



GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATIONS

Programme	B.Sc.IT(Cyber Security)				Branch/Spec.	Computer Applications			
Semester	I				Version	1.0.0.0			
Effective from Academic Year	2019-20				Effective for the batch Admitted in	July 2019			
Subject Code	U61A1IP1		Subject Name	INTRODUCTION TO PROGRAMMING-I					
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:									
Basic knowledge of computer									
Learning Outcome:									
After completing this course, students should be able to learn:									
<ul style="list-style-type: none"> ✓ Understand execution flow of Program ✓ Learn basic computer programming concepts ✓ Learn various Operators used in C Language ✓ Understand various decision making and branching statements ✓ Learn various Looping statements 									
Content:									
Unit									Hrs
1	Fundamental of Algorithms: Introduction, Algorithm Development Method, Algorithms for basic human general activities focused to understand basic steps, Basic number and arithmetic Operation, Looping & Control flow statements, Series computation, Introduction to flowchart, Symbols for input/output, Processes, Decision, Begin/End, Representation of algorithms by Flowchart								9
2	Overview of C: Brief history of C, Importance of C, Features of 'C' language, Basic Structure of C Programs, Programming Style, Steps to execute 'C' Program, Understanding the terminologies: Source Program, Object Program, Executable Program, Linker, Loader,								9

	<p>Debug, Compilation process, Interpreter.</p> <p>Constants, Variables and Data Types: Character set, C tokens, keywords and identifiers, constants, variables, data types, declaration of variables, assigning value to variable, defining symbolic constants</p>	
3	<p>Operators and Expression: Operators - arithmetic, relational, logical, assignment, increment-decrement, conditional, bit-wise and special, Arithmetic expressions, evaluation of expressions, precedence of arithmetic operators, type conversions in expressions, operator precedence and associativity, mathematical functions.</p> <p>Managing Input and Output Operators: Reading and writing a character formatted input-output</p>	9
4	<p>Decision Making and branching: Decision making with IF statement, simple IF statement, the IF-ELSE statement, nesting of IF ... ELSE statements, the ELSE IF ladder, Switch statement, ternary (? :) operator, Go-To statement.</p>	9
5	<p>Looping: Looping statements – WHILE, DO-WHILE and FOR, Nesting and Jumps in loops, Break & Continue.</p>	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	
4	How to Solve it by Computer, R.G. Dromey-PHI Publication	
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	I				Version	1.0.0.0			
Effective from Academic Year			2019-20		Effective for the batch Admitted in			July 2019	
Subject Code	U61A2WD1		Subject Name		Web Designing –I				
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 basic concepts of web designing. Students will learn HTML, HTML5, CSS and Javascript to design a web page.									
Pre-requisites:									
Working Knowledge of computer, notepad or notepad++ and basic knowledge of arithmetic calculation									
Learning Outcome:									
After completing this course, students should be able to:									
<ul style="list-style-type: none"> ✓ Understand key concepts and Basic Terminology of Web Technology ✓ Use HTML core tags, link, table, form and design a static web page ✓ Implement HTML 5 graphics, multimedia, geolocation, web storage api in a web page ✓ Apply Cascading Stylesheet to style a web page ✓ Use Javascript to add dynamic behavior in a web page 									
Content:									
Unit									Hrs
1	Basics of Web Technology An Introduction to Internet, Internet Address, Uniform Resource Locator, Internet Service Provider, Intranet, Extranet, Working of Internet ,Hypertext Transfer Protocol , World Wide Web , Search Engines, Introduction to Web Server and Web Browser, Static and Dynamic Web Page, Types of Websites, Web Designing Principles								7
2	Basic HTML Concepts What is HTML?, History, HTML Page Structure, HTML Basic Tags – text formatting tags, working with list, image, table ,link, block and inline elements, frame ,HTML form								9
3	HTML5								10

	The Road for HTML 5, Browser Pitfalls, HTML 5 New Elements, Semantics Elements, New Form/Input Elements ,Multimedia, Canvas - Future of Graphics on Web, Simple Shape, Shape Styles, Text and Shadow, Canvas Pitfalls,SVG –Basic shapes , Animation, Introduction to Geolocation API, Web Storage, Web Workers, HTML Drag and Drop features	
4	Cascading StyleSheets What is CSS?, Advantages of CSS, CSS Syntax Selectors; Type Selector, Universal Selectors, Descendent Selectors, Class Selectors, ID Selectors, Child Selectors, Attribute Selectors, Multiple Style Rules, Grouping Selectors Embedded CSS - The <style> Element, Inline CSS - The style Attribute, External CSS - The <link> Element, Imported CSS - @import Rule, Handling old Browsers, Setting Background using CSS, Set Font Family, Manipulating the Text, CSS Images, CSS Tables, CSS Margins, CSS lists, CSS Padding	9
5	Java Script Introduction to Java Script, Advantage of Java Script, Java Script Syntax, Comments, Variable, Array, Operators, Looping, Functions, Dialog box, Regular Expression, Objects in JavaScript, Cookies, ActiveX and JavaScript	10
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 Published by Mc Graw Hill, fifth edition	
2	Learning Web Design (A beginner's guide to HTML, CSS ,JavaScript and Web Graphics) by Jeniifer Niederst Robbins, Published by O'reilly, third edition	
3	Beginning HTML5 and CSS3 By Richard Clark, OliStudholme, Christopher Murphy and DivyaManian, Published by APress	
Web Reference:		
1	https://www.w3schools.com/	
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	I				Version	1.0.0.0			
Effective from Academic Year	2019-20				Effective for the batch Admitted in	July 2019			
Subject Code	U61A3OS1		Subject Name		OPERATING SYSTEM SECURITY-I				
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 security fundamentals of Windows Operating System. The main goal is to provide detailed knowledge to protect Windows Operating System with practical implementation.									
Pre-requisites:									
The student should have a basic knowledge of computer.									
Learning Outcome:									
After completing this course, students should be:									
<ul style="list-style-type: none"> ✓ aware with various functionality of Window operating system ✓ able to configure and monitor network and process from command line ✓ aware with various security features available in Windows 10 ✓ able to configure privacy settings in Windows 10 ✓ known with working of processes, registry of Windows OS ✓ aware with advanced functionalities of Windows OS 									
Content:									
Unit									Hrs
1	History and Introduction of Windows: What is Operating System?, Types of OS, OS Structure, Brief History of Windows Operating System, Managing Programmes, Managing Network Connections, Brief Overview of File System, Managing Partition.								9
2	Working with Command Line in Windows: Basic File and Directory Managements Commands, Network Management Commands: ping, pathping, tracert, netdiag, ipconfig, netstat, getmac, nslookup, netsh								9
3	Basic Security Features of Windows 10:								9

	<p>Privacy-Enhancing Settings: Enabling and Selecting Privacy Protecting Option, General, Location, Camera, Microphone, Account Info, Contacts, Calendar, Call History, Messaging, Other Devices, Background Apps.</p> <p>Security: Virus and Thread Protection, Account Protection, Firewall and Network Protection, App and Browser Control, Device Security, Device Performance and Health, Family Option, System Update, Avoiding Malware, Removing Bloatware, Windows Defenders.</p>	
4	<p>Services, Processes and Registry: OS services, System Calls, Process and Threads, Process Control Block, Process States, Scheduling, Scheduling Algorithm, Structure of the Registry, Registry Values, Editing Registry Values, Importing and Exporting Registry Settings</p>	9
5	<p>Advanced Concept of Windows: Logical v/s Physical Address Space, Paging and Page File, Working with Active Directory, Dead Lock, Virtualization.</p>	9
Practical Content:		
List of programs specified by the subject teacher based on above mentioned topics		
Reference Books:		
1	Windows 10 For Dummies by Andy Rathbone, Published by John Wiley & Sons, Inc., Second Edition	
2	Windows Internals, Part 1 by Pavel Yosifovich, Mark E. Russinovich, David A. Solomon, Alex Ionescu, Published by Microsoft Press, 7th Edition	
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: 1 Q-1 (Attempt any Five Out of Seven: each question must be 6marks) -- 30 Questions must be covered all possible section.</p> <p>Section: 2 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	I				Version	1.0.0.0			
Effective from Academic Year	2019-20				Effective for the batch Admitted in	July 2019			
Subject Code	U61A4FIS		Subject Name		FUNDAMENTAL OF INFORMATION 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 learn basic concepts of information security and cryptography. Students will also learn CIA triad, various threats and attacks and security technologies.

Pre-requisites:

Basic knowledge of Computer

Learning Outcome:

After completing this course, students should be able to:

- ✓ Demonstrate the importance of information security in a computer-driven world
- ✓ Understand the CIA triad of Confidentiality, Integrity and Availability
- ✓ Understand defined threats and attacks
- ✓ Explain the usage of Common Key cryptography and Public Key cryptography
- ✓ Implement defined security technologies

Content:

Unit		Hrs
1	Introduction to Information Security Introduction to Computer Network, Basics of Computer Security and its types, Introduction to Information Security, CIA Triad, Information System and SDLC	9
2	Security Threats and Attacks The Need for Security, Threats and Attacks, Security in Emails, Secure software development	9
3	Cryptography Concepts Plaintext & Cipher text, Cipher methods, Encryption & Decryption, Symmetric & Asymmetric key Cryptography, Cryptographic tools, Different attacks on Cryptosystems	9

4	Internet Standards and Authentication Basic concepts of Internet Standards and Physical Security, Network Security, Authentication Basics, Password, Authentication Token, Certificate based Authentication, Basics of authentication in Wireless Networks, Need of authentication in Wireless Communication.	9
5	Security Technology Access Control, Firewalls, Protecting Remote Connections in Remote Access and Virtual Private Networks (VPNs), Intrusion Detection and Prevention Systems	9
Reference Books:		
1	Principles of Information Security by Michael E. Whitman and Herbert J. Mattord , Published by Cengage Learning, fourth edition	
2	Information Systems Security: Security Management, Metrics, Frameworks and Best Practices by Nina Godbole , Published by Wiley India Pvt. Ltd, second edition	
Web Reference:		
1	-	
Question Paper Scheme:		
	<p>University Examination Duration: 3 Hours</p> <p>Note for Examiner: -</p> <p>Q-1 must be common from any topics from syllabus.</p> <p>Q-2 and onwards must be from specific topics and internal choice or option can be given.</p> <p>SECTION – I</p> <p>Q-1 (Attempt any Five Out of Seven: each question must be 6 marks) – 30</p> <p>Questions must be covered all possible section.</p> <p>SECTION – II</p> <p>Q-2 (Must be from topics: 1 and 2 (6+6))</p> <p>Q-3 (Must be from topics: 3 and 4(6+6))</p> <p>Q-4 (Must be from topic: 5(6))</p>	



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Semester	I			Version	1.0.0.0				
Effective from Academic Year		2019-20		Effective for the batch Admitted in			July 2019		
Subject Code	U61A5FM		Subject Name	FUNDAMENTAL OF MATHEMATICS					
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:

This course develops techniques of investigation and problem solving strategies also develop spatial concepts and ability to use them.

Pre-requisites:

Fundamental Knowledge of Basic Mathematics.

Learning Outcome:

By end of this module students should be able to

- ✓ Enhance the students' ability to think logically and mathematically.
- ✓ Be able to describe Basic Mathematics concept like set theory, Matrices, Graph theory, Counting and Combinations.

Content:

Unit	Content	Hrs
1.	Set theory Introduction, Representation of sets, Universal set, Empty set, Finite set, Infinite set, Subset, Disjoint set, Equality of two sets, Equivalent sets, power set, Venn diagram, Set operations: Union, Intersection, Difference, Symmetric difference, Complements, Cartesian product of two sets, the algebraic laws of set theory. Examples related to cardinality of sets.	10
2.	Matrices Introduction, Unit matrix, Square matrix, Transpose of a matrix, Invertible matrices, Diagonal and Anti diagonal elements of matrices, zero matrix, row and column matrix, Symmetric matrix, Skew symmetric matrix, Upper and Lower triangular matrix. Arithmetic Operations on matrices: Addition, Subtraction, Additive Inverse and Multiplication of matrices.	9

3.	Graph theory Introduction, Graph and multi graphs, Finite graphs, Trivial graph, Sub graph, isomorphic graphs, Homeomorphic graphs, Paths, Hamiltonian graphs, Eulerian Graph, Complete, Regular and Bipartite graphs.	9
4.	Function Introduction, Definition , Domain, Co-Domain and Range of Function, Types of Function: In to Function, On to Function, One to One Function , Many to One Function, One to One Correspondence and its Examples.	9
5.	Counting and Combinations Introduction, Basic counting principles, Factorial notation, Binomial coefficients, Permutations. Combinations, The pigeonhole principle, The inclusion Exclusion principle, ordered and unordered partitions.	8
Practical Content:		
Reference Books:		
1	Discrete Mathematics by Seymour Lipschutz and Marc Lipson.-Mc Graw Hill, Third Edition	
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 6marks) – 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	I				Version	1.0.0.0			
Effective from Academic Year		2019-20			Effective for the batch Admitted in		July 2019		
Subject Code	U61B6CS1		Subject Name		LANGUAGE AND COMMUNICATION SKILLS – I				
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:

- ✓ 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

Content:

Unit		Hrs
1	Basics of Communication: Definition, Principles, Process, Functions, and Forms of communication (Formal – Informal, Verbal – Non-verbal, Electronic and Visual), Language as a tool of Communication, Barriers to communication with remedies	12
2	Functional Grammar and Vocabulary: Articles, Verb forms, Conjunctions, Collocations, Sentence Construction, Phrasal verbs.	11
3	Receptive Language Skills: Listening Skill:	11

	<p>Definition and process of listening, Rudiments of effective listening, Modes of listening, Barriers to listening, Tips for effective listening, Traits of a good listening. Listening comprehension practice using audio-visuals (IELTS Listening) Listening to Announcements- (railway/ bus stations/ airport /sports announcement/ commentaries etc.)</p> <p>Reading Skill: Definition, Purposes & types of reading, Techniques for effective reading comprehension, reading comprehension practice through simple to advanced passages.</p>	
4	<p>Productive Language Skill</p> <p>Speaking: Significance of effective interpersonal oral conversation competence Familiarity with tone, stress and voice modulations and paralinguistic features Characteristics of an erudite speaker Oral practice of speaking in different situations (IELTS Speaking)</p>	06
5	<p>Productive Language Skill:</p> <p>Writing: Significance of effective writing skill Coherence and cohesion Points to ponder (fundamentals) for producing impressive written drafts Significance of language quality (4 Cs) and attractive appearance of the draft Difference in structures of formal and informal Writing practice for preparing drafts of various informal, semi-formal and formal letters (IELTS General Training Writing task-1)</p>	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:		
	<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</p>	

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))