UNDERGRADUATE DEPARTMENT OF COMPUTER SCIENCE

Batch 2020-2021 onwards

Sem	Part	Course No.	Course Title	Hrs	Credit	Marks
1	I	TAS/FRS/HIN XXXX	Language	3	2	30
1	II	ENS XXXX	English – I	3	2	30
1	III C	COS 1581	Programming in C	5	5	75
1	III C	COS 1483	Problem Solving Using C Programming Lab	4	4	60
1	III C	COS 1485	System Software	4	4	60
1	III S	COS 1497	Digital Principles and Computer Organization	5	4	60
1	IV E	COS 1291	PC Hardware and Troubleshooting	3	2	30
1	IV LS	COS 1283	Image Designing(TL)	3(2+1)	2	30
			Total	**30**	**25**	**375**
2	I	TAS/FRS/HIN XXXX	Language	3	2	30
2	II	ENS XXXX	English – II	3	2	30
2	III C	COS 1582	Object Oriented Programming using C++	5	5	75
2	III C	COS 1484	C++ Programming Lab	4	4	60
2	III C	COS 1486	Computer Graphics	4(2+2)	4	60
2	III S	MAS XXXX	Discrete Mathematics	5	4	60
2	**IV E**	**COS 1202**	**Introduction to Website Development**	3	2	30
2	IV LS	COS 1284	Animation Technology(TL)	3(2+1)	2	30
2	V		PED/NSS/SLP		1	15
			Total	**30**	**26**	**390**
3	I	TAS/FRS/HIN XXXX	Language	3	2	30
3	II	ENS XXXX	English – III	3	2	30
3	III C	COS 2581	Java Programming	5	5	75
3	III C	COS 2483	Java Programming Lab	4	4	60
3	III C	COS 2585	Operating Systems	5	5	75
3	III C	COS 2587	Data Structures using C++	5(3+2)	5	75
3	III S	MAS XXXX	Graph Theory and its Applications	5	4	60
			Total	**30**	**27**	**405**

Sem	Part	Course No.	Course Title	Hrs	Credit	Marks
4	I	TAS/FRS/HIN XXXX	Language	3	2	30
4	II	ENS XXX	English – IV	3	2	30
4	III C	COS 2582	Relational Database Management Systems	5	5	75
4	III C	COS 2484	Oracle Lab	4	4	60
4	III C	COS 2586	Computer Networks	5	5	75
4	III C	COS 2588	Microprocessors and Micro Controllers	5	5	75
4	III S	COS 2498	Cloud Computing	5	4	60
4	V		PED/NSS/SLP		1	15
			Total	**30**	**28**	**420**
5	III C	COS 3681	Web Programming(TL)	6(3+3)	6	90
5	III C	COS 3685	Software Engineering	6	6	90
5	III C	COS 3587	Enterprise Resource Planning	5	5	75
5	IV VE	VAL	Value Education	4	2	30
5	IV LS	COS 3285	Audio / Video Editing(TL)	3(2+1)	2	30
5	III C	COS 3691	Python Programming (TL)	6(3+3)	6	90
			Total	**30**	**27**	**405**
6	III C	COS 3682	.NET Programming(TL)	6(3+3)	6	90
6	III C	COS 3684	Project Development Lab(TL)	6(2+4)	6	90
6	III C	COS 3686	Mobile Technologies(TL)	6(3+3)	6	90
6	III C	COS 3588	Business Intelligence and Data Analytics	5	5	75
6	IV EVS	COS 3200	Environmental Studies	4	2	30
6	IV LS	COS 3286	Network Security	3	2	30
			Total	**30**	**27**	**405**
Grand Total (Semester I – VI)				**180**	**160**	**2400**

Value Added Courses

w.e.f. 2020-2021

Sem	Course No.	Course Title	Hours	Credits	Marks
1	COS 121V	Digital Communication Skills	2	2	30
3	COS 221V	Exploring Microsoft Excel(TL)	2	2	30
5	COS 321V	Emerging Technologies In Computer Science	2	2	30
		Total	**6**	**6**	**90**

COS 1202 INTRODUCTION TO WEBSITE DEVELOPMENT 3Hrs/2Cr

The objective of the course is to enable the student to understand the principles of creating an effective webpage and gain knowledge on design and maintenance of website. It also aims at developing skills on how to create and maintain quality web pages.

At the end of the course the student will be able to

i. Recall the various HTML Components.
ii. Create web elements like buttons, banners & Bars and of course complete UI designs.
iii. Apply critical thinking and problem solving skills required to successfully design and implement a web site.
iv. Develop Simple and impressive design techniques, from basics till advanced to focus on goal oriented and user centric designs.
v. Construct a website that conforms to the current web standards and includes e-commerce and web marketing

UNIT I - WEB DESIGN PRINCIPLES 10Hrs

Basic principles involved in developing a web site - Designing navigation bar - Page design - Home Page Layout - Design Concept- Basics in Web Design- World Wide Web - Create a web site - Web Standards

UNIT II – HTML 9Hrs

Introduction to HTML - HTML Documents - Basic structure of an HTML document - Creating an HTML document - Mark up Tags – Heading - Paragraphs - HTML Tags - Elements of HTML - Working with Text

UNIT III - FORM CONTROL 8Hrs

Working with Lists - Tables and Frames - Working with Hyperlinks - Images and Multimedia - Working with Forms and controls - Creating web pages using form controls

UNIT IV – CSS 9Hrs

Introduction to Cascading Style Sheets - Creating Style Sheet - CSS Properties - CSS Styling (Background, Text Format, Controlling Fonts) - Working with block elements and objects

UNIT V - WORKING WITH LISTS AND TABLES 9Hrs

Lists - Tables - CSS Id and Class - Box Model: Border properties - Padding Properties - Margin properties - CSS Color - Creating page Layout and Site Designs.

Text Book:

1. Steve Suehring, Janet Valade, “PHP, MySQL, JavaScript & HTML5 All-in-One for Dummies”, John Wiley and Sons, Inc, 1st edition, 2013
2. Thomas Powell ,“HTML & CSS: The Complete Reference”, Fifth Edition,2010

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References:

1. https://www.w3schools.com/html/default.asp
2. https://www.tutorialspoint.com/web_development_tutorials.htm
3. https://www.tutorialrepublic.com/css-tutorial/
4. https://cssreference.io/

	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2						**6**
CO3			**3**			
CO4						**6**
CO5						**6**

Mean: 4.4

COS 121V DIGITAL COMMUNICATION SKILLS 2Hrs/2Cr

This course aims at gaining knowledge in the development of information and communication technologies, the required knowledge and skills in view of achieving general digital literacy in student. This course also focuses to equip the student with advanced digital media skills, technical abilities to take on the communication industry challenges.

On successful completion of the course, the student will be able to:

i. Outline the importance and identify the types of communication employed in personal and professional environment
ii. Evaluate the possibilities and problems associated with the use of technology
iii. Implement computer-based technology in communicating and acquiring information
iv. Choose employment opportunities in the field of digital media and communication landscape.
v. Produce work that contributes knowledge and expresses creativity with competent and effective communication skills in media across written, oral, visual, and interactive forms.

UNIT - ESSENTIALS OF COMMUNICATION I6Hrs

Digital Communication - Modern technologies in digital Communication – Need for Effective Communication - Tools for digital communication: Video Tapes- Video Conferencing- Blogging - Instant Messaging (IM) - Messages through Mobile Phones - CALL (Computer Assisted Language Learning) - Educational Satellites - Internet - Pod casting. Wearable Technology -Virtual Reality.

UNIT II - FUNDAMENTALS OF DIGITAL TECHNOLOGY 8 Hrs

Generations of Modern Computers – Classification of Digital Computer Systems – Introduction to Computer Software – Software Development – General Software Features and Trends – Computer in Business and Industry – Computers at Home – Computers in Education and Training – Computers in Entertainment – Science – Medicine and Engineering.

UNIT III - INTRODUCTION TO COMMUNICATION SYSTEM 6 Hrs

Internet & World Wide Web – How Internet Works – Getting connected – Internet Addressing -Web Browsers and Web Browsing – Searching the Web – Communicating Using E-Mail– Websites and WebPages – Computer Security – Computer Viruses – Bombs and Worms - Virus Protection.

UNIT IV - DIGITAL TRENDS 4 Hrs

Social Networking and My Privacy – Pros and Cons in Social media - Cyber bullying – Electronic Publishing –Newsgroups – Mailing Lists and Discussion Forums – Chat – Internet Telephony (VoIP)

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UNIT V - BARRIERS TO DIGITAL COMMUNICATION 6 Hrs

Physical barriers - Emotional barriers - Identity barriers - Semantic barriers - Accessibility barriers - Attention barriers - Credibility barrier - Overcoming barriers in digital communication.

Textbooks:

1. Nisha Clement,"Essentials of Communication and Education Technology", Jaypee Brothers Medical Publishers, May 2019.
2. Elizabeth Kuhnke, "Communication Essentials for Dummies", Wiley Publishing Australia Pty. Ltd. (P), 2018.
3. Alexis, Leon & Mathews, Leon, "Internet for Everyone", Vikas Publishing, 15thed, 2012.

References:

1. Alexis, Leon & Mathews, Leon, "Fundamentals of Information Technology", Vikas Publishing. (2nd ed.), 2009.
2. https://www.simplilearn.com/introduction-to-digital-transformation-tutorial
3. https://www.govloop.com/community/blog/7-barriers-digital-communication/

	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2					**5**	
CO3			**3**			
CO4					**5**	
CO5			**3**			**6**

Mean: 3.8

COS 221V EXPLORING MICROSOFT EXCEL 2Hrs/ 2Cr

The objective of this course is to enable the student to gain knowledge in the basic features of Microsoft Excel and spreadsheet concepts to design and create accurate professional worksheets for the use in business, industry and academic environments.

At the end of the course the student will be able to

i. Examine spreadsheet concepts and explore the Microsoft Office Excel environment.
ii. Identify the different components of the Excel worksheet.
iii. Use critical thinking skills to design and create spreadsheets.
iv. Construct formulas to manipulate numeric data in an Excel Worksheet.
v. Use advanced techniques for report visualizations.

Unit I - GETTING STARTED WITH MICROSOFT OFFICE EXCEL 5Hrs

Navigate the Excel User Interface - Excel Commands - Create and Save a Basic Workbook - Cell Data - Entering and Editing Worksheet Data: Insert, Delete, and Adjust Cells, Columns, and Rows - Search for and Replace Data – Import and Export data.

Unit II - FORMATTING WORKSHEETS 5Hrs

Text Formats - Number Formats - Currency Format - Formatting Dates Cell Contents - Styles and Themes - Basic Conditional Formatting - Create and Use Templates

UNIT III - MANAGING WORKSHEETS 7Hrs

Naming and Moving Worksheets - Copying Worksheets - Adding, Deleting and Hiding Worksheets - Grouping Worksheets - Moving, Copying, Deleting and Hiding Grouped Worksheets - Inserting, Deleting Columns and Rows - Modifying Cell Width and Height - Hiding and Unhiding Rows and Columns - Working with multiple workbooks - Printing Worksheets.

UNIT IV - PERFORMING CALCULATIONS 6Hrs

Using Operations - Creating Formulas - Copying formulas – AutoSum - Common Formulas - Date and Time formulas - Data Validations - Sorting and Filtering Data: Sorting tables - Using multiple - level sorting - Using custom sorting - Filtering data for selected view (AutoFilter) - Using advanced filter options.

UNIT V - WORKING WITH REPORTS & CHARTS 7Hrs

Creating subtotals- Multiple - level subtotals - Creating Pivot tables - Formatting and customizing - Pivot tables - Using advanced options of Pivot tables - Pivot charts - Instant Chart - Update Chart - Column Chart - Picture Fill - Adjust Chart Size - Line Chart - Scatter Chart - Formatting Charts - Using 3D Graphs.

Text Book:

1. John Walkenbach, “Excel 2016 Bible”, Wiley Publication, 1st edition, November 2015.

References:

1. Greg Harvey, “Microsoft Excel 2016 All-in-One For Dummies” A Wiley Brand 1st Edition, December 2015.
2. William Fischer, “Excel: Quick Start Guide - From Beginner to Expert”, Createspace Independent Publishing Platform, May 2016
3. https://www.tutorialspoint.com/excel/index.htm
4. https://edu.gcfglobal.org/en/excel2016/
5. https://www.excel-easy.com/

	K1	K2	K3	K4	K5	K6
CO1			**3**			
CO2	**1**					
CO3			**3**			**6**
CO4						**6**
CO5			**3**			

Mean: 3.7

COS 321V EMERGING TECHNOLOGIES IN COMPUTER SCIENCE 2Hrs/2Cr

The objective of the course is to establish and cultivate a broad and comprehensive understanding of the rapidly evolving current technologies among the students. It aims at the student to accomplish advanced knowledge and professional development in the recent technologies further.

On successful completion of the course, the student will be able to

i. Summarize the application areas of IOT, building blocks of Internet of Things and characteristics.
ii. Determine software vulnerabilities and security solutions to reduce the risk of exploitation.
iii. Identify the characteristics of datasets and compare the trivial data and big data for various applications.
iv. Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.
v. Develop knowledge in the main application of VR and AR technologies in medicine and surgery, cultural heritage and games.

UNIT I - INTERNET OF THINGS 6Hrs

Introduction - History of IoT – Components of IoT – Features of IoT – IoT architectures - Challenges in IoT implementation.– IoT applications – Advantages and Disadvantages of IoT- Relevance of IOT for the future.

UNIT II - INFORMATION SECURITY &CYBER SECURITY FUNDAMENTALS 8Hrs

Introduction to Information Security – Threats to Information Systems - Information Assurance Fundamentals – Basic Cryptography – Symmetric Encryption – Public Key Encryption – The Domain Name System (DNS) – Firewalls – Antiforensics – Fraud Techniques – Threat Infrastructure.

UNIT III - BIG DATA 5Hrs

Introduction - Characteristics of Big data – Challenges of Big data – Hadoop Framework – HDFS – Map Reduce method – Analysis Vs Reporting.

UNIT IV - ARTIFICIAL INTELLIGENCE 5Hrs

Introduction – History of AI - Goals of AI – Applications of AI –Subset of AI – The Future with AI - Introduction about machine learning and deep learning.

UNIT V - VIRTUAL REALITY & AUGUMENTED REALITY 6Hrs

Virtual Reality - Introduction - VR Applications - Three Illusions - Challenges in Virtual Reality - Augumented Reality: Introduction to augmented reality (AR) - The basics of AR functionality - Approaches to augmented reality - AR applications.

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Text Books:

1. Michael Minelli, Michele Chambers, Ambiga Dhira,"Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses," Wiley Publications,2013.
2. Vijay Madisetti, Arshdeep Bahga," Internet of Things A Hands-On- Approach", 2014
3. Mayank Bhushan, Fundamentals of Cyber Security, New Delhi: BPB Publications. Print, 2017.

References:

1. https://www.guru99.com/iot-tutorial.html
2. https://www.javatpoint.com/iot-internet-of-things
3. https://www.javatpoint.com/cyber-security-introduction

	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2			**3**	**4**		
CO3	**1**				**5**	
CO4			**3**			
CO5						**6**

Mean: 3.4