	S	M	S

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Computer Networks No. of Hours per week:4
Sub.Code: DIT22 Credit: 3

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
II (Regulation 2020-2021)	Computer Networks	3	COl -The complete knowledge of operation of protocols which are used in Computer Networks , Application of Computer Network, Switching techniques , ISDN and ATM. CO2- Understand the concept of computer network, service primitives, OSI layer, transmission media, switching technique. CO3 - Students will understand the concept of the datalink layer, channel allocation, FDDI, SLIP and PPP. CO4 - understand the concept of client and server in terms of socket addressing, Quality of service, Transport service primitives and buffering, Multiplexing , Crash Recovery , The Internet Transport Protocols (TCP/IP). *COS* -The ability of presentation of applocation layer ,Network Security, Traditional Cryptography , Two fundamental Cryptographic Principles, Symmetric and Asymmetric Key Algorithms , DNS ,SNMP and E-mail.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	M
CO2	S	M	M	M	S
CO3	S	M	M	M	M
CO4	S	M	M	S	M
CO5	S	S	S	M	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Software Engineering No. of Hours per week:4
Sub.Code: DIT23 Credit: 3

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
II (Regulation 2020-2021)	Software Engineering	3	CO1 - Students understand the concepts and methods required forthe construction of large software intensive systems. CO2 - Understand the concept of project management spectrum ,Software project estimation, software quality assurance, Estimation models, COCOMO models. CO3 - Understand the concept of Effective Modular Design , Cohesion, Coupling, Design Documentation, Real Time and Design Methods , Data, Architecture, Transform and Transaction Mapping. CO4 - Understand the concept of Metrics for Object Oriented Systems , Class Oriented Metrics, Operation Oriented Metrics, Metrics For Object Oriented Testing and Projects CO5 - The ability of testing strategies of white boxtesting methods , black box testing methods , validation testing, CASE , Building Blocks 0, Taxonomy I , CASE, Integration Architecture, CASE Repository

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	S	S
CO2	S	M	M	M	M
CO3	S	S	S	M	M
CO4	S	M	M	M	S
CO5	S	S	M	M	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: E-Commerce
Sub.Code: DEIT24B

No. of Hours per week:3
Credit: 4

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
II (Regulation 2020-2021)	E-Commerce	4	CO1 - The students have the knowledge of electronic commerce as it affects small and medium sized business (SMEs), CO2 - The students are able to implement an E-commerce strategy for your business, E-commerce business plan based on the adoption of a selected E-commerce strategy. CO3 - Understand the concept of core technology , Electronic Commerce Models, Shopping Cart Technology, Data Mining, Intelligent Agents , Internet Marketing, XML and E-Commerce CO4 - Understand the concept of electronic payment systems, Elctronic fund transfer, digital payment and micro payment. CO5 - Understand the concept of EDI and its application in business , legal security and privacy issues, public key cryptography , socket layer, firewalls.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	L	S	S	S	S
CO5	S	S	S	S	S

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: HTML Programming No. of Hours per week:3

Sub.Code: DOIT25 Credit: 3

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
II (Regulation 2020-2021)	HTML Programming	3	CO1 - Understand the concept of web designing , world wide web, web standards, web page design. CO2- Students are able to Creating an HTML document, Mark up Tags, Heading, Paragraphs, Line Breaks and HTML TagsModule. CO3 - Students are able to Working with Text, Working with Lists, Tables and Frames, Working with Hyperlinks, Images and Multimedia, Working with Forms and controls. CO4 - Understand the concept of CSS basics and CSS Advanced in Grouping, Dimension, Display, Positioning, Floating, Align,Pseudo class, Navigation Bar, Image Sprites, Attribute sector, CSS Color, Creating page Layout and Site Designs. CO5 - The ability of Web site creation, themes, publishing websites.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	M	S
CO2	S	M	M	M	S
CO3	M	M	M	L	S
CO4	S	S	S	S	S
CO5	S	S	S	S	S

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Object Oriented Programming Lab No. of Hours per week:3

Sub.Code: DPIT26 Credit:4

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
II (Regulation 2020-2021)	Object Oriented Programming Lab	4	CO1 - The ability of write Programs for various object oriented concepts using C++ and Java. CO2 - The ability of implementation of class design, object creation, function overloading in C++. CO3 - The ability of OOPS concept of constructor and destructor , operator overloading, frind function implementation. CO4 - The ability of inheritance and polymorphism concept. *COS* - The ability of string handling function, exception handling fuction implementation in JAVA. C06-The ability of database connecion and accessing injava.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	M	S
CO2	S	M	M	M	S
CO3	M	M	M	L	S
CO4	S	S	S	S	S
CO5	S	S	S	S	S

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: RDBMS-Lab
Sub.Code: DPIT27

No. of Hours per week:
Credit:

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
II (Regulation 2020-2021)	RDBMS-Lab	4	COl - The ability of develop various practical applications using SQL and PL/SQL. CO2-The students have the knowledge of various SQL commands, Normalization. C03 - Identify the basic concepts and various data model used in database design ER-Modeling concepts. C04- Use an SQl Interface of multi user relational DBMS package to create, secure, populate, maintain and query a database. *COS* -Formulate Query using SQL, solutions to a broad range of query and data update problems. C06 - Demostrate a rudimentary understanding of a programmatic interfaces to a database and be able to use the basic function of one such interface.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	M
CO2	S	S	M	M	M
CO3	S	S	S	S	M
CO4	S	M	M	M	S
CO5	S	S	M	M	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name Visual programming LAB No. of Hours per week:

Sub.Code: DPIT28 Credit:

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
II (Regulation 2020-2021)	Visual programming LAB	4	CO1 - The students will have the knowledge of software development using the visual programming languages. Concentrates on the development of software systems in Visual Basic and Visual C++. CO2 - Ability of creating project in VB by using textbox tools, commnd buttons, lables C03 - The ability of creating VB Project for currency exchange with india rupees by using tools like list box. C04-The ability of Writing a VB project using Ax DLL or EXE add a class module. CO5 -The ability of Writing Visual C++ win32 application program using MFC. CO6-The ability of Writing Visual C++ win32 application program using MFC that displays the status of ALT, CTRL, SHIFT,NUM LOCK and SCROLL LOCK keys and displays current mouse coordinates in status bar.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	M
CO2	S	S	M	S	M
CO3	S	M	M	M	M
CO4	S	M	S	M	S
CO5	S	M	M	M	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

SEMESTER-III

Sub.Name: Internet Programming **No. of Hours per week:4**

Sub.Code:DIT31 **Credit: 3**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
III (Regulation 2021-2022)	**Internet Programming**	3	CO1 - Understand and Apply the basic java programming concepts. CO2 - Understand the concept of client-side JavaScript programs for executing in a Web browser. CO3 - Students are able to basic HTML design using colors, images, tables, frames, and GUI components such as text boxes, buttons, menus, checkboxes, and radio buttons CO4-The students are able to develop interactive Web applications that integrate HTML with JavaScript using event handlers. *CO5* - Understand the concept of control structures, functions, and arrays, and illustrate how they are used to create JavaScript programs. Also discuss object-oriented programming and the Document Object Model, built-in and custom objects. CO6 - Understand the concept of JavaScript applications that use cookies to track and save Web preferences..

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	S
CO2	S	M	M	M	S
CO3	S	M	M	S	M
CO4	S	M	M	S	M
CO5	S	S	M	M	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Mobile Computing **No. of Hours per week:4**

Sub.Code: DIT32 **Credit: 3**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
III (Regulation 2021-2022)	Mobile Computing	3	COI - Understand the concept of concepts of mobile computing including access control, digital mobile phone system, wireless LAN and the necessary protocols. CO2 - Understand the concept of mobile technologies in terms of hardware, software and communications. CO3 - Utilize mobile computing to describe and analayse exist mobile computing frameworks and architectures. CO4 -Understand the concept of effectiveness of different mobile computing frameworks and Telecommunication Systems, GSM , Architecture , Sessions, Protocols, Hand Over and Security, UMTS and IMT,2000, Satellite Systems. *COS* - Understand the concept of WIRELESS LAN : IEEE 802.11 , Hiper LAN, Bluetooth, MAC layer, Security and Link Management. CO6- Understand the concept of MOBILE IP - Goals, Packet Delivery ,Strategies, Registration, Tunneling and Reverse Tunneling , Adhoc Networks , Routing Strategies.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	M	M	S	M
CO4	S	S	M	S	M
CO5	S	S	M	M	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Computer Graphics and Multimedia **No. of Hours per week:4**

Sub.Code:DIT33 **Credit: 3**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
III (Regulation 2021-2022)	Computer Graphics and Multimedia	3	COl - Understand the concept of the fundamental issues and problems in the representation and manipulation of multimedia content such as images, audio and video. CO2 - Understand the concept of the theoretical aspects of computer graphics and multimedia. CO3 - Understand the concept of algorithms which facilitate implementation of both 2D and 3D graphics. CO4 - Understand the concept of Elements of multimedia systems , Multimedia Hardware, Storage for Multimedia, Input, Output and Communication devices. *COS* -Understand the concept of Multimedia Building Blocks: Text, Images, Animation , Audio , Video , Animation and Image editing tools

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	M	M	S	M
CO3	S	M	S	S	S
CO4	S	S	S	S	M
CO5	S	M	M	S	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Network -Lab **No. of Hours per week:4**

Sub.Code: DPIT 45 **Credit:**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
III (Regulation 2021-2022)	Network -Lab		COl - Able to design and implement various network application such as data transmission between client and server, file transfer. real-time multimedia transmission. CO2 - The students are able to implement socket program, program using TCP/IP and UDP. CO3 - Understand the various routing protocols, algorithms and internetworking CO4 - Understand the practical approach of network communication protocols. *COS* - Students are able to recognize the technical trends of computer networking CO6 - The students are able to implement key technologies component of network . CO7 - Demonstrate a broad knowledge of area of computer networks and its terminology.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	M	S	S		M
CO3	S	M	M	S	M
CO4	M	S	M	M	S
CO5	S	M	M	M	S

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Internet Programming Lab **No. of Hours per week:4**

Sub.Code: DPIT46 **Credit:**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
III (Regulation 2021-2022)	Internet Programming Lab		CO1 - The students are able to design web pages using HTML, XML and style sheets. CO2 - The students able to create user interface using java frames and applets. CO3 -The students able to Create dynamic web pages using server side scripting . CO4 - The Students are to implement client server application. *CO5* - The students able to use frameworks like JSP servlet CO6-The students able to create application in AJAX. CO7 - The students are able to create web page by using java applet and JDBC

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	S
CO2	S	M	M	M	S
CO3	S	M	M	S	M
CO4	S	M	M	S	M
CO5	S	S	M	M	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: **Graphics and Multimedia Lab** **No. of Hours per week:4**

Sub.Code:DPIT47 **Credit:**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
III (Regulation 2021-2022)	**Graphics and Multimedia Lab**		COl - Understand the concept of algorithms which facilitate implementation of both 2D and 3D graphics. CO2- Understand the concept of Elements of multimedia systems , Multimedia Hardware, Storage for Multimedia , Input, Output and Communication devices. CO3 -Understand the concept of Multimedia Building Blocks: Text , Images, Animation , Audio , Video , Animation and Image editing tools. CO4 - The students are able to work with sound editing programs, Video formats, Presentation tools, Authoring tools. *COS* - The students are able to generate line, curve, circle, and ellipse. CO6 - The student able to create 2D and 3D object and various transformation techniques. CO7 - The student able to implement of multimedia compression techniques, Animations and applications.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	M	M	S	M
CO4	S	S	M	S	M
CO5	S	S	M	M	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Image Processing **No. of Hours per week:3**

Sub.Code:DEIT34C **Credit:**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
III (Regulation 2021-2022)	Image Processing		CO1:Students will gain knowledge on fundamental concepts of a digital signal and image processing System. CO2Students will develop skill of developing new algorithms in signal and image processing Applications. CO3:Student will develop skill on MATLAB implementation of different signal and image processing techniques.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	M	M	S	M
CO3	S	M	S	S	S
CO4	S	S	S	S	M
CO5	S	M	M	S	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

SEMESTER IV

Sub.Name: Data Mining and Warehousing No. of Hours per week:4
Sub.Code: DIT41 Credit: 3

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
IV (Regulation 2020-2021)	Data Mining and Warehousing	3	CO1 – provide the foundation knowledge in multi dimensional data model. CO2 – classify types of meta data. CO3 - Remove redundancy and incomplete data from the dataset using data preprocessing methods. CO4 – Students can explain the concept of cluster analysis. CO5 – To Develop a data mining application for data Sanalysis of the techniques.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	M
CO2	S	S	M	S	M
CO3	S	M	M	M	M
CO4	S	M	S	M	S
CO5	S	M	M	M	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Network Security
Sub.Code: DIT42

No. of Hours per week:4
Credit: 3

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
IV (Regulation 2020-2021)	Network Security	3	COl - Understand the concept of identify the problem, analyze, and perhaps solve network-related security problems in computer systems. CO2 - The ability of fundamentals of number theory, authentication, and encryption technologies. CO3 - Understand the concept of Attacks, Conventional Encryption Classical and Modern Techniques, Encryption Algorithms. CO4 - Understand the concept of public key encryption like RSA, Elliptic curve cryptography, Number theory concepts. *COS* - Student groomed their knowledge in message authentication - hash function, Digital signature, and Digest function. CO6 - The student able to understand the concept of network security , system security - Authentication, application, viruses , worms, firewall design principles.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	M
CO2	S	S	S	M	M
CO3	S	M	M	S	M
CO4	S	M	S	M	M
CO5	S	M	M	M	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Network Lab
Sub.Code: DPIT45

No. of Hours per week:4
Credit: 4

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
IV (Regulation 2020-2021)	Network Lab	4	COl - Able to design and implement various network application such as data transmission between client and server, file transfer. real-time multimedia transmission. CO2 - The students are able to implement socket program, program using TCP/IP and UDP. CO3 - Understand the various routing protocols, algorithms and internetworking. CO4 - Understand the practical approach of network communication protocols. *CO5* - Students are able to recognize the technical trends of computer networking. CO6 - The students are able to implement key technologies component of network . CO7 - Demonstrate a broad knowledge of area of computer networks and its terminology.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	M
CO2	S	M	M	M	M
CO3	S	S	S	M	M
CO4	S	M	M	M	M
CO5	S	M	M	S	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Internet Programming Lab **No. of Hours per week:4 Sub.Code: DPIT46** **Credit: 4**

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
IV (Regulation 2020-2021)	Internet Programming Lab	4	CO1 - The students are able to design web pages using HTML, XML and style sheets. CO2 - The students able to create user interface using java frames and applets. CO3 -The students able to Create dynamic web pages using server side scripting . CO4 - The Students are to implement client server application. CO5 - The students able to use frameworks like JSP servlet. CO6-The students able to create application in AJAX. CO7 - The students are able to create web page by using java applet and JDBC.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	S	M
CO2	S	M	M	S	M
CO3	S	S	S	S	M
CO4	S	S	M	S	S
CO5	S	S	S	S	S

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Graphics and Multimedia Lab No. of Hours per week:4
Sub.Code: DPIT47 Credit: 4

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
IV (Regulation 2020-2021)	Graphics and Multimedia Lab	4	COl - Understand the concept of algorithms which facilitate implementation of both 2D and 3D graphics. CO2- Understand the concept of Elements of multimedia systems , Multimedia Hardware, Storage for Multimedia , Input, Output and Communication devices. CO3 -Understand the concept of Multimedia Building Blocks: Text , Images, Animation , Audio , Video , Animation and Image editing tools. CO4 - The students are able to work with sound editing programs, Video formats, Presentation tools, Authoring tools. *COS* - The students are able to generate line, curve, circle, and ellipse. CO6 - The student able to create 2D and 3D object and various transformation techniques. CO7 - The student able to implement of multimedia compression techniques, Animations and applications.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	M	M	M
CO3	S	M	M	S	S
CO4	S	S	M	S	S
CO5	S	S	M	M	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Project Work / Dissertation and viva voce
Sub.Code:

No. of Hours per week:4
Credit: 4

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
IV (Regulation 2020-2021)	Project Work / Dissertation and viva voce	4	COl - Understand the concept of project characteristics and various stages of a project. CO2 - Understand the conceptual clarity about project organization and feasibility analyses tools for cost and time estimation. CO3 - Analyze the learning and understand techniques for project planning, scheduling and execution control. CO4 - Understand the concept of the risk management plan and analyze the role of stack holders. *COS* - Understand the concept of contract management, project procurement, service level agreements and productivity. CO6 - Understand the concept of subcontract administration and control are practiced in the industry.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	M	S
CO2	S	S	M	S	S
CO3	S	M	M	S	S
CO4	S	S	M	S	M
CO5	S	M	M	S	M

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)

Sub.Name: Component Technology
Sub.Code: DEIT43C

No. of Hours per week:4
Credit: 4

Course Outcomes:

Semester	Course Name	Course Credit	Course Outcomes
IV (Regulation 2020-2021)	Component Technology	4	COI - The ability of perspective on Distributed objects and computing methodologies. CO2 - Understand the concept of CORBA, static and dynamic method invocation, basic object adapter. CO3 - Understand the concept of Client applet, Server, IDL contract, Database interface of CORBA Application. CO4 - Understand the concept of DCOM , Model and services, interface definition language . *CO5* - Understand the concept of Internet Protocol, CORBA, DCOM interoperability issues, CORBA facilities, CORBA domains, CORBA migration process.

Course Mapping:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	M	S
CO2	S	M	M	M	S
CO3	S	M	M	L	S
CO4	S	S	S	S	S
CO5	S	S	S	S	S

PO- Programme outcome, CO- Course outcome S- Strong, M- Medium, L- Low (may be avoided)