GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATIONS

TEACHING AND EXAMINATION SCHEME

Programme	MASTER OF SCIENCE IN INFORMATION TECHNOLOGY (INFRASTRUCTURE MANAGEMENT SERVICES) – M.Sc - IT (IMS)	Branch/Spec.	Computer APPLICATIONS
Semester	II		
Effective from Academic Year	2017-18	Effective for the batch Admitted in	JAN – 2018

Subject Code	Subject Name	Teaching scheme												Examination scheme (Marks)					
		Credit						Hours (per week)						Theory			Practical		
		Lecture(DT)			Practical(Lab.)			Lecture(DT)			Practical(Lab.)			CE	SEE	Total	CE	SEE	Total
		L	TU	Total	P	TW	Total	L	TU	Total	P	TW	Total						
P42A1MEN	MANAGING ENTERPRISE NETWORK	2	-	2	4	0	4	2	-	2	8	0	8	20	30	50	40	60	100
P42A2AP	ALGORITHM DEVELOPMENT AND INTRODUCTION TO PROGRAMMING LANGUAGE	1	-	1	3	0	3	1	-	1	6	0	6	20	30	50	40	60	100
P42A3ISM	IT SECURITY MANAGEMENT	4	-	4	-	-	-	4	-	4	-	-	-	40	60	100	-	-	-
P42A4EL2	ELECTIVE- II- (CONCEPTS OF OPEN SOURCE SCRIPTING LANGUAGES)	2	0	2	2	-	2	2	0	2	4	-	4	20	30	50	40	60	100
P42A5EL3	ELECTIVE-III (CERTIFIED ETHICAL HACKING)	2	0	2	-	-	-	2	0	2	-	-	-	40	60	100	-	-	-
P42A6IP2	INDUSTRIAL PROJECT-II	-	-	-	4	-	4	-	-	-	4	-	8	-	-	-	40	60	100
Total		11	00	11	13	-	13	11	-	11	22	-	22	220	330	550	140	210	350

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Semester	II	Version	1.0.0.0
Effective from Academic Year	2017-18	Effective for the batch Admitted in	JAN-2018
Subject code	P42A1MEN	Subject Name	Managing Enterprise Network

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	-	4		6	Theory	20	30	50
Hours	2		8		10	Practical	40	60	100

Pre-requisites:

Basic Knowledge of CCNA.

Learning Outcome:

Will be able to CCNP programmer and get able to pass the certification of the different types of cisco certification.

Theory syllabus

Unit	Content	Hrs
1	**Administrating and Managing Routing (35)** Principles of EIGRP, Features of EIGRP, Tables of EIGRP, Metric of EIGRP, Configuration of EIGRP, Summarization with EIGRP, EIGRP stub router, , unequal cost load balancing , Variance , Authentication , Wan topologies of EIGRP, Understanding OSPF Fundamentals, Configuring OSPF within Single Area, Cost, Understanding the differences between OSPF Network Types, Using OSPF Across Multiple Area- Features, Router Types, Link- State Advertisements, Different Types Of Areas, Propagation of LSAs, Special OSPF Area, Authentication, Wan topologies of OSPF	
2	**BGP Concepts, Neighbors, Controlling BGP Route Selection , Introduction to IPv6 & IPv6 Addressing IPv6 Routing Protocols, Configuration & Transitioning from IPv4(40)** Introduction to BGP, Context for the BGP, BGP Route Stability, BGP Operation Basics, When to use BGP, Mutihoming, BGP States, Configuring BGP, Authentication, Controlling BGP Route Selection using the Weight, Local-Preference, MED , Introduction to IPv6, IPv6 Features, IPv6 Header, IPv6 Addressing, Types of Addresses, IPv6 Routing Overview, EIGRP for IPv6, RIPng, OSPFv3, OSPFv3 LSA types, configuring IPv6 Routing, Transitioning from IPv4 to IPv6	
3	**Implementing Redistribution & Controlling Routing Updates (15)** Understanding Redistribution Fundamentals, Routing Metrics & Redistribution, Path Selection Between Routing Protocols, Configuring Retribution between Routing Protocol	
4	**Building Multi-layered switched network(30)** VLANs, Spanning Tree protocols in a hierarchical network, Inter-VLAN routing, gateway redundancy technologies, wireless client access, security features in a switched network, HSRP , VRRP , GLBP	

Practical content

Text Books

1	CCNP Route Student Guide Cisco Official Book

Reference Books	
1	CCNP Switch Student Guide Cisco Official Book
2	CCNP Route Student Guide Cisco Official Book
	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
	Paper Structure Q-1 (Attempt any Five Out of Seven: each question must be 3 marks) --- 15 Questions must be covered all possible section. Q-2 (Must be From topics: Administrating and Managing Routing (4 marks)) Q-3 (Must be From topics: BGP Concepts, Neighbors, Controlling BGP Route Selection , Introduction to IPv6 & IPv6 Addressing IPv6 Routing Protocols, Configuration & Transitioning from IPv4 (4 marks)) Q-4 (Must be From topics: Implementing Redistribution & Controlling Routing Updates (4 marks)) Q-5. (Must be from topics: Building Multi-layered switched network (3 Marks)

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Semester	II	Version	1.0.0.0
Effective from Academic Year	2017-18	Effective for the batch Admitted in	JAN-2018
Subject code	P42A2AP	Subject Name	Algorithm Development & Introduction to programming language

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	1	-	3		4	Theory	20	30	50
Hours	1		6		7	Practical	40	60	100

Pre-requisites:

Basic Knowledge of computer, arithmetic calculation and MS-DOS

Learning Outcome:

Will be able to learn programming language, Concepts of Basic Programming languages like loop, array, structure, pointer, file management, string handling, basic concepts of Object oriented programming like Inheritance, Encapsulation, function overloading, constructor destructor etc.

Theory syllabus

Unit	Content	Hrs
1	**Working with Algorithm and Flowchart(15)** Introduction of Algorithms, Algorithm Development Method, 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	
2	**Introduction of C(15)** Overview of C language, History of C, Features of C language, C Structure, Execution of C program, Compiler and Interpreter, Literals, Variables in C, Data Types in C, Operators in C language, Basic Programs in C.	
3	**Brief in C language(22)** Decision Making in C: is, if-else, nested if-else, ladder else if, Switch case in C, Looping in C: for loop, While loop, Do-while loop, Array in C language: One dimensional, Two-dimensional, Multi-Dimensional, String in C: String functions with string.h, User defined function in C:All types of user define functions, Structure in C language, File management in C language.	
4	**Overview of C++(32)** Introduction of Object Oriented Programming, Difference between POP and OOP, Difference between Structure and Class, Class, Object, Polymorphism, Encapsulation, Inheritance, Function Overloading, Inline Function, Friend Function, Constructor, Destructor, Operator Overloading, Inheritance(5 types of inheritance), Virtual Function.	

Practical content

Text Books

1	ANSI C programming By Balaguru swami

Reference Books

1	C for Dummies By: Dan Goo kin-Wiley Publishing, Inc
2	C++ for Dummies By Stephen Randy Davis-Wiley Publishing, Inc
	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
	Paper Structure Q-1 (Attempt any Five Out of Seven: each question must be 3 marks) --- 15 Questions must be covered all possible section. Q-2 (Must be From topics: Working with Algorithm and Flowchart (5 marks)) Q-3 (Must be From topics: Introduction of C, Brief in C language (5 marks)) Q-4 (Must be From topics: Overview of C++ (5 marks))

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Semester	II	Version	1.0.0.0
Effective from Academic Year	2017-18	Effective for the batch Admitted in	JAN-2018
Subject code	P42A3ISM	Subject Name	IT Security Management

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	4	-	-		4	Theory	40	60	100
Hours	4		-		4	Practical	-	-	-

Pre-requisites:

Basic Knowledge of computer Security

Learning Outcome:

Will be able to learn and secure their machine through Anti-virus and other technique.

Theory syllabus

Unit	Content	Hrs
1	**Security Trends(7)** Security an Issue, Areas of Security, Evidence of the Evolution of Hacking, So What Does This Mean to Us?, Hacking and Attacking, Internet and Web Activities, Two-Tier Architecture ,Database Roles, A Layered Approach, An Architectural View, Politics and Laws, Education	
2	**Information Security and Risk Management(12)** Program Components ,Business Requirements: Private Industry vs. Military Organizations Information Risk Management, information Risk Management Policy ,The Risk Management Team ,Risk Analysis The Risk Analysis Team ,The Value of Information and Assets ,Costs That Make Up the Value ,Identifying Threats ,Failure and Fault Analysis Quantitative Risk Analysis ,Qualitative Risk Analysis, Quantitative vs. Qualitative, Protection Mechanisms ,Total Risk vs. Residual Risk ,Handling Risk ,Policies, Standards, Baselines, Guidelines, and Procedures ,Information Classification ,Private Business vs. Military Classifications Classification Controls ,Layers of Responsibility, The Data Owner The Data Custodian, The System Owner, The Security Administrator ,The Security Analyst ,The Application Owner ,The Supervisor, The Change Control Analyst ,The Data Analyst ,the Process Owner Personnel, Structure, Hiring Practices	
3	**Access Control(14)** Access Controls Overview, Security Principles, Availability, Integrity, Confidentiality Identification, Authentication, Authorization and Accountability, Access Control Models, Discretionary Access Control, Mandatory Access Control, Role-Based Access Control.Access Control Techniques and Technologies ,Rule-Based Access Control ,Constrained User Interfaces ,Access Control Matrix ,Content-Dependent Access Control ,Context-Dependent Access Control ,Access Control Administration ,Centralized Access Control Administration Decentralized Access Control Administration ,Access Control Methods, Access Control Layers ,Administrative Controls ,Physical Controls Technical Controls ,Access Control Types ,Preventive: Administrative, Accountability Review of Audit Information, Keystroke Monitoring Protecting Audit Data and Log Information Access Control Practices ,Unauthorized Disclosure of Information Access Control Monitoring Intrusion Detection ,Intrusion Prevention Systems ,A Few Threats to Access Control,Dictionary Attack, Brute Force Attacks Spoofing at Logon	

4	**Security Architecture and Design(15)** Computer Architecture ,The Central Processing Unit ,Multiprocessing ,Operating System Architecture Process Activity ,Memory Management ,Memory Types ,Virtual Memory ,CPU Modes and Protection Rings ,Operating System Architecture ,Domains ,Layering and Data Hiding ,The Evolution of Terminology ,Virtual Machines ,Additional Storage Devices, Input/Output Device Management ,System Architecture ,Defined Subsets of Subjects and Objects ,Trusted Computing Base ,Security Perimeter ,Reference Monitor and Security Kernel ,Security Policy ,Least Privilege ,Security Models, State Machine Models , Security Modes of Operation ,Dedicated Security Mode ,system High-Security Mode ,Compartmented Security Mode ,Multilevel Security Mode, Trust and Assurance, Systems Evaluation Methods, Why Put a Product Through Evaluation? Certification vs. Accreditation, Certification, Accreditation, Open vs. Closed Systems, Open Systems, Closed Systems, Enterprise Architecture	
Practical content		
Text Books		
1	Computer Security Basics by Rick Lehtinen.	
Reference Books		
1	Computer Security Basics by Rick Lehtinen.	
	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	
	Paper Structure Q-1 (Attempt any Six Out of Eight : each question must be 5 marks) --- 30 Questions must be covered all possible section. Q-2 (Must be From topics: Security Trends (7 marks)) Q-3 (Must be From topics: Information Security and Risk Management (8 marks)) Q-4 (Must be From topics Access Control (7 marks)) Q-5 (Must be From topics Security Architecture and Design(8 marks))	

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Semester	II	Version	1.0.0.0
Effective from Academic Year	2017-18	Effective for the batch Admitted in	JAN-2018
Subject code	P42A4EL2	Subject Name	Elective – II (Concepts of Open Source Scripting Languages)

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	-	2		4	Theory	20	30	50
Hours	2		4		6	Practical	40	60	100

Pre-requisites:

Basic Knowledge of web server and Programming language basic.

Learning Outcome:

Will be able to learn static and dynamic web page and basic operating system linux and unix and alos able to create the database

Theory syllabus

Unit	Content	Hrs
1	**Introduction to Web Technology (22)** HTML, Basic Tags, CSS, Table and Forms , Introduction to JavaScript, Variables, Operators, Data Type Conversions, functions, Control Structure, Date Time functions and Form Manipulation. MYSQL (only theory) – Introduction about Database, Data Types, DML, DDL, Aggregate functions, Data Time functions, Stored Procedure, Sub query and join, PHP (only Theory)-Introduction to PHP, History, Web Brower, Web Server, Xampp,	
2	**Basics of Shell Scripting (25)** Installation and Configuration files, Syntax, Operators, Variables, Constants, Control, Structure, Language construct and Function Syntax, Arguments, Variables, References, Returns and Variable Scope , Arrays-Enumerated Arrays, Associative array, array, iteration, Multi-dimensional array, Array function and SPL, Date and Time functions, OOP's – Instantiation, Modifiers, Inheritance, Interfaces, Exceptions, Static Methods and Properties, Auto load, Reflection, Type Hinting and Class Constance, String and Patterns- Quoting, Matching, Extracting, Searching, Replacing and Formatting, Web Features- Sessions, Forms, GET and POST data, Cookies, HTTP Headers. Database Programming, Streams and Network Programming- Files, Reading , Writing, File System functions, Streams File Uploading and File Downloading	
3	**Unix & Linux Shell Scripting (25)** Introduction to Unix/Linux Login, Logging into the system, Editor , The File System , FS commands and Permissions Useful Commands of Unix/Linux , Useful Commands of Unix/Linux, Utilities, Advance Shell Scripting , introduction of the Using TheBash/Sh/ksh,korn shell script and their difference.	

Practical content

Text Books

1	HTML & CSS: The Complete Reference, Fifth EditionKindle Edition
Reference Books	
1	UNIX and Linux System Administration Handbook5th , Kindle Edition
2	HP and MySQL Web Development Paperback
	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
	Paper Structure Q-1 (Attempt any Five Out of Seven: each question must be 3 marks) --- 15 Questions must be covered all possible section. Q-2 (Must be From topics: Introduction to Web Technology (5 marks)) Q-3 (Must be From topics Basics of Shell Scripting (5 marks)) Q-4 (Must be From topics: Unix & Linux Shell Scripting (5 marks))

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Semester	II	Version	1.0.0.0
Effective from Academic Year	2017-18	Effective for the batch Admitted in	JAN-2018
Subject code	P42A5EL3	Subject Name	Elective – III (Certified Ethical Hacking)

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	-	-		2	Theory	40	60	100
Hours	2		-		2	Practical	-	-	-

Pre-requisites:

Basic Knowledge of intrusion.

Learning Outcome:

Will be able to learn and bale to clear hacking certification.

Theory syllabus

Unit	Content	Hrs
1	**Fundamentals of Ethical Hacking (17)** Building the foundation for ethical Hacking, Defining Hacker, Ethical hacking, Understanding the need to hack your own systems, Understanding the dangers your systems face, the ethical hacking process, Cracking the Hacker Mindset, Planning & Performing attacks, Determining what systems to hack, creating testing standards, Hacking Methodology-Seeing what others see, Scanning systems	
2	**Putting Ethical Hacking in Motion (20)** Social Engineering, Understanding the Implication, Performing Social-Engineering Attacks, Physical security vulnerabilities, Password vulnerabilities, Cracking Passwords, Securing Operating Systems- Windows, Linux and Unix	
3	**Network Hacking, Operating System Hacking (18)** War Dialing, Network Infrastructure vulnerabilities, Choosing tools, scanning, Pocking and Prodding, Wireless LAN-Discovery, wireless network attacks, Windows-windows vulnerabilities, choosing tools, Information Gathering, RPC, Null Session, Linux- Linux vulnerabilities, Choosing tools, Information Gathering, NFS hack	
4	**Application Hacking (17)** Malware, Types of malware, how malware propagation, testing, malware countermeasures, messaging systems, E-mail attacks, Web Application vulnerabilities, choose your tools, Input filtering	

Practical content

Text Books

1	Hacking for dummies by Kevin Beaver

Reference Books

1	Hacking for dummies by Kevin Beaver
	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

	Paper Structure Q-1 (Attempt any Six Out of Eight : each question must be 5 marks) --- 30 Questions must be covered all possible section. Q-2 (Must be From topics: **Working with Algorithm and Flowchart** (8marks)) Q-3 (Must be From topics: **Putting Ethical Hacking in Motion** (7 marks)) Q-4 (Must be From topics: **Network Hacking, Operating System Hacking** (8 marks)) Q-5(Must be From topics: **Application Hacking** (7 marks))

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Programme	MASTER OF SCIENCE IN INFORMATION TECHNOLOGY (INFRASTRUCTURE MANAGEMENT SERVICES) – M.Sc - IT (IMS)	Branch/Spec.	Department of Computer Science
Semester	II	Version	1.0.0.0
Effective from Academic Year	2017-18	Effective for the batch Admitted in	JAN-2018
Subject code	P42A6IP2	Subject Name	Industrial Project- II

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	-	-	4		4	Theory	-	-	-
Hours	-		8		8	Practical	40	60	100

Pre-requisites:

Basic Knowledge of system analysis and design and database technology and also core technology the networking like Microsoft Server, Linux, Unix, Virtualization and Cisco technology also firewall technology

Learning Outcome:

Will be able to or manage network of any small and large organization

Theory syllabus

Unit	Content	Hrs
1	Rules for the Project: 1) The duration of the project will be semester term. The students can do their project work individually or in a group, but the work must be sufficient in order to justify the duration and role. 2) The passing standard in the project will be as per GNU standard. 3) The project work should be commencing after seeking prior approval from the institution. Generally the purpose of approval includes to submit their project titles and proposals with the name of internal and external guides to the Project Coordinator of Institution within 15 days of the commencement of the forth semester. In case, if the student proposal is rejected, the revised proposal in the same or other area, is required to submit and get it sanctioned within next 10 days. Failing to do this, His/her term will not be granted. 4) The students have to report to the internal guide as per schedule declared during the project life span with the progress report duly signed by external guide but in case the minimum 3 reporting is must. The reporting can be online but it needs prior approval with genuine grounds. Moreover they have to bring these reports with the final report at the time of final report at the time of external examination. 5) The external examiners appointed by the University will give the external marks on the basis of the heads like Presentation, Demonstration, Viva Voice, Documentation etc. The distribution of the marks to different heads may be decided at the time of evaluation of the project but it is expected to have the same distribution. 6) The Internal Guide/Project Coordinator of Institution will give the internal marks. These marks may be given on the bases of regular reporting of the student to the internal guide.	

Practical content

Text Books

1	-

Reference Books	
1	
2	
	Note for Examiner Project Dissertation
	Paper Structure Project Dissertation include Presentation and Report.