DDUKK
MGCGV Chitrakoot
Course Curriculum of B.Voc (Cyber Security and Information Technology)

S.N.	Name of the Course	Course Code	Credits	Hours	Remarks
	1st Semester				
	Skill Component				
1.	PC-Package	CSS101	5(3+2)	105	
2.	Programming in C	CSS 102	5(3+2)	105	
3.	Fundamentals of Information Security and Legal Framework	CSS 103	5(3+2)	105	
4.	Work Integrated Learning	CSS 104	6(2+4)	90	Elective as per Skill Level 4 of NASSCOM
	Sub Total		**18(3+15)**	405	
	General Component				
6.	Communication Hindi	CSG 101	2(1+1)	45	
7.	Fundamentals of Computer	CSG 102	4(2+2)	90	
8.	General Subject Paper 1	CSG 103	6(4+2)	120	
	Sub Total		**12(7+5)**	255	
	Total of 1st Semester		**30(13+17)**	660	
	2nd Semester				
	Skill Component				
1.	Data Structure using C	CSS 105	5(2+2)	105	
2.	Internet & E Commerce	CSS 106	5(2+1)	105	
3.	Information Security & Cryptography	CSS 107	5(3+2)	105	
4.	Work Integrated Learning-II (WIL-II)	CSS 108	6(2+4)	90	Elective as per Skill Level 4 of NASSCOM
	Sub Total		**18(9+9)**	405	
	General Component				
5.	General Subject Paper-2	CSG 104	6(4+2)	120	
6.	Communication English	CSG 105	2(1+1)	45	
7.	Statistical Methods	CSG 106	2(1+1)	45	
8.	Values and Social Responsibilities(VSR)	CSG 107	2(0+2)	60	
	Sub Total		**12(6+6)**	270	
	Total of 2nd Semester		**30(15+15)**	675	
	Total of 1st Year		**60(28+32)**	1335	
	3rd Semester				
	Skill Component				
1.	Object Oriented Programming in C++	CSS 201	5(2+2)	105	
2.	Operating System	CSS 202	5(2+1)	105	
3.	Cyber Crimes & Investigation	CSS 203	5(3+2)	105	

4.	Work Integrated Learning-II (WIL-II)	CSS 204	6(2+4)	90	Elective as per Skill Level 5 of NASSCOM
	Sub Total		**18(3+15)**	405	
	General Component				
5.	Computer Programming and Web Designing	CSG 201	3(1+2)	75	
6.	Environmental Studies and Disaster Management	CSG 202	3(2+1)	60	
7.	General Subject Paper III	CSG 203	6(4+2)	120	
	Sub Total		**12(7+5)**	255	
	Total of 3rd Semester		**30(16+14)**	660	
	4th Semester				
	Skill Component				
1.	Computer Networks	CSS 205	5(2+2)	105	
2.	Data Base Management System	CSS 206	5(2+1)	105	
3.	Security Architecture and Models	CSS 207	5(3+2)	105	
4.	Work Integrated Learning-II (WIL-II)	CSS 208	6(2+4)	90	Elective as per Skill Level 5 of NASSCOM
	Sub Total		**18(3+15)**	405	
	General Component				
6.	General Subject Paper IV	CSG 204	6(4+2)	120	
7.	Accounting Practices	CSG 205	4(2+2)	90	
8.	Values & Social Responsibilities	CSG 206	2(1+1)	45	
	Sub Total		12(7+5)	255	
	Total of 4th Semester		30(14+16)	690	
	Total of 2nd Year		60(30+30)	1350	
	5th Semester				
	Skill Component				
1.	Programming with Java	CSS 301	5(2+2)	105	
2.	Operating System	CSS 302	5(2+1)	105	
3.	Cyber Crimes & Investigation	CSS 303	5(3+2)	105	
4.	Work Integrated Learning-II (WIL-II)	CSS 304	6(2+4)	90	Elective as per Skill Level 6 of NASSCOM
	Sub Total		**18(3+15)**	405	
	General Component				
5.	Computer Programming and Web Designing	CSG 301	3(1+2)	75	
6.	Environmental Studies and Disaster Management	CSG 302	3(2+1)	60	
7.	General Subject Paper III	CSG 303	6(4+2)	120	
	Sub Total		**12(7+5)**	255	
	Total of 5th Semester		**30(16+14)**	660	
	6th Semester				
	Skill Component				

1.					
2.					
3.					
4.					
5.					
	Sub Total				
	General Component				
6.	General Subject Paper IV	CSG304	6(4+2)	120	
7.	Accounting Practices	CSG305	4(2+2)	90	
8.	Values & Social Responsibilities	CSG306	2(1+1)	45	
	Sub Total		12(7+5)	255	
	Total of 6th Semester		30(14+16)	690	
	Total of 3rd Year		60(30+30)	1350	

Weight age and Evaluation Criteria

Theory/ Practical	CFA	ESE	Evaluation Criteria
Theory	40%	60%	CFA : Attendance 25%, Class performance & Assignment 25% , Test and Viva 50% ESE : Test 60%
Practical	60%	40%	CFA & ESE : Practical and record 50% , Test 25%, Viva 25%

SEMESTER- I

Subject Code-CYSIT101 PC-Package

UNIT – I

MS Windows: Introduction to M.S. Windows; Features of Windows; Various versions of Windows & its use; Working with Windows; My Computer & Recycle bin ; Desktop, Icons and Windows Explorer; Screen description & working styles of Windows; Dialog Boxes & Toolbars; Working with Files & Folders; simple operations like copy,delet,moveing of files and folders from one drive to another, Shortcuts & Autostarts; Accessories and Windows Settings using Control Panel- setting common devices using control panel, modem, printers, audio, network, fonts, creating users, internet settings, Start button & Program lists; Installing and Uninstalling new Hardware & Software program on your computer.

UNIT – II

Office Packages-Office activates and their software requirements, Word-processing, Spreadsheet, Presentation graphics, Database, introduction and comparison of various office suites like MSOffice, LotusOffice, StarOffice, OpenOffice etc**.**

MS Word Basics: Introduction to MS Office; Introduction to MS-Word; Features & area of use. Working with MS Word.; Menus & Commands; Toolbars & Buttons; Shortcut Menus, Wizards & Templates; Creating a New Document; Different Page Views and layouts; Applying various Text Enhancements; Working with – Styles, Text Attributes; Paragraph and Page Formatting; Text Editing using various features ; Bullets, Numbering, Auto formatting, Printing & various print options

UNIT-III

Advanced Features of MS-Word: Spell Check, Thesaurus, Find & Replace; Headers & Footers ; Inserting – Page Numbers, Pictures, Files, Autotexts, Symbols etc.; Working with Columns, Tabs & Indents; Creation & Working with Tables including conversion to and from text; Margins & Space management in Document; Adding References and Graphics; Mail Merge, Envelops & Mailing Labels. Importing and exporting to and from various formats.

UNIT – IV

MS Excel: Introduction and area of use; Working with MS Excel.; concepts of Workbook & Worksheets; Using Wizards; Various Data Types; Using different features with Data, Cell and Texts; Inserting, Removing & Resizing of Columns & Rows; Working with Data & Ranges; Different Views of Worksheets; Column Freezing, Labels, Hiding, Splitting etc.; Using different features with Data and Text; Use of Formulas, Calculations & Functions; Cell Formatting including Borders & Shading; Working with Different Chart Types; Printing of Workbook & Worksheets with various options.

UNIT – V

MS PowerPoint: Introduction & area of use; Working with MS PowerPoint; Creating a New Presentation; Working with Presentation; Using Wizards; Slides & its different views; Inserting, Deleting and Copying of Slides; Working with Notes, Handouts, Columns & Lists; Adding

Graphics, Sounds and Movies to a Slide; Working with PowerPoint Objects; Designing & Presentation of a Slide Show; Printing Presentations, Notes, Handouts with print options.

Outlook Express: Features and uses, Configuring and using Outlook Express for accessing e-mails in office.

Text & Reference Books:
Windows XP Complete Reference. BPB Publications
MS Office XP complete *BPB publication*
MS Windows XP Home edition complete*, BPB Publications*

Subject Code-CYSIT102 Programming in C

UNIT – I

Program Concept, Characteristics of Programming, Various stages in Program Development Programming aids Algorithms, Flow Charts - Symbols, Rules for making Flow chart, Programming Techniques – Top down, Bottom up, Modular, Structured - Features, Merits, Demerits, and their Comparative study. Programming Logic- Simple, Branching, Looping, Recursion, Cohesion & Coupling, Programming Testing & Debugging & their Tools .

UNIT – II

Introduction to C language, C language standards features of C, Structure of C program.

Introduction to C compilers, Creating and compiling C Programs, IDE features of Turbo C compiler, Command line options to compile C program in TC.

Keywords, Identifiers, Variables, constants, Scope and life of variables - local and global variable. Data types, Expressions, Operators : Arithmetic, Logical, Relational, Conditional and Bit wise Operators. Precedence and Associativity of Operators, Type conversion.

Basic input/output library functions: Single character input/output i.e. getch(), getchar(). getche(), putchar(). Formatted input/output i.e. printf() and scanf().

Library functions : Mathematical & Character functions.

UNIT – III

Declaration statement, conditional statement : If statement, If.....Else statement, Nesting of If....Else Statement, else if ladder, The ?: operator, Switch statement. Iteration statements: for loop, while loop, do-while loop. Jump statements: break, continue, goto exit(). ARRAYS : concept of Single and Multi Dimensional arrays, Array declaration and initialization of arrays Strings : declaration, initialization, functions**.**

UNIT – IV

The need of C functions, User defined and library function, prototype of functions, prototype of main() function, Calling of functions, Function arguments, argument passing: call by value and call by reference, Return values. Nesting of function, Recursion, Array as function argument, Command line arguments. Storage class specifier - auto, extern, static, register.

UNIT – V

Defining structure, Declaration of structure variable, typedef, Accessing structure members, Nested structures, Array of structure, Structure assignment, Structure as function argument, Function that return structure, Union.

Concept of debugging. Finding Errors in the programs, error codes and their meanings, Various debugging options in Turbo C compiler. (Debug and Options Menu of the TCC IDE)

TEXTS & REFERENCE BOOKS :

*E. Balaguruswamy, **"Programming In C ",** TMH Publications*
*Gottfried, Schaums Outline Series, **" Programming With C "**, TMH Publications*
*Mahapatra, **" Thinking In C ",** PHI Publications*
*Anurag Seetha**, "Introduction To Computers And Information Technology "**, Ram Prasad & Sons, Bhopal.*
*S.K.Basandra, **" Computers Today ",** Galgotia Publications.*
*Peter Juliff, **" program design "**, PHI Publications*

Subject Code CYSIT103 Fundamentals of Information Security and Legal Framework

Unit I: Introduction.

The History of Information Security, Balancing Information Security and Access, Introduction and Security Trends, General Security Concepts and introduction to what is an "infosphere", Operational Security and People's Role in Information Security.

Unit II: Security Needs.

The Need for Security, Business Needs, Needs to protect against Threats and Attacks, Security in Emails. Secure Software Development.

Concepts of Data encryption, Introduction, Plaintext & Cipher text, Substitution Techniques, Transposition Techniques, Encryption & Decryption, Symmetric & Asymmetric key Cryptography. Public Key Infrastructure (PKI), Different attacks on Cryptosystems.

Unit III: Internet Standards and Authentication.

Basic concepts of Internet Standards and Physical Security, Network Security and Infrastructure, Authentication Basics, Password, Authentication Token, Certificate based Authentication, Basics of authentication in Wireless Networks, Need of authentication in Wireless Communication.

Unit IV: Risk and Disaster Management.

An Overview of Risk Management and Disaster Planning, Risk Identification, Risk Assessment, Risk Control Strategies, Quantitative Versus Qualitative Risk Control Practices.

Access Control, Biometric Access Controls, Firewalls, Protecting Remote Connections in Remote Access and Virtual Private Networks (VPNs), Intrusion Detection and Prevention Systems

Unit V: Legal Framework

Indian legal system, federalism and constitutionalism, Legislation, Enforcement of laws and Adjudication, Judicial system in India and hierarchy of courts, Criminal and Civil legal and

justice system, Concept of Jurisdiction, Regulatory tribunals and their functions, Principles of administrative law, Alternative dispute resolution mechanism.

Text Books:

1) Michael E Whitman and Herbert J Mattord, "Principles of Information Security", Vikas Publishing House, New Delhi.
2) Micki Krause, Harold F. Tipton, " Handbook of Information Security Management", CRC Press LLC

Indian Legal System: S.P. Sharma, Mittal Publication

Semester - II

Subject Code CYSIT201 Data Structure using C

UNIT–I

The concept of data structure, Abstract data type, Concept of list & array Introduction to stack, Stack as an abstract data type, primitive operation on stack, Stacks application: Infix, post fix, Prefix and Recursion, Multiple Stack.

Introduction to queues, Primitive Operations on the Queues, Queue as an abstract data type, Circular queue, Dequeue, Priority queue, Applications of queue

UNIT–II

Introduction to the Linked List , Basic operations on linked list, Stacks and queues linked list, Header nodes, Doubly Linked List, Circular Linked List, Stacks & Queues as a Circular Linked List, Application of Linked List.

UNIT–III

TREES - Basic Terminology, Binary Trees, Tree Representations using Array & Linked List, Basic operation on Binary tree, Traversal of binary trees:- In order, Preorder & post order, Application of Binary tree, Threaded binary tree, B-tree & Height balanced tree, Binary tree representation of trees.

UNIT–IV

Analysis of algorithm, complexity using big 'O' notation. Searching:
linear search, Binary search, their comparision.

Sorting :Insertion sort, Selection sort, Quick sort, Bubble sort, Heap sort, Comparison of sorting methods.

Hash Table, Collision resolution Techniques.

UNIT–V

Introduction to graphs, Definition, Terminology, Directed, Undirected
& Weighted graph, Representation of graphs, Graph Traversal-Depth first & Breadth first search. Spanning Trees, minimum spanning Tree, Shortest path algorithm.

TEXT & REFERENCE BOOKS

Fundamentals Of Data Structure, *By S. Sawhney & E. Horowitz*

Data Structure : *By Trembley & Sorrenson*
Data Structure *: By lipschuists (Schaum's Outline Series Mcgraw Hill Publication)*
Fundamentals Of Computer Algorithm: *By Ellis Horowitz and Sartaj Sawhney*

Subject Code CYSIT202 Internet & E Commerce

UNIT–I

Internet: Evolution, Concepts, Internet Vs Intranet, Growth of Internet, ISP, ISP in India, Types of connectivity - Dial-up, Leased line, DSL, Broadband, RF, VSAT etc., Methods of sharing of Internet connection, Use of Proxy server.

Internet Services – USENET, GOPHER, WAIS, ARCHIE and VERONICA, IRC

WORLD WIDE WEB (WWW) - History, Working, Web Browsers, Its functions, URLs, web sites, Domain names, Portals. Concept of Search Engines, Search engines types, searching the Web, Web Servers, TCP/IP and others main protocols used on the Web.

E-Mail: Concepts, POP and WEB Based E-mail, merits, address, Basics of Sending & Receiving, E-mail Protocols, Mailing List, Free E-mail services, e-mail servers and e-mail clients programs.

UNIT–II

Concepts of Hypertext, HTML introduction, features, uses & versions Using various HTML tags, Elements of HTML syntax, Head & Body Sections, , Inserting texts, Text alignment, Using images in pages, Hyperlinks – text and images, bookmarks, Backgrounds and Color controls, creating and using Tables in HTML, and presentation, Use of font size & Attributes, List types and its tags. Cascading Style sheets – defining and using simple CSS.

UNIT-III

Introduction to WYSIWYG Design tools for HTML, Overview of MS FrontPage, Macromedia Dream weaver, and other popular HTML editors, designing web sites using MS FrontPage (using at least FrontPage 2000)

Use of Frames and Forms in web pages, Image editors, Issues in Web site creations & Maintenance,

Web Hosting and publishing Concepts, Hosting considerations, Choosing Web servers – Linux Vs Windows Web servers, Choosing Domain names, Domain name Registration, Obtaining space on Server for Web site,

FTP software for upload web site. Add your website on search engines.

UNIT–IV —

Javascript Overview, Javascript and the WWW, Javascript vs. VBScript, Javascript vs. Java, Javascript versions, Script element,. Functions: Functions introduction, Calling functions, Javascript Comments, Variables: Variables overview, declaring variables, Types of variables, Casting variables, Alert box , Prompt & confirm. Expressions: Arithmetic operators, Assignment operators, Logical operators, Expressions and precedence, Statements: If statement, For statement, While statement, Break/Continue

Creating arrays/event handlers, JavaScript Object model, Object and Events in JavaScript – OnClick, On MouseOver, On Focus, OnChange, OnLoad etc. Getting data with forms.

UNIT–V

E - Commerce An introductions, Concepts, Advantages and disadvantages, Technology in E-Commerce, Internet & E-business, Applications, Feasibility & various constraints. E-transition challenges for Indian corporate, the Information Technology Act 2000 and its highlights related to e-commerce.

Electronic Payment Systems: Introduction, Types of Electronic Payment Systems, Digital Token-Based Electronic Payment Systems, Smart Cards and Electronic Payment Systems, Credit Card-Based Electronic Payment Systems, Risk and Electronic Payment Systems.

E-security – Security on the internet, network and web site risks for e-business, use of firewalls, secure physical infrastructure.

TEXT & REFERENCE BOOKS :

***Frontiers of Electronic Commerce**, By- Kalakota, Ravi ; Stone, Tom ; Whinston, Andrew B, Addison Wesley Publishing Co , ISBN 8178080575*

***E-Commerce An Indian Perspective (Second Edition)** – by P.T. Joseph, S.J. Prentice-Hall of India*

***Internet & Web Design By A**. Mansoor, Pragya Publications.*

***Learn HTML in a weekend by Steven E**. Callihan, PHI*

Using HTML By Lee Anne Phillips, PHI

***SAMS Teach Yourself Javascript in 24 Hrs.** By Michael Moncur, TechMedia*

Subject Code CYSIT203 Information Security & Cryptography

Unit 1 Information Security: Introduction, History of Information security, What is Security, CNSS Security Model, Components of Information System, Balancing Information Security and Access, Approaches to Information Security Implementation, The Security Systems Development Life Cycle.

Unit II Cryptography: Concepts and Techniques, symmetric and asymmetric key cryptography, steganography, Symmetric key Ciphers: DES structure, DES Analysis, Security of DES, variants of DES, Block cipher modes of operation , AES structure, Analysis of AES , Key distribution Asymmetric key Ciphers: Principles of public key cryptosystems, RSA algorithm, Analysis of RSA, Diffie-Hellman Key exchange

Unit III Message Authentication and Hash Functions: Authentication requirements and functions, MAC and Hash Funtions, MAC Algorithms: Secure Hash Algorithm, Whirlpool, HMAC, Digital signatures, X.509, Kerberos UNIT – IV Security at layers(Network, Transport, Application): IPSec, Secure Socket Layer(SSL), Transport Layer Security(TLS), Secure Electronic Transaction(SET), Pretty Good Privacy(PGP), S/MIME

Unit IV Inruders, Virus and Firewalls: Intruders, Intrusion detection, password management, Virus and related threats, Countermeasures, Firewall design principles, Types of firewalls

Unit V Introduction to Cryptoanalysis: Linear Cryptanalysis, Differential Cryptanalysis, Cryptanalysis of DLP

Text Books: 1. Principles of Information Security : Michael E. Whitman, Herbert J. Mattord,