



GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATIONS

Programme	B.Sc.IT(Cyber Security)				Branch/Spec.	Computer Applications			
Semester	II				Version	1.0.0.0			
Effective from Academic Year	2019-20				Effective for the batch Admitted in	July 2019			
Subject Code	U62A1IP2		Subject Name		INTRODUCTION TO PROGRAMMING-II				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	2	-	5	Theory	40	60	100
Hours	3	-	4	-	7	Practical	20	30	50
Objective:									
To learn the fundamentals of Procedural Programming Language.									
Pre-requisites:									
Fundamental knowledge of variables, data types, operators, decision making and looping statements									
Learning Outcome:									
After completing this course, students should be able to learn:									
<ul style="list-style-type: none"> ✓ Understand about array and strings ✓ Learn about User Defined Functions ✓ Learn about Structure and Union ✓ Understand about Pointer and File Management functions ✓ Understand about debugging and testing 									
Content:									
Unit									Hrs
1	Array and Strings: Introduction to Array, Concept of Dimensions in arrays, Initialization values in an array, Overflow and Underflow, Concepts of Multidimensional Array Introduction, Declaring and initializing string variables, Reading string from terminal, Writing string to screen, Arithmetic operations on characters, Putting string together, String Operations: String Copy, String Compare, String Concatenation and String Length, String Handling functions, Table of strings								9
2	User Defined Functions: Need for user-defined functions, the form of C function, return values and their types,								9

	calling a function, category of functions, no arguments and no return values, arguments with return values, handling of non-integer functions, nesting of functions, recursion, functions with arrays, the scope, visibility and lifetime of variables in functions	
3	Structures & Unions: Structure definition, Assigning values into members, structure initialization, comparison of structures, arrays of structures, arrays within structures, structures within structures. Introduction of Union. Difference between Structure and Union	9
4	Pointers & File Management: Introduction, Understanding pointers, Accessing the address of variable, Declaring and initializing pointers, Accessing a variable through its pointer, Pointer expressions, Pointer increments and scale factor, Pointers and arrays, Pointers and character strings, Pointers and Functions, Pointers and structures Introduction, Defining files and its Operations, Error handling during I/O operations, Random access files, Command line arguments	9
5	Dynamic Memory Allocation, Preprocessor and Debugging: Introduction of Dynamic Memory Allocation, Dynamic Memory Allocation functions, Introduction of Preprocessor, Macro Substitution, File Inclusion, Compiler Control Directives, ANSI additions, Program design, Program coding, Common programming errors, Program testing and debugging, Program efficiency	9
Practical Content:		
List of programs specified by the subject teacher based on above mentioned topics		
Reference Books:		
1	Programming in ANSI C by E Balagurusamy - TMH Publications	
2	Programming in C by Pradip dey and Manash Ghosh - Oxford University Press Publication	
3	Let us 'C' by Yashwant Kanetkar –BPB Publications	
Web Reference:		
Question Paper Scheme:		
<p>University Examination Duration: 3 Hours Note for Examiner: - Q-1 must be common from any topics from syllabus. Q-2 and onwards must be from specific topics and internal choice or option can be given.</p> <p>SECTION – I Q-1 (Attempt any Five Out of Seven: each question must be 6 marks) – 30 Questions must be covered all possible section.</p> <p>SECTION – II Q-2 (Must be from topics: 1 and 2 (6+6)) Q-3 (Must be from topics: 3 and 4(6+6)) Q-4 (Must be from topic: 5(6))</p>		

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Semester	II				Version	1.0.0.0			
Effective from Academic Year			2019-20		Effective for the batch Admitted in			July 2019	
Subject Code	U62A2WD2		Subject Name		WEB DESIGNING-II				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	2	-	5	Theory	40	60	100
Hours	3	-	4	-	7	Practical	20	30	50

Objective:

To learn the fundamentals of web developing using Scripting Language. This course provides a practical hands-on introduction to developing Web applications using JavaScript scripting language. Acquiring sufficient knowledge on client scripting language to provide improve security of web sites.

Pre-requisites:

Knowledge of Web Technology.
Knowledge of HTML and use of Internet.

Learning Outcome:

After learning this course, the students should be able to

- Understand the use of web technology
- Use script to validate input form
- Understand cyber-attacks on web
- Use JavaScript to improve security in a web page

Content:

Unit		Hrs
1	<p>Introduction Web Technology</p> <p>An Introduction to Internet, Working of Internet, Hypertext Transfer Protocol, World Wide Web, Introduction to Web Server and Web Browser, Scripting Languages, Difference between Server and Client Script, Static and Dynamic Web Page, Types of Websites, Web Designing Principles</p>	9
2	<p>Java Script concepts</p> <p>Introduction to Java Script, Advantage of Java Script, Java Script Syntax, Comments, Variable, Array, Operators, Looping, Functions, Dialog box, Regular</p>	9

	Expression, Objects in JavaScript, Cookies, ActiveX and JavaScript	
3	Java Script Validations and Events Java Script Validations and Form Validations, Retype Password Validation, Number Validation, Image Validation with type and size, email validation, Key Events, Button Events	9
4	Common Types of Cybersecurity Attacks on Web Technology Cross Site Scripting, Phishing Attacks, Malware Attacks, SQL Injection, Distributed Denial-of-Service (DDoS) attack, different attacks etc.,	9
5	Pen Testing on Java Script Introduction of Pentesting, Tools of Pentesting, Modify HTML with Javascript, Cross Site Scripting, Directory traversal, Testing for Client Side URL Redirect, Test Upload of Unexpected File Types, Modify Form Fields, SQL Injection testing, Testing for Clickjacking	9

Practical Content:

List of programs specified by the subject teacher based on above mentioned topics

Reference Books:

1	The complete reference Web Design by Thomas A. Powell, Publish by ma – Mcgraw-Hill Osborn Media
2	The Web Application Hecker's Handbook 2 – Dafydd Stuttard , Marcus Pinto – john Wiley & sons, Inc., Indianapolis, Indiana
3	Test-Driven JavaScript Development - Christian Johansen, Pearson education (US)

Web Reference:

1	https://docs.microsoft.com/en-us/aspnet
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Question Paper Scheme:

University Examination Duration: 3 Hours

Note for Examiner: -

Q-1 must be common from any topics from syllabus.

Q-2 and onwards must be from specific topics and internal choice or option can be given.

SECTION – I

Q-1 (Attempt any Five Out of Seven: each question must be 6 marks) – 30

Questions must be covered all possible section.

SECTION – II

Q-2 (Must be from topics: 1 and 2 (6+6))

Q-3 (Must be from topics: 3 and 4(6+6))

Q-4 (Must be from topic: 5(6))



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Semester	II				Version	1.0.0.0			
Effective from Academic Year	2019-20				Effective for the batch Admitted in	July 2019			
Subject Code	U62A3OS2		Subject Name		OPERATING SYSTEM SECURITY-II				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	2	-	5	Theory	40	60	100
Hours	3	-	4	-	7	Practical	20	30	50
Objective:									
To learn the fundamentals of an operating system with Linux operating system distribution. The aim is to provide knowledge of customization of Linux operating system and administration with the security features and shell scripting.									
Pre-requisites:									
Basic knowledge of computer, User interface with operating system									
Learning Outcome:									
After completing this course, students should be able to:									
<ul style="list-style-type: none"> ✓ To understand the customized operating system ✓ To get aware about of GUI and CUI in Operating System ✓ To administrate and securing the System 									
Content:									
Unit									Hrs
1	Introduction to the Operating System								9
	Types of operating System, overview of Linux operating system: Linux features, Linux Distributions, Linux Kernel, Linux file system, Linux Pros and Cons, Windows OS v/s Linux OS, Desktop environment, introduction to LVM, Package management								
2	The Shell Interface and Text Editors								9
	Introduction to Shell, Running Commands, Recalling Commands, Connecting and Expanding Commands, Shell Variable, types of Editors, Introduction to vi: Moving								

	around in the text, deleting, copying, and changing text, searching for files with find and grep	
3	Working with shell scripts Overview of shell scripts, command line arguments, logical operators, if conditional, numeric Comparison, string Comparison, case conditional, computation and string handling, while loop, for loop, set and shift, here document(<<), trap, debugging shell scripting	9
4	User Administration and Networking Managing Local User(create, Delete, permissions to User), Managing groups, introduction to computer network, Desktop Sharing, Network Configuration and Troubleshooting commands	9
5	Linux Security for System Administration Introduction to linux security, firewall, linux security tools: Wireshark, NMAP, Malware, Snort, NIKTO, Metasploit framework, SPIKE, Ollydbg debugger, Linux-based security distros	9
Practical Content:		
List of programs specified by the subject teacher based on above mentioned topics		
Reference Books:		
1	Linux Bible By Christopher Negus and Christine Bresnaham, Publication Wiley-India, Edition 8	
2	Fedora Bible: Featuring Fedora Linux 12, 2010 Edition	
3	Unix Concepts & Applications Includes Systems Programming & Linux- Sumitabha Das, Tata Mcgraw Hill, 3 Edition	
Web Reference:		
Question Paper Scheme:		
	University Examination Duration: 3 Hours Note for Examiner: - Q-1 must be common from any topics from syllabus. Q-2 and onwards must be from specific topics and internal choice or option can be given. SECTION – I Q-1 (Attempt any Five Out of Seven: each question must be 6 marks) – 30 Questions must be covered all possible section. SECTION – II Q-2 (Must be from topics: 1 and 2 (6+6)) Q-3 (Must be from topics: 3 and 4(6+6)) Q-4 (Must be from topic: 5(6))	



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Semester	II				Version	1.0.0.0			
Effective from Academic Year	2019-20				Effective for the batch Admitted in	July 2019			
Subject Code	U62A4COA		Subject Name		COMPUTER ORGANIZATION AND ARCHITECTURE				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture (DT)		Practical (Lab.)		Total	CE	SEE	Total	
	L	TU	P	TW					
Credit	3	-	-	-	3	Theory	40	60	100
Hours	3	-	-	-	3	Practical	-	-	-
Objective:									
To understand the number systems and architecture of microprocessor.									
Pre-requisites:									
Basic Understanding of Computer System									
Learning Outcome:									
<ul style="list-style-type: none"> • The students will be able to understand conversion of different number systems. • The students will be able to understand different types of code. • The students will be able to understand about microprocessor's architecture, its operations and its instructions. 									
Content:									
Unit									Hrs
1	Data Representation and Number System: (15) Number System: Introduction to Decimal, Binary, Octal, Hexadecimal number systems, Conversation of number from one number system to another number System, Binary Arithmetic: Addition, Subtraction (Simple method, using 1's And 2's Complement method), Multiplication, Division (Simple method and using Register method) Representation of Number: Representation & Error detection and correction codes, Representation of Integers, floating point numbers								15
2	Different types of codes: (8) Alphanumeric Code (only ASCII & EBCDIC), Excess-3 Code, Grey Code, Parity bit scheme, Checksum method, RICS (Reduced Instruction Set Computers), CISC (Complex Instruction Set Computers), RICS versus CISC, Parallel to Serial and Serial to Parallel								8

	conversion, Microcontroller (Application only)	
3	Parallel Execution and Flow Control: (8) Execution: Instruction Execution, Parallel Execution, Instruction Level (Pipelining, Multifunction) Processor Level (Array processor, Vector processor, Multiprocessor), Addressing Techniques: Immediate Addressing, Direct Addressing, Register Addressing, Indexed Addressing, Flow of Control: Sequential flow of control and Branches, Procedures, Subroutine, Traps	8
4	Introduction of Microprocessor (8085): (7) Microprocessor as CPU, Bus Structure, 8085 Pin diagram, 8085 Block diagram, Flag Register, Programming Model, Instruction Format	7
5	Computer Instructions: (7) Data transfer and I/O Instructions, Arithmetic Instruction, Logic Instruction, Branch Instructions and Assembly Programming Instruction	7
Practical Content:		
Reference Books:		
1	Fundamentals of computer by V.Rajaraman-PHI Publications., sixth edition	
2	Digital Principles and Applications by Malvino and Leach –TMH Publications. , sixth edition	
3	Digital Electronics by William H. Gothmann- PHI Publications , second edition	
4	Structured Computer Organization by TANENBAUM, A.S- PHI Publications	
5	Computer Organization and Architecture by Willam Stallings, Pearson	
6	Microprocessor Architecture Programming and Application with 8085 by Ramesh S. Gaonkar – Wiley Eastern Limited.	
Web Reference:		
Question Paper Scheme:		
	<p>University Examination Duration: 3 Hours Note for Examiner: - Q-1 must be common from any topics from syllabus. Q-2 and onwards must be from specific topics and internal choice or option can be given.</p> <p>SECTION – I Q-1 (Attempt any Five Out of Seven: each question must be 6 marks) – 30 Questions must be covered all possible section.</p> <p>SECTION – II Q-2 (Must be from topics: 1 and 2 (6+6)) Q-3 (Must be from topics: 3 and 4 (6+6)) Q-4 (Must be from topic: 5(6))</p>	



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Semester	II				Version	1.0.0.0			
Effective from Academic Year	2019-20				Effective for the batch Admitted in	July 2019			
Subject Code	U62A5FCS		Subject Name		FUNDAMENTAL OF CYBER SECURITY				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	-	-	3	Theory	40	60	100
Hours	3	-	-	-	3	Practical	-	-	-
Objective:									
To understand the fundamentals of cyber security. Students will also learn various categories of cybercrime, cyber attacks on mobile, tools and techniques used in cyber crime, and computer forensics.									
Pre-requisites:									
NA									
Learning Outcome:									
After completing this course, students should be able to:									
<ul style="list-style-type: none"> ✓ Identify and classify cyber crime ✓ Understand different attacks on mobile devices and apply various security measurement on it ✓ Differentiate various types of cybercrimes and identify the cyber-attack and its methods ✓ Understand the need of computer forensics and phases involved in it. ✓ Understand key terms and concepts in cyber law 									
Content:									
Unit									Hrs
1	Introduction to Cybercrime Basics of cybercrime, Cybercrime Trend, Cybercrime and Information Security, Cybercriminals, Classifications of cybercrime, Cyberdefamation								9
2	Cyberoffenses and Cybercrime on mobile Categories of Cybercrime, Active Attacks, Passive Attacks, Social Engineering, Cyberstalking, Cyber-attacks on mobile , Security measurements on portable device								9

3	Cybercrime in action Tools and Methods used in cybercrime, Phishing and identity theft.	9
4	Computer Forensics Digital Forensic Science, The need of Computer forensics, Types of Digital Forensics, Cyber forensic and digital evidence, Digital forensic life cycle, Steganography, Forensics and Social Networking sites, Computer forensic challenges	9
5	Cybercrime and Cyber security with legal perspective Cybercrime and the legal landscape, Cybercrime scenario in India, The Indian IT Act, Amendments to the Indian IT act, Cybercrime and Punishment, Cybercrime: Mini cases	9

Reference Books:

1	Cyber Security : Understanding Cyber Crimes , Computer Forensics and Legal Perspectives By Nina Godbole, Sunit Belapur , Wiley
2	Cyber Security for Beginners by Raef Meeuwisse ,Cyber Simplicity Ltd.

Web Reference:

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Question Paper Scheme:

<p>University Examination Duration: 3 Hours Note for Examiner: - Q-1 must be common from any topics from syllabus. Q-2 and onwards must be from specific topics and internal choice or option can be given.</p> <p>SECTION – I Q-1 (Attempt any Five Out of Seven: each question must be 6 marks) – 30 Questions must be covered all possible section.</p> <p>SECTION – II Q-2 (Must be from topics: 1 and 2 (6+6)) Q-3 (Must be from topics: 3 and 4(6+6)) Q-4 (Must be from topic: 5(6))</p>



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Programme	B.Sc.IT(Cyber Security)				Branch/Spec.	Computer Applications			
Semester	II				Version	1.0.0.0			
Effective from Academic Year			2019-20		Effective for the batch Admitted in			July 2019	
Subject Code	U62B6CS2		Subject Name		LANGUAGE AND COMMUNICATION SKILLS – II				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	-	-	3	Theory	40	60	100
Hours	3	-	-	-	3	Practical	-	-	-
Objective:									
Understand the role of communication in personal & professional success. Develop awareness of appropriate communication strategies. Prepare and present messages with a specific intent. Analyze a variety of communication acts. Ethically use, document and integrate sources.									
Pre-requisites:									
Familiarity with basics of English language, strong determination and will-power for skill-set enhancement.									
Learning Outcome:									
At the end of the course, the students shall acquire satisfactory competency in the fundamental communication skills so as to be able to:									
<ul style="list-style-type: none"> ✓ listen, understand and respond effectively ✓ read, comprehend and apply the acquired knowledge/information in various practical situations ✓ speak efficiently under various conditions ✓ write various drafts in clear and concise manner ✓ gain greater proficiency in language without wading through dull and insipid. 									
Content:									
Unit									Hrs
1	Remedial English Grammar, Usage and Vocabulary:								12
	Modals, Conditionals, Concord, Commonly Confused Pairs of words, One Word Substitutes, Synonyms and Antonyms, Word Formation: Prefixes, Roots and Suffixes (Derivational & Inflectional), Error Analysis (Correction of Errors in a given sentence -								

	errors in the use of words - errors of Indianisms - use of slang - errors in punctuation)	
2	Oral Communication in Context: Asking for and giving information, offering and responding to offers, requesting and responding to requests, congratulating people on their success, expressing sympathy, expressing condolences, apologizing and forgiving, giving instructions, seeking and giving permission, expressing opinions (likes and dislikes), agreeing and disagreeing.	10
3	Presentation Skills: Definition of presentation, Components of presentation, planning to prepare effective presentation, Steps for preparing effective presentation, Boredom Factors in presentation, Attention grabbers in presentation	06
4	Skills for Career Building: Official Correspondence - Letters to higher authorities, Significance & types of advertisements, drafting advertisements - Classified and Display, Notice, Agenda & Minutes of Meeting, Memo writing, E-Mails, Press release	12
5	Group Discussion: Definition and nature of group discussion, Pre-requisites for group discussion, Objectives of group discussion, Characteristics of group discussion, how to prepare for group discussion, Dos and don'ts in group discussion	05
Reference Books:		
1	Technical Communication - Principles and Practice by Meenaksi Raman & Sangeeta Sharma (Oxford University Press)	
2	Effective Technical Communication by M Ashraf Rizvi (TMH Publication)	
3	Cambridge IELTS 1-10, Cambridge University Press	
4	A Communicative Grammar of English by Geoffery Leech and Fan Svartvik (Pearson Longman)	
5	Online resources: You Tube - Daily Video Vocabulary, Vocab 24, TED Lectures, Inspirational speeches/addresses of success people, parliamentary speeches, interviews, various internet channels devoted to learning and improving communication in English	
Web Reference:		
Question Paper Scheme:		
	University Examination Duration: 3 Hours Note for Examiner:- Q-1 must be common from any topics from syllabus. Q-2 and onwards must be from specific topics and internal choice or option can be given SECTION – I Q-1 (Attempt any Five Out of Seven: each question must be 6marks) -- 30 Questions must be covered all possible section. SECTION – II	

	Q-2 (Must be from topics: 1 and 2 (6+6))
	Q-3 (Must be from topics: 3 and 4(6+6))
	Q-4 (Must be from topic: 5(6))