UG DEPARTMENT OF INFORMATION TECHNOLOGY

B.Sc. INFORMATION TECHNOLOGY

CHOICE BASED CREDIT SYSTEM (Batch -2015)

Sem	Part	Course No.	Course Title	Hrs	Credits	Marks
1	I	TAM/ FRE/HIN	Language	3	2	30
1	II	ENS 1201	Conversational Skills	3	2	30
1	IIIC	BIT 1501	C Programming	5	5	75
1	IIIC	BIT 1403	C Programming Lab	4	4	60
1	IIIC	BIT 1405	Principles of IT	4	4	60
1	IIIS	BIT 1407	Digital Principles and Applications	5	4	60
1	IVNME-I	BIT 1201	e –Commerce	3	2	30
1	IVLS - I	BIT 1203	HTML 5	3	2	30
			Total	**30**	**25**	**375**
2	I	TAM/ FRE/HIN	Language	3	2	30
2	II	ENS 1202	Reading & Writing Skills	3	2	30
2	IIIC	BIT 1502	C++ Programming	5	5	75
2	IIIC	BIT 1404	C++ Programming Lab	4	4	60
2	IIIC	BIT 1406	Data Structures using C (TL)	4 (2+2)	4	60
2	IIIS	MAS xxx	Statistics	5	4	60
2	IVNME-I	BIT 1202	Cyber law & Cyber security	3	2	30
2	IV LS-II	BIT 1204	Emerging Computing paradigms And Technologies	3	2	30
2	V		PED/NSS/SLP		1	15
			Total	**30**	**26**	**390**
3	I	TAM/ FRE/HIN	Language	3	2	30
3	II	ENS 2201	Study Skills	3	2	30
3	IIIC	BIT 2501	SAD (TL)	5(3+2)	5	75
3	IIIC	BIT 2503	Software Testing	5	5	75
3	IIIC	BIT 2505	Java Programming	5	5	75
3	IIIC	BIT 2407	Java Programming Lab	4	4	60
3	IIIS	MAS xxx	Operational Research	5	4	60
			Total	**30**	**27**	**405**
4	I	TAM/ FRE/HIN	Language	3	2	30
4	II	ENG2202	Career Skills	3	2	30
4	IIIC	BIT 2502	Operating System	5(3+2)	5	75
4	IIIC	BIT 2504	Computer Networks	5	5	75
4	IIIC	BIT 2506	Relational Database Management Systems	5	5	75
4	IIIC	BIT 2408	RDBMS Lab	4	4	60
4	IIIS	BIT 2410	S/W Project Management	5	4	60
4	V		PED/NSS/SLP		1	15
			Total	**30**	**28**	**420**

5	IIIC	BIT 3601	Web Programming(TL)	6(3+3)	6	90
5	IIIC	BIT 3603	S/W Development Lab I	6	6	90
5	IIIC	BIT 3605	Software Engineering	6	6	90
5	IIIC	BIT 3607	Enterprise Resource Planning	5	5	75
5	IVLS–III	BIT 3209	Internet Technologies	3	2	30
5	IVVE	VAL	Value Education	4	2	30
			Total	**30**	**27**	**405**
6	IIIC	BIT 3602	.NET Programming(TL)	6(3+3)	6	90
6	IIIC	BIT 3604	S/W Development Lab II	6	6	90
6	IIIC	BIT 3606	DM&DW	6	6	75
6	IIIC	BIT 3508	Mobile Technologies	5	5	90
6	IVEVS	BIT 3200	Environmental Studies	4	2	30
6	IVLS - IV	BIT 3210	Cloud Computing	3	2	30
			Total	**30**	**27**	**405**
Grand Total (Semester I – VI)				**180**	**160**	**2400**

C: MAJOR CORE S: MAJOR SUPPORTIVE I: INNOVATIVE
NME: NON MAJOR ELECTIVE VAL : VALUE EDUCATION LS:LIFE SKILL
Course Offered to Non-Major Students by the Department of Information Technology

Part IV Non-Major Electives

Sem	Course No.	Course Title	Hours	Credits	Marks
1	BIT 1201	E –Commerce	3	2	30
2	BIT 1202	Cyber Law& Cyber Security	3	2	30
		Total	6	4	60

Part IV Life Skill Courses

Sem	Course No.	Course Title	Hours	Credits	Marks
1	BIT 1203	HTML 5	3	2	30
2	BIT 1204	Emerging Computing Paradigms And Technologies	3	2	30
3	BIT 3209	Internet Technologies	3	2	30
4	BIT 3210	Cloud Computing	3	2	30
		Total	12	8	120

BIT 3601 WEB PROGRAMMING TL (3+3)Hrs / 6 Cr

Objective:

The objective of this course is to gain the knowledge of creating dynamic web pages using HTML5, CSS3, JavaScripts, PHP and MySQL.

Unit 1:

HTML: Basics of HTML, formatting and fonts, commenting code, color, hyperlink, lists, tables, images, forms, XHTML, Meta tags, Character entities, frames and frame sets, Browser architecture and Web site structure. Overview and features of HTML5

Unit 2:

Style Sheets: Need for CSS, introduction to CSS, basic syntax and structure, using CSS, background images, colors and properties, manipulating texts, using fonts, borders and boxes, margins, padding lists, positioning using CSS, CSS2, Overview and features of CSS3

Unit 3:

JavaScript: Client side scripting with JavaScript, variables, functions, conditions, loops and repetition, Pop up boxes, Advance JavaScript: Javascript and objects, JavaScript own objects, DHTML : Combining HTML, CSS and Javascript, Events and buttons

Unit 4:

PHP: Introduction and basic syntax of PHP, decision and looping with examples, PHP and HTML, Arrays, Functions, Browser control and detection, string, Form processing, Files, Advance Features: Cookies and Sessions

Unit 5:

PHP & MySQL: Basic commands with PHP examples, Connection to server, creating database, selecting a database, listing database, listing table names, creating a table, inserting data, altering tables, queries, deleting database, deleting data and tables, PHP my admin and database bugs –Report generation.

Text Books:

HTML 5, Black Book, Dreamtech Press, 2nd edition, 2016
PHP, MySQL, JavaScript & HTML5 All-in-One for Dummies, Steve Suehring, Janet Valade, John Wiley and Sons, Inc, 2013.

References:

Web Technologies, Black Book , Dreamtech Press, edition 2010
Web Design , Joel Sklar, Cengage Learning, 6th edition, 2015
Developing Web Applications in PHP and AJAX, Harwani, McGrawHill, 2010

BIT 3603 SOFTWARE DEVELOPMENT LAB I 6 Hrs / 6 Cr

Objective:

The main objective of this software development lab is to improve the acquired technical skills of the student by giving required lab practices. It supports them to work efficiently in the latest technologies. It improves the student's problem solving ability. Based on case study of the following lab components need to be done by students

Planning a problem
Analyzing the problem
Requirement analysis
Designing prototype.
Table Design
Dataflow diagram
Coding
Testing.
Implementation.
Maintenance.

Suggested case study topics:
Student may take any one of the topics listed below

Client/server application
Network security
Embedded system
Image processing
Data mining
Distributed networks
Software engineering
Internet of things
Mobile applications.
Cloud Computing.
Web application development

Evaluation pattern

It adopts the evaluation pattern of a lab course of our college which contains 75% marks allotment for the continuous assessment using project reviews and 25% marks allotment for final report submission.

BIT 3605 SOFTWARE ENGINEERING 6 Hrs / 6 Cr

Objective:

The aim of the course is to train the students to understand the basic software engineering concepts and make them to analyze, estimate & design new software with quality standards.

Unit 1:

Introduction to Software Engineering: Software Characteristics - size factors - Factors influencing quality and productivity – Planning a Software Project- Defining the problem, Goals & Requirements - Developing a solution strategy – Planning the Development Process – Planning an Organization Structure–Project Structure – Project Team Structure - Software Cost Estimation.

Unit 2:

Software Requirements and Specifications: Value of a good SRS - Requirements Specification - Formal Specification Techniques – Requirement Engineering – Requirements Documents – Requirements Elicitation – Requirements Analysis and Negotiation – Requirements Validation – Requirements Management.

Unit 3:

Fundamentals Design concepts: Modules and modularizing Criteria- Design Notations – Design techniques –Detailed Design Consideration –Real time and distributed system design –Test plan- Mile stones walk through and inspection –Design guide lines.

Unit 4:

Coding: Programming Practice – Top-down and Bottom-up - structured programming – Information Hiding – Programming style-Verification and validation Techniques - Quality assurance - Unit testing and Debugging –System testing – Formal Verification.

Unit 5:

Software Maintenance: Issues in Maintenance – Enhancing maintainability during development - Configuration management – Source code metrics – Other maintenance tools and Techniques.

Text Books:

Richard Fairley, " Software Engineering " Tata Mcgraw Hill 2012 Edition.

2.Roger S Pressman, " Software Engineering A Practisener Approach" McGrawHill,7th Edition,2010.

References:

Ian SommerVille, "Requirements Engineering",Johnwilley,1998.

2. Stephen R. Schach, "Object Oriented and Classical Software Engineering", TataMcgrawHill 5th Edition.

3. Watts S. Humphrey, " A Discipline for Software Engineering", Pearson Education,2001.

4. Boriz and Beizer, "Software Testing Techniques", DreamTech, 2nd Edition – 2000.

BIT 3607 ENTERPRISE RESOURCE PLANNING 5Hrs / 5Cr

Objective:

The aim of this course is to understand the business process of an enterprise and ERP project management cycle. It also helps students to learn business modules and ERP market. It also deals with emerging trends in ERP.

Unit 1:

RP and technology: Introduction – Related Technologies – Business Intelligence – E-Commerce and E- Business – Business Process Reengineering – Data Warehousing – Data Mining – OLAP – Product life Cycle management – SCM – CRM.

Unit 2:

ERP implementation methodology: Implementation Challenges – Strategies – Life Cycle – Pre-implementation Tasks – Requirements Definition – Methodologies – Package selection – Project Teams – Process Definitions – Vendors and Consultants – Data Migration – Project management– Post Implementation Activities.

Unit 3:

Business modules in ERP: Operation and Maintenance – Performance – Maximizing the ERP System – Business Modules – Finance – Manufacturing – Human Resources – Plant maintenance – Materials Management – Quality management – Marketing – Sales, Distribution and service.

Unit 4:

ERP market: Marketplace – Dynamics – SAP AG – Oracle – PeopleSoft – JD Edwards – QAD Inc – SSA Global – Lawson Software – Epicor – Intutive.

Unit 5:

Trends in ERP: Enterprise Application Integration – ERP and E-Business – ERP II – Total quality management – Future Directions – Trends in ERP.

Text Books:

Alexis Leon, “ERP DEMYSTIFIED”, Tata McGraw Hill, Second Edition, 2008.

Mary Sumner, “Enterprise Resource Planning”, Pearson Education, 2007.

References:

1. Jim Mazzullo,”SAP R/3 for Everyone”, Pearson,2007.

Enterprise Resource Planning Paperback – 26 Sep 2007 by Alexis Leon 2nd edition.

Biao Fu, “SAP BW: A Step-by-Step Guide”, First Edition, Pearson Education,2003

BIT 3209 INTERNET TECHNOLOGIES 3Hrs /2 Cr

Objective:

The objective of this course is to gain knowledge about the Internet, various network protocols, internet connectivity and other internet technologies behind the screen.

Unit 1:

Introduction to Internet: Internet, Growth of Internet, Owners of the Internet, Anatomy of Internet, ARPANET and Internet history of the World Wide Web, basic Internet Terminology, Net etiquette. Internet Applications – Commerce on the Internet, Governance on the Internet, Impact of Internet on Society – Crime on/through the Internet.

Unit 2:

TCP/IP – Internet Technology and Protocol: Packet switching technology, Internet Protocols: TCP/IP, Router, Internet Addressing Scheme: Machine Addressing (IP address), E-mail Addresses, Resources Addresses

Unit 3:

Internet Connectivity: Connectivity types: level one, level two and level three connectivity, Setting up a connection: hardware requirement, selection of a modem, software requirement, modem configuration, Internet accounts by ISP: Telephone line options, Protocol options, Service options, Telephone line options – Dialup connections through the telephone system, dedicated connections through the telephone system, ISDN

Unit 4:

Internet Network: Network definition, Common terminologies: LAN, WAN, Node, Host, Workstation, bandwidth, Interoperability, Network administrator, network security, Network Components: Severs, Clients, Communication Media, Types of network, Addressing in Internet, Network topologies.

Unit 5:

Services on Internet (Definition and Functions): WWW, Telnet, FTP, IRC and Search Engine, Electronic Mail - Email Networks and Servers, Email protocols, Structure of an Email, Email Clients, Web based E-mail. Email encryption- Address Book, Signature File. Current Trends on Internet: Languages, Internet Phone, Internet Video, collaborative computing, e-commerce.

Test Book:

Greenlaw R and Hepp E "Fundamentals of Internet and www" 2nd Edition, TataMcGrawHill,2007.

Reference:

D. Comer, "The Internet Book", Pearson Education, 2009.

BIT 3602 .NET Programming TL 6 (3+3)Hrs / 6 Cr

Objective:

The main aim of the course is to provide in depth knowledge about .NET frame work, VB.Net, ASP.NET and ADO.NET. It also equips the students to develop window applications and dynamic web application.

Unit 1:

Introduction: Introduction to .NET-Evolution -.net platform-advantages of .net-working of .net- .basic architecture of net frame work-common language run time- architecture of CLR-features of CLR -common language specification-unified programming classes- meta data – assembly-MSIL-Just In Time compiler-class loader-verifier- security in .net.

Unit 2:

VB.NET: Visual studio .net IDE-Window based applications-Data types-operators- Event handling -loading and showing forms -adding controls-working with simple controls-adding menus-menus-advanced windows applications-creating MDI application.

Unit 3:

VB.NET Programming concepts: Introduction to console application- Procedures-OOPs in VB.net- class-object-inheritance-polymorphism-inheritance-my base class keyword-my class keyword-abstract base class-exception handling-delegates.

Unit 4:

ADO.NET : Overview of ADO.NET architecture-ADO.NET Component model- managed provider in ADO.net – advantages of ADO.net - data access using ADO.NET - ADO.net data form wizard.

Unit 5:

ASP.NET: Features of ASP.net - ASP.net page life cycle-using common web controls - creating simple web applications - create web applications using data base connectivity - Web services.

Text Books:

1. .Net Programming Black Book, Kogent Solutions Inc, Published by Dreamtech Press, New Edition, 2013.

Nikhil Kothari, Vandana datye “Developing Microsoft ASP.NET Server controls and components” Tata Mcgraw Hill publishing company limited, 2002.

David sceppa, “Programming Microsoft® ADO.NET 2.0 Core Reference, Microsoft press, 2009

References:

Nitini pandey yesh singhal, mridula pairhar “Visual studio.net programming”, Wiley- Dream tech India (p) Ltd, 2002.

Steven holzner, “Visual basic .net black book”, coriolis group book, 2009.

BIT 3604 SOFTWARE DEVELOPMENT LAB II 6 Hrs /6 Cr

Objective:

The main objective of this software development lab is to improve the acquired technical skills of the student by giving required lab practices. It supports them to work efficiently in the latest technologies. It improves the student's problem solving ability. Based on case study of the following lab components need to be done by students

Planning a problem
Analyzing the problem
Requirement analysis
Designing prototype.
Table Design
Dataflow diagram
Coding
Testing.
Implementation.
Maintenance.

Suggested case study topics:

Student may take any one of the topics listed below

Client/server application
Network security
Embedded system
Image processing
Data mining
Distributed networks
Software engineering
Internet of things
Mobile applications.
Cloud Computing.
Web application development

Evaluation pattern

It adopts the evaluation pattern of a lab course of our college which contains 75% marks allotment for the continuous assessment using project reviews and 25% marks allotment for final report submission.

BIT 3606 DATA MINING AND DATA WAREHOUSING 6Hrs/6Cr

Objective:

This course enables the student to understand the basic concepts of data mining and warehousing and various methodologies in it

Unit 1:

Data Mining versus KDD - Data Mining & Goals – Stages of the Data Mining Process - Types of Databases – Data warehouse – Multidimensional data model – DW Architecture - OLAP operations – From Data Warehousing to Data Mining.

Unit 2:

Data Preprocessing - Why Preprocess the data – Data cleaning – Data Integration – Data Transformation – Data Reduction – Data Discretization and generating concept hierarchies.

Unit 3:

Data Mining tasks - Architecture of Data mining system - Data mining primitives – Data mining query language. Market Basket Analysis - Association Rule Mining – The Apriori Algorithm – Multilevel Association Rules – Multidimensional Association Rules – Constraint Based Association Mining.

Unit 4:

Classification and Prediction: Issues regarding Classification and Prediction – Decision Tree induction – Bayesian Classification – Back Propagation – Classification Methods – Prediction – Classifiers accuracy.

Unit 5:

Applications and trends in Data Mining- Social Impacts of Data Mining - Introduction to Advanced Topics: Web Mining, Spatial Mining and Temporal Mining.

Text Book:

1.” Data Mining: Concepts and Techniques” Book by Jiawei Han, editor Micheline Kamber, 2012.

References:

Shawkat Ali A B M, Saleh A. Wasimi, “Data Mining: Methods and Techniques , Third Indian Reprint, Cengage Learning, 2010.

Soman K. P., Shyam Diwakar, Ajay V. “Insight into Data Mining Theory and Practice” , Fifth Printing, PHI Learning, 2011.

BIT 3508 MOBILE TECHNOLOGIES 5Hrs / 5Cr

Objective:

This course enables the student to learn the basics of wireless voice and data communication technologies along with Android Application Development.

Unit 1:

Introduction – Wireless transmission – Frequencies for radio transmission – MAC – SDMA – FDMA – TDMA – CDMA – GSM.

Unit 2:
Evolution of Mobile Technology, Lte, VoLte, wifi, Lifi,, Bluetooth, NFC, Mobile Operating System. Sensors used in Mobile devices, GPS and GeoFencing.

Unit 3:
Mobility Management: Call Handoff and Roaming (national and international)
Mobile Commerce Services: Base Services Platform, Mobile Commerce Services for Consumers, Mobile Commerce Services for Businesses. Case Study: ecommerce application.

Unit 4:
Android OS and its architecture, IOS and its architecture, IDE used for app development in android and ios, Application data management, publishing the app to playstore / app store. Native application, Hybrid application, comparison of native and hybrid approach.

Unit 5:
IOT overview, applications, potential & challenges, and architecture, Arduino and Raspberry Pi architecture.
Case study: Control of a smart home.

Text Books:

Wireless Communications & Networks, Second Edition,William Stallings by Pearson, 2005.
M-Commerce: Technologies, Services, and Business Models by Norman Sadeh, September 2002
Android Application Development Black Book, Pradeep Kothari, dreamtech press, 2014
Internet of Things: A Hands-On Approach Paperback – 2015 by Arsheep Bahga (Author), Vijay Madisetti (Author)

References:

Android Programming for Beginners, Book by John Horton, December 2015
Dharma PrakashAgarval, Qing and An Zeng, "Introduction to Wireless and Mobile systems", Thomson Asia Pvt Ltd, 2005.
Jochen Schiller, “Mobile Communications”, PHI/Pearson Education, Second Edition, 2003.

BIT3200 ENVIRONMENTAL STUDIES 4 Hrs / 2 Crs

Objective:
The objective of this course is to create awareness about the environmental pollution and how to manage and dispose the Solid wastes and E-wastes.

Unit 1:

Introduction to environment and environmental studies: Introduction to environment – components – nature of environment - need of awareness – reasons for environmental problems – anthropocentric and eco centric views. Environmental studies - multidisciplinary nature – scope and aim – sustainable development.

Unit 2:

Ecosystem and Biodiversity: Ecosystem – structure – functions – simplified ecosystem models (food chain and food webs and their types, energy flow) - forest – grassland – pond – ecosystems – ecological succession - ecological pyramids. Biodiversity – definition – types – species – genetic and ecosystem diversities- values of biodiversity – threats to biodiversity – conservation of biodiversity – endemism – biodiversity hotspots – Indian biodiversity

Unit 3:

Natural resources: Natural resources – definition – types – forest resources – uses – deforestation- reasons - effects –water resources – dams – effects of dams - food resources – modern agriculture– ill effects -energy resources- types – hydel –nuclear – solar –wind and biomass energy – world scenario – Indian scenario. Population and environment – reasons for over exploitation of resources – population –demography – population curves – population explosion – effects – consumerism – effects –urbanization – reasons and effects- role of an individual.

Unit 4:

Environmental Pollution: Pollution – definition – types – air pollution – causes and effects – effects of CO2 – CO – NOx –SOx – particulates – control of air pollution – water pollution – causes – effects –remedies – soil pollution

Unit 5:

Solid Waste Management: Solid waste management - House hold, Hospital, Insecticide, pesticide, fungicide, Biomedical, Animal and human excreta, E – waste – ill effects of e-waste - Effects of Solid Waste: Ground water pollution, Increase in infecting agents in soil, Soil quality deterioration, On human health, Disposal of Solid Waste – Solid Waste Management: Open dumping, Landfilling, Incineration, Re – use, reclamation, recycle, Composting

Reference :

Environmental Studies - Sanjay Kumar Batra, Kanchan Batra, Harpreet Kaur &Parul Pant – 2nd Edition 2016

Environmental Studies: From Crisis to Cure, R. Rajagopalan, 3rd edition 2015

BIT 3210 CLOUD COMPUTING 3Hrs / 2 Cr

Objective:

The aim of this course is to introduce the broad perceptive of cloud architecture and model. To understand the concept of Virtualization and the design of cloud Services. It also helps the students to learn cloud programming model.

Unit 1:

Cloud architecture and model: Technologies for Network-Based System – System Models for Distributed and Cloud Computing – NIST Cloud Computing Reference Architecture. Cloud Models: -Public, Private and hybrid Cloud – Cloud Services: IaaS, PaaS, SaaS.

Unit 2:

Virtualization: Basics of Virtualization - Types of Virtualization - Implementation Levels of Virtualization - Virtualization Structures - Virtualization of CPU, Memory, I/O Devices - Virtual Clusters and Resource management – Virtualization for Data- center Automation.

Unit 3:

Cloud infrastructure: Architectural Design of Compute and Storage Clouds – Layered Cloud Architecture Development, Design Challenges - Inter Cloud Resource Management – Resource Provisioning and Platform Deployment, Global Exchange of Cloud Resources.

Unit 4:

Programming model: Parallel and Distributed Programming Paradigms – MapReduce , Twister and Iterative MapReduce – Hadoop Library from Apache – Mapping Applications - Programming Support- Amazon AWS - Cloud Software Environments - OpenNebula, OpenStack, Aneka

Unit 5:

Security in the cloud: Security Overview – Cloud Security Challenges and Risks – Software-as-a-Service Security– Security Monitoring – Security ArchitectureDesign – Data Security – Application Security – Virtual Machine Security – IdentityManagement and Access Control – Autonomic Security.

Text Book:

Kai Hwang, Geoffrey C Fox, Jack G Dongarra, "Distributed and Cloud Computing, FromParallel Processing to the Internet of Things", Morgan Kaufmann Publishers, 2012.

References:

1. John W.Rittinghouse and James F.Ransome, "Cloud Computing:

Toby Velte, Anthony Velte, Robert Elsenpeter, "Cloud Computing, A PracticalApproach", TMH, 2009.

Kumar Saurabh, " Cloud Computing – insights into New-Era Infrastructure", WileyIndia,2011.

UNDERGRADUATE DEPARTMENT OF INFORMATION TECHNOLOGY

w.e.f. 2020-2021

Sem	Part	Course No.	Course Title	Hrs	Credits	Marks
I	I	TAM/FR E/HIN	Language	3	2	30
I	II	ENS 1201	Conversational Skills	3	2	30
I	IIIC	BIT 1501	C Programming	5	5	75
I	IIIC	BIT 1403	C Programming Lab	4	4	60
I	IIIC	BIT 1405	Principles of IT	4	4	60
I	IIIS	BIT 1407	Digital Principles and Applications	5	4	60
I	**IV NME - I**	**BIT 1211**	**Digital Commerce**	1+2	2	30
I	IV LS - I	BIT 1203	HTML 5	1+2	2	30
Total				**30**	**25**	**375**
II	I	TAM/FR E/HIN	Language	3	2	30
II	II	ENS 1202	Reading & Writing Skills	3	2	30
II	IIIC	BIT 1502	C++ Programming	5	5	75
II	IIIC	BIT 1404	C++ Programming Lab	4	4	60
II	IIIC	BIT 1406	Data Structures using C (TL)	4 (2+2)	4	60
II	IIIS	MAS xxxx	Statistics	5	4	60
II	**IV NME- II**	**BIT 1212**	**Cyber crime and IT security**	3	2	30
II	**IV LS-II**	**BIT 1214**	**Data Analysis using Excel**	3	2	30
II	V		PED/NSS/SLP		1	15
Total				**30**	**26**	**390**
III	I	TAM/FR E/HIN	Language	3	2	30
III	II	ENS 2201	Study Skills	3	2	30
III	IIIC	BIT2501	SAD	5	5	75
III	IIIC	BIT2503	Software Testing	5 (3+2)	5	75
III	IIIC	BIT 2505	Java Programming	5	5	75
III	IIIC	BIT 2407	Java Programming Lab	4	4	60
III	IIIS	MAS xxxx	Operational Research	5	4	60
Total				**30**	**27**	**405**

Sem	Part	Course No.	Course Title	Hrs	Credits	Marks
IV	I	TAM/FR E/HIN	Language	3	2	30
IV	II	ENG 2202	Career Skills	3	2	30
IV	IIIC	BIT2502	Operating System	5(3+2)	5	75
IV	IIIC	BIT 2504	Computer Networks	5	5	75
IV	IIIC	BIT 2506	Relational Database Management Systems	5	5	75
IV	IIIC	BIT2408	Relational Database Management Systems Lab	4	4	60
IV	**IIIS**	**BIT 2422**	**R-Language**	5 (3+2)	4	60
IV	V		PED/NSS/SLP		1	15
Total				**30**	**28**	**420**
V	IIIC	BIT 3601	Web Programming(TL)	6(3+3)	6	90
V	IIIC	BIT3611	Python Programming	6 (3+3)	6	90
V	IIIC	BIT 3605	Software Engineering	6	6	90
V	IIIC	BIT3507	Enterprise Resource Planning	5	5	75
V	**IV LS–III**	**BIT 3211**	**Extensible Markup Language**	1+2	2	30
V	IV VE	VAL	Value Education	4	2	30
Total				**30**	**27**	**405**
VI	IIIC	BIT3602	.NET Programming(TL)	6 (3+3)	6	90
VI	IIIC	BIT 3604	S/W Development Lab	6	6	90
VI	IIIC	BIT 3606	DM & DW	6	6	90
VI	IIIC	BIT 3508	Mobile Technologies	5	5	75
VI	IV EVS	BIT 3200	Environmental Studies	4	2	30
VI	IV LS - IV	BIT 3210	Cloud Computing	3	2	30
Total				**30**	**27**	**405**
Grand Total (Semester I – VI)				**180**	**160**	**2400**

C: MAJOR CORE **S: MAJOR SUPPORTIVE I: INNOVATIVE**

NME: NON MAJOR ELECTIVE **VAL : VALUE EDUCATION**

LS: LIFESKILL

Value Added Courses

Sem	Course No.	Course Title	Hours	Credits
1	BIT 121V	Office Automation	2	2
3	BIT 221V	Web designing using Dreamweaver	2	2
3	BIT 321V	Animation using open source Tool	2	2

BIT 1211 DIGITAL COMMERCE 3 hrs/ 2 cr

The course aims at introduction to e-commerce, highlighting the features and benefits. Business models of e-Commerce will be subsequently explained. Relevance of e-Commerce with regard to marketing strategies will be covered. There is an additional topic on Electronic Payment System. Legal and ethical issues will be discussed.

Upon completion of this course students will be able to:

i. Acquire the basic knowledge about e-commerce, benefits and challenges.
ii. Gain the applications of e-commerce mechanisms, tools.
iii. Analyze the retailing in internet advertising
iv. Understand the mobile commerce and internet of things.
v. Understand the issues of e-commerce, marketing and payment systems in e-commerce

Unit 1: Overview of e-Commerce (9hrs)

Electronic Commerce: Definitions and concepts - History of E-Commerce – Drivers & benefits of e-Commerce – Social computing and E-commerce – The Electronic commerce business models – limitations and future of e-commerce.

Unit 2: E-commerce: Mechanisms, platforms and tools (8hrs)

E-marketplaces – customer shopping mechanisms - auctions, bartering and negotiating online – virtual communities and social networking – managerial issues.

Unit 3: Retailing in E-commerce (9hrs)

Products and services: E-tailing Business models – Employment and the online job market – Online banking and personal finance – Issues in E-tailing – Digital Government – E-learning, E-training and E-books – E-health.

Unit 4: Mobile Commerce and Internet of Things (8hrs)

Mobile commerce: concepts – Infrastructure – Mobile banking and financial applications – Mobile Entertainment, gaming, consumer services – location based commerce – Wearable computing and smart gadgets – Intelligent E-commerce: Introduction.

Unit 5: Marketing and Advertising in E-commerce (11hrs)

Online customer behavior – Online advertising methods – mobile marketing and advertising - Legal and ethical issues in e-Commerce: Security issues in e-Commerce – Regulatory framework of e- Commerce – Electronic commerce payment systems – Future of E-commerce.

Textbook:

1. Turban, Efraim, and David King, Electronic Commerce: A Managerial and Social networks Perspective, Pearson Education Asia, 2018.

Unit 1: page no: 3to33
Unit 2: page no: 41to 75
Unit 3: page no: 79to113
Unit 4: page no: 205to246
Unit 5: page no: 285to322

References:

1. Rayport, Jeffrey, Jaworksi and J.Bernard, **Introduction to E-Commerce**, Tata McGraw Hill, 2002.
2. The complete E-commerce book, Jaynice reynolds, 2020.
3. K.Ravi, **Frontiers of Electronic Commerce,** Addison – Wesley, 2005.
4. Bharat Bhasker, **Electronic Commerce,** The McGraw-Hill companies, 2nd edition 2006.
5. Laudon, Kenneth and Traver, **E-Commerce business. Technology. Society**, Pearson Education, 2004.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2			3			
CO3			3		5	
CO4					5	6
CO5		2				

Mean = 3.5

BIT 1212 CYBER CRIME & IT SECURITY 3 hrs/2 Cr

The course aims at enabling the students to understand the basic concept of Cyber security and problems associated with it and also to know the intellectual property rights and legal aspects of it.

Upon completion of this course students will be able to:

i. Gain the knowledge of basic concepts of cyber security and its problems.
ii. Acquire the depth knowledge in various threats in cyber crime.
iii. Understanding the various principles of security.
iv. Obtain the various securities in the database.
v. Gain the knowledge of copyrights in cyber security.

Unit 1: Basic concepts of Cyber Security (10 hrs)

Introduction-Cyber Security and its problem - Principles and Concepts of Cyber Criminology: Crime, Tort, Misdemeanor, Cyber Space, Cyber Crime, Cyber Criminology

Unit 2: Cyber Crime (9 hrs)

Threats to key sectors – cyber security fundamentals – cyber attack fundamentals – organized cyber attacks – cloud risks – cyber security threat actors – common vulnerabilities

Unit 3: Network Security (8 hrs)

Secure TCP/ IP: Encryption – non repudiation – authentication – authorization – TCP/IP security standards: TTPS – SCP – SFTP – SMP – LDAP – TP

Unit 4: Database Security (9 hrs)

Introduction to database security, security models, physical and logical security, security requirements, reliability and integrity, sensitive data, inference, multilevel databases and multilevel security,

Unit 5: Copyright (9 hrs)

Copyright - meaning of copyright - ownership of copyright - rights of the owner - term of copyright - Registration of copyright - International copyright – infringement of copyright

Textbook:

1. 1.Jonathan Rosenoer, Cyber Law: The law of the Internet, Springer-Verlag,1997.
   Unit 1: Cyber Law: The law of the Internet page no(11-50)
   Unit 5 : page no (269-241)
2. Burke, Roger Hopkins, “Introduction to Criminological Theory”, Willan Publishing; 2nd New edition.
   Unit 2: page no (1to 35)
3. Dr. William Stallings, “Cryptography and Network Security”, 6th Edition, Pearson Education Publication.
   Unit 3: (232-285)
   Unit 4: (483-594)

References:

1. Mark F Grady, FransescoParisi, The Law and Economics of CyberSecurity, Cambridge University Press,2006.
2. Hassan A. Afyduni, "Database Security and Auditing", Course Technology – Cengage Learning, NewDelhi.
3. Dr. B.L. Wadehra, "Law relating to patents, trademarks, copyright, design and geographical indications", 5th edition, Universal law Publication.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				
CO2			3			
CO3			3			
CO4				4		6
CO5			3			

Mean = 3.5

BIT 1214 DATA ANALYSIS USING EXCEL 3 hrs/2 Cr

The course aims at developing the skill and knowledge in MS Excel. Students will be able to create professional looking Spreadsheets, charts, calculation, reports and PivotTable in high speed and accuracy.

Upon completion of this course, the student will be able to:

i. Conduct and complete data analysis using main Excel file or workbook types and protect them before sharing
ii. Perform data calculations using basic arithmetic formulas, main categories built-in functions and Vlookup, trim.
iii. Visualize data using conditional formatting, main chart types and single cell sparklines.
iv. Organize data interactively using tables and customizable pivot tables while sorting, filtering and performing calculations on their contents.
v. Develop the real time Multiple Spreadsheets.

Unit 1: Introduction to Excel (9 hrs)

About Excel, Uses of Excel, Excel software, Title Bar, Menu Bar, Standard Toolbar, Formatting Toolbar, Columns & Rows : Selecting Columns & Rows, Changing Column Width & Row Height, Auto fitting Columns & Rows, Hiding/Unhiding Columns & Rows, Inserting & Deleting Columns & Rows, Cell, Address of a cell, Components of a cell – Format, value, formula, Use of paste and paste special.

Unit 2: Creating Formulas & Functions (9 hrs)

Using Formulas, Formula Functions – Sum, Average, if, Count, max, min, Proper, Upper, Lower, Using AutoSum. Advance Formulas: Concatenate, Vlookup, Hlookup, Match, Countif, Text, Trim.

Unit 3: Spreadsheet Charts (9 hrs)

Creating Charts, Different types of chart, Formatting Chart Objects, Changing the Chart Type, Showing and Hiding the Legend, Showing and Hiding the Data Table.

Unit 4: Data Analysis (9 hrs)

Sorting, Filter, Text to Column, Data Validation. PivotTables: Creating PivotTables, Manipulating a PivotTable, Using the PivotTable Toolbar, Changing Data Field, Displaying a PivotChart, Setting PivotTable Options, Adding Subtotals to PivotTables

Basic analysis techniques: Statistical hypothesis generation and testing - Chi-Square test - t-Test - Analysis of variance - Correlation analysis - Maximum likelihood test.

Unit 5: Data Analysis Techniques

Regression analysis - Classification techniques- Clustering- Association rules analysis

Textbook:

1. Excel 2019 Bible by Michael Alexander, Richard Kusleika, John Walkenbach

Unit 1: Excel 2019 Bible Page no: 3 - 198
Unit 2: Excel 2019 Bible Page no: 205 - 425
Unit 3: Excel 2019 Bible Page no: 443 - 490
Unit 4: Excel 2019 Bible Page no: 577 - 720
Unit 5: Excel 2019 Bible Page no: 755 - 770

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				
CO2			3			
CO3			3			
CO4				4		6
CO5			3			

Mean = 3.5

BIT121V OFFICE AUTOMATION 2hrs/ 2 cr

The course aims at developing the skill and knowledge in MS Word, Excel, Powerpoint and Access. Students will be able to create professional looking documents, charts, calculation, reports and presentations in high speed and accuracy.

Upon completion of this course students will be able to:

i. Fundamentals of Computers and Windows
ii. Create and edit documents such as resume, applications, and letters, school or college assignments professionally.
iii. Create project presentation, business plan presentation, school assignments and presentation for seminars etc.
iv. Create a database and program to track and manage data and information.
v. Automate a task, can add functionality to forms & Import and export to other Microsoft Office and other applications

Unit 1: Computer Science and Operating System (Windows) (6hrs)

Fundamentals of Computers - classification of computers -architecture of a simple processor -programming languages (Machine language, Assembly language, High level language) - data processing - data organization - data communication - windows introduction - working with windows.

Unit 2: Introduction to MS Word (6 hrs)

MS Word - Working with Documents: Opening & Saving files, Editing text documents, Importing & Exporting documents - Formatting Documents, Typeface - Setting Page style: Layout settings, Setting Document styles - Creating Tables: Table settings, Borders, Alignments, Sorting and Formula – Drawing – Tools - Printing Documents.

Unit 3: Introduction to MS Powerpoint (7 hrs)

Introduction to presentation: Opening new presentation, Different presentation templates, setting backgrounds, selecting presentation layouts - different views - animation, art and sound - including graphs, charts, tables and columns - Techniques for Making a Show Livelier - office connections - Printing a Presentation.

Unit 4: Introduction to MS Access: (6 hrs)

MS Access overview, Features of MS Access, creating a Database, Starting Access, Access Screen, Data types, Creating Tables, Adding data, Query data, Query criteria, Relationships and their types, Indexing, Grouping data, joins, create and modify a Forms, Form navigation, MS Access controls and properties.

Unit 5: MS Access Reports, Macros and Data (5 hrs)

Creating Reports, Types of Reports, Printing & Print Preview, MS Access build-In functions, MS Access Macros, Modules, Export the data, importing data from other databases viz. MS Excel etc.

Textbook:

1. MS office - S.S. Shrivastava, Laxmi Publications; First edition 2015

2. Microsoft office 365, All-in-one - Peter WeverkaFor Dummies; 1 edition May 29, 2019.

References:

1. Microsoft Office 2007 Bible - John Walkenbach, HerbTyson, FaitheWempen, caryN.Prague, Michael R.groh, PeterG.Aitken, and Lisa a.Bucki -Wiley India pvt.ltd.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2		4		6
CO3		2	3			6
CO4	1		3	4		6
CO5					5	6

Mean = 3.6

BIT221V WEB DESIGNING USING DREAM WEAVER 2 hrs/2 Cr

The course aims at enabling the students to understand a core technology markup language of the Internet used for structuring and presenting content for the WWW using dream weaver.

Upon completion of this course students will be able to:

i. Gain the fundamental knowledge of dream weaver and World Wide Web.
ii. Get the knowledge of tables, sites in HTML
iii. Acquire the practical knowledge of applying stylesheet and HTML.
iv. Gain the basic knowledge in database and forms.
v. Acquire the practical knowledge of connecting to database.

Unit: 1 Dreamweaver Basics (7hrs)

Working with web pages – opening Dreamweaver- Creating a new web page – Working with text – selecting text- deleting text- formatting text- moving text- copying and pasting text - drag and drop text editing- Creating Links- Working with Images.

Unit: 2 Working with Tables and Sites (6hrs)

Working with Tables- Inserting a Table- Adding Text to a Table Cell- Adding Images to a Table Cell- Selecting Table Elements- Adding Rows and Columns- Working with Sites- Creating a Site- Creating Files- Creating Folders- Creating Links- Uploading Files- Downloading Files.

Unit: 3 Using Stylesheets (6hrs)

Creating an Embedded Style Sheet- Applying an Embedded Style- Creating an External CSS Style Sheet- Linking to an Existing Style Sheet- Editing HTML- Viewing HTML- Writing HTML- Working with Code Snippets.

Unit: 4 Planning a Database-Driven Web Site (6hrs)

Selecting an Application Server-Using ASP- Using ASP.NET- Using JSP- Using PHP- Selecting a Database- Specifying an Application Server for a Site- Using HTML Forms- Creating HTML Forms- Submitting a Form- Resetting a Form.

Unit: 5 Designing a Database (5hrs)

Understanding Relational Databases- Designing Database Tables and Relationships- Creating a Microsoft Access Database- Retrieving Data from a Database- Defining a Database Connection- Creating Simple Queries.

Textbook:

1. Macromedia Dreamweaver MX fast & easy web development – Annesha Bakharia- edition – 2012

Reference:

1. Dreamweaver8-All in one for dummies- sue denkins – edition – 2008.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2	3	4		6
CO3		2				6
CO4	1		3	4		6
CO5					5	6

Mean = 3.6

BIT321V ANIMATION USING OPEN SOURCE TOOL 2 hrs/ 2 cr

The course aims at developing the skill and knowledge in 3D modeling and animation and equip the students to create simple games and animated movies.

Upon the completion of this course students will be able to

i. Obtain basic knowledge on Multimedia concepts and applications,3D concepts and animation.
ii. Understand the fundamental concepts in Blender and create objects.
iii. Design their own models using sculpting tools.
iv. Create skeleton models for animation.
v. Develop simple games and perform video editing.

Unit 1: Introduction to Multimedia and 3D Concepts (6hrs)

Multimedia basics − Multimedia applications − Evolving technologies for multimedia − Defining objects for multimedia systems − Multimedia databases −Three-Dimensional object representations – Color models – Virtual reality – Animation.

Unit 2: Blender Basics (7hrs)

Introduction to Blender, The Blender Interface, importing objects − working with viewports , Modelling: creating and editing objects, Mesh Modeling Fundamentals: Creating and manipulating mesh objects, fundamental modeling tools and mesh selection tools – join or separating meshes − curves –text−modifiers.

Unit 3: Sculpting and Painting (5hrs)

Sculpting tools – Adaptive sculpting – Hiding and Masking – Texture paint – vertex paint – weight paint – Grease pencil – Modes: Draw mode – Sculpt mode –Edit paint mode – Weight paint mode.

Unit 4: Animation and Rigging (6hrs)

Key frames –Armatures: Bones, Properties, Structure, Skinning, Posing – Actions − Drivers – Markers –Shape keys – Motion path

Unit 5: Rendering, Tracking and Masking and Create Scenes (6hrs)

Cycles – Cameras – Lights – Materials –Free style – Render outputs. Tracking and Masking: Motion Tracking – Masking – Movie clip Editor, Create scenes: Create an environment for our scene – Adding motion to our scene.

Textbook:

1. Modeling and Animation Using Blender Blender 2.80: The Rise of Eevee Authors: Guevarra, Ezra Thess, Apress publications, 2019.

Reference:

James Chronister, Blender Basics, Creative Commons Attribution-Non Commercial-Share Alike 4.0 International License,2017 fifth edition by James C.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2	3	4		6
CO3		2	3			6
CO4	1		3	4		6
CO5					5	6

Mean = 3.8