

| GANPAT UNIVERSITY | | | | | | | | | | | | | | | | | | | |
|---------------------------------|------------------------------------|-------------------------------------|-----------|--------------|--------------------------------|----|-------|------------------|----|-------|-----------------|----|-------|----------------------------|-----|-------|-----------|-----|-------|
| FACULTY OF COMPUTER APPLICATION | | | | | | | | | | | | | | | | | | | |
| TEACHING AND EXAMINATION SCHEME | | | | | | | | | | | | | | | | | | | |
| Programme | Master of Computer Application | | | Branch/Spec. | Master of Computer Application | | | | | | | | | | | | | | |
| Semester | III | | | | | | | | | | | | | | | | | | |
| Effective from Academic Year | 2016-17 | Effective for the batch Admitted in | June 2016 | | | | | | | | | | | | | | | | |
| 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 | | | | | | |
| P13A1GUI1 | GUI PROGRAMMING – I | 2 | 1 | 3 | 2 | - | 2 | 2 | 1 | 3 | 4 | - | 4 | 40 | 60 | 100 | 20 | 30 | 50 |
| P13A2JP1 | JAVA PROGRAMMING – I | 2 | 1 | 3 | 2 | - | 2 | 2 | 1 | 3 | 4 | - | 4 | 40 | 60 | 100 | 20 | 30 | 50 |
| | Elective-I | 1 | 1 | 2 | 2 | - | 2 | 1 | 1 | 2 | 4 | - | 4 | 40 | 60 | 100 | 20 | 30 | 50 |
| P13A4SE | SOFTWARE ENGINEERING | 2 | 1 | 3 | - | - | - | 2 | 1 | 3 | - | - | - | 40 | 60 | 100 | - | - | - |
| P13A5COM | Computer Based Optimization Models | 3 | 1 | 4 | - | - | - | 3 | 1 | 4 | - | - | - | 40 | 60 | 100 | - | - | - |
| | Elective-II | 2 | 1 | 3 | - | - | - | 2 | 1 | 3 | - | - | - | 40 | 60 | 100 | - | - | - |
| Total | | | | | | | | | | | | | | | | | | | |

Elective-I

P13A3WD2 WEB DESIGNING – II

P13A3NET Networking

Elective-II

P13B6ACS Advanced Communication Skills

P13B6CPD Career & Personality Development

| GANPAT UNIVERSITY | | | | | | | | | |
|---|--|--------------------------------|-----------------|----|-------------------------------------|-----------|--------------------------------|-----------|-------|
| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | | Master of Computer Application | | | Branch/Spec. | | Master of Computer Application | | |
| Semester | | III | | | Version | | 1.0.0.0 | | |
| Effective from Academic Year | | | 2016-17 | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | | P13A1GUI1 | Subject Name | | GUI PROGRAMMING – I | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | CE | SEE | | Total |
| | L | TU | P | TW | | | | | |
| Credit | 2 | 1 | 2 | - | 5 | Theory | 40 | 60 | 100 |
| Hours | 2 | 1 | 4 | - | 7 | Practical | 20 | 30 | 50 |
| Pre-requisites: | | | | | | | | | |
| To learn the fundamentals of web developing and deploying. | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| Students will able to achieve basic web page developing with language like C# and deploying website and web services. | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| SECTION –I | | | | | | | | | |
| 1 | Net Framework .Net Framework Architecture, Common Language Runtime (CLR), Microsoft Intermediate Language (MSIL), Just In Time Compiler (JIT), Managed Code, Unmanaged Code, Common Type System (CTS), Common Language Specification (CLS), .NET Framework Class Library, Namespace, Assemblies | | | | | | | | 5 |
| 2 | C#.Net Console I/O: Reading Console Input, Writing Console Output, Using ReadKey() Program Control Statements: Conditional Statements (if, switch), Looping Statements (for, while, do-while, foreach), Jump Statements (break, continue, goto, return) Arrays and Strings: One Dimensional Arrays, Multi-Dimensional Arrays, Jagged Array, Using | | | | | | | | 17 |

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|---|--|---|
| | <p>Strings</p> <p>OOP's Concepts: Classes and Objects, Methods, Access Modifiers, Constructor, Destructor, Garbage Collection, Inheritance, Polymorphism (Overloading and Overriding), Abstract Classes, Interfaces, Exception Handling, Collections (ArrayList, Hashtable), Indexers and Properties, Delegates and Events</p> <p>LINQ to Objects: Introduction to LINQ, LINQ Query Syntax, LINQ Query Operators, LINQ Query Methods</p> | |
| SECTION –II | | |
| 3 | <p>ASP.Net Concepts</p> <p>Introduction to ASP.Net, ASP.Net Application Life Cycle, ASP.Net Page Events Life Cycle, Style Sheet, Themes, Skin, Master Page, State Management (Session, Application, Cache, Cookie, ViewState, QueryString), Validations using JavaScript, Using JQuery, Web Services</p> | 9 |
| 4 | <p>ASP.Net Server Controls</p> <p>StandardControls: Label,Button,TextBox,LinkButton,Hyperlink,DropDownList, RadioButton, RadioButtonList, CheckBox, CheckBoxList, ListBox, Image, Calendar, FileUpload, MultiView</p> <p>Validation Controls: RequiredFieldValidator, RangeValidator, RegularExpressionValidator, CompareValidator, CustomValidator, ValidationSummary,</p> <p>Navigation Controls: SiteMapPath, Menu</p> | 5 |
| 5 | <p>ADO.Net and LINQ</p> <p>Using Data Controls (GridView, DetailsView, FormView, Chart), Database Manipulations using ADO.Net, Advanced GridView Manipulations, Using Store Procedures, Generate Crystal Reports, LINQ to Dataset, LINQ to SQL, LINQ to Entity (Entity Framework)</p> | 8 |
| Practical content | | |
| List of programs specified by the subject teacher based on above mentioned topics | | |
| Text Books | | |
| 1 | The Complete Reference C# 4.0 , Herbert Schildt, Tata McGraw Hill Edition | |
| Reference Books | | |
| 1 | C# 3.0 Unleashed with the .Net Framework 3.5 , Joe Mayo, Pearson Education | |
| 2 | C# 2008 Programming Covers .NET 3.5, Black Book , Dreamtech Press | |
| 3 | Professional ASP .Net 3.5 in C# and VB, Evjen, Hanselman, Rader, Wrox | |
| 4 | Beginning ASP.NET 4 in C# 2010, Matthew MacDonald, Apress | |
| 5 | Pro ASP.NET 4 in C# 2010, Matthew MacDonald, Adam Freeman and Mario Szpuszta, Apress | |

Question Paper Scheme:

University Examination Duration: 3 Hours

Note for Examiner: -

(I) Questions 1 and 4 are compulsory with no options.

(II) Internal options should be given in questions 2, 3, 5 and 6.

SECTION - I

Q.1 –8 Marks

Q.2 –11 Marks

Q.3 –11 Marks

SECTION - II

Q.4 –8 Marks

Q.5 –11 Marks

Q.6 –11 Marks

| GANPAT UNIVERSITY | | | | | | | | | |
|---|---|--------------------------------|-----------------|----|-------------------------------------|-----------|--------------------------------|-----------|-------|
| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | | Master of Computer Application | | | Branch/Spec. | | Master of Computer Application | | |
| Semester | | III | | | Version | | 1.0.0.0 | | |
| Effective from Academic Year | | | 2016-17 | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | | P13A2JP1 | Subject Name | | JAVA PROGRAMMING-I | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | CE | SEE | | Total |
| | L | TU | P | TW | | | | | |
| Credit | 2 | 1 | 2 | - | 5 | Theory | 40 | 60 | 100 |
| Hours | 2 | 1 | 4 | - | 7 | Practical | 20 | 30 | 50 |
| Pre-requisites: | | | | | | | | | |
| Students will be able to Understand fundamentals concepts of object-oriented programming in Java, including defining classes, invoking methods, exception handling, using class libraries, etc. Student will get the knowledge of Event-Driven GUI using swing component | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| Students will be able to achieve detail understanding of OOPS concepts along with implementation. Also students will be able to build windows and console based robust applications. | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| SECTION –I | | | | | | | | | |
| 1 | An Introduction to JAVA, Classes and Methods: Byte code; JVM; JDK; Structure of Java Program, General Form of a Class; Declaring and Assigning Object Reference Variables; new Operator; Adding Methods; Instance Variables and Methods; Static Variables and Methods; Constructors; this Keyword; Method and Constructor Overloading; static and final Keywords; | | | | | | | | 5 |
| 2 | Inheritance, Interfaces and Packages : | | | | | | | | 4 |

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| | Inheritance Basics; Member Access and Inheritance; Using super; Multilevel Inheritance; Method Overriding; Dynamic Method Dispatch; Abstract Classes; Using final with Inheritance; Packages; Access Protection; importing Packages; Interfaces; | |
| 3 | Exception Handling : Exception Types; Uncaught Exceptions; try and catch; Multiple catch; Nested try; throw, throws and finally Keywords; Built-in Exceptions; Custom Exceptions | 3 |
| 4 | Multithreaded Programming : Java Thread Model; Main Thread; Implementing Runnable Interface; Extending Thread Class; Multiple Threads; Using isAlive() and join(); Thread Priorities; Synchronization; Inter thread Communication and Deadlock; Suspending, Resuming and Stopping Threads | 5 |
| 5 | String Handling : Exploring String Class; String Constructor; String Operations; Character Extraction; String Comparison; Searching Strings; Modifying Strings; Data Conversion Using valueOf(); Changing case of Characters within a String; Exploring String Buffer Class | 3 |
| 6 | Introducing Java Class Libraries : Random, Date, Calendar, GregorianCalendar and Vector classes; Enumeration Interface; Stack, Hashtable and StringTokenizer classes | 2 |
| SECTION –II | | |
| 7 | Input and Output : Files and Directories; Console Input/Output; Byte Streams (InputStream, OutputStream, FileInputStream, FileOutputStream, BufferedInputStream, BufferedOutputStream, DataInputStream, DataOutputStream), Character Streams (Reader, Writer, FileReader, FileWriter, BufferedReader, BufferedWriter, PrintWriter), RandomAccessFile class | 5 |
| 8 | JAVA Networking : Internet Addresses; ServerSockets and Sockets; Datagram Sockets and Packets | 3 |
| 9 | Graphical user interface using Swing : Inheritance hierarchy of Swing classes; Methods of Component class; Displaying Frames; Centering Frames with Toolkit class; Adding panel to a Frame; Buttons, Labels, Text fields and Text areas; Combo box; List box; Scroll panes; Borders; Radio buttons; Check boxes; Semantic Events; Low-level Events; Event Handling Procedure with Listeners; Layout Managers; Adapter classes; Class hierarchy of Menu; Adding menus and menu items; Menu item events; Submenus; Keyboard mnemonics; Accelerator keys; Pop-up menus; Displaying text on components; Setting fonts; Font Metrics; Setting Colors; Displaying Images and | 9 |

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| | Icons; Drawing and Filling Shapes using Graphics class and Java2D API | |
| 10 | Applets : Applets in Browsers; Life-cycle; Applet tag, Applet class | 2 |
| 11 | Using JDBC to Work With Databases : Driver Types; Configuring ODBC Data Source; Connecting to a Database; Returning a Result Set; Moving Cursor Through a Result Set; Returning Data From a Result Set; Modifying Data in a Result Set; Working with Prepared Statements | 4 |
| Practical content | | |
| List of programs specified by the subject teacher based on above mentioned topics | | |
| Text Books | | |
| 1 | The Complete Reference Java 2 By Herbert Schildt's, Tata McGraw-Hill Edition | |
| Reference Books | | |
| 1 | The class of Java By Pravin Jain, Pearson Education | |
| 2 | Murach's Beginning Java 2 By Andrea Steelman, BPB Publications | |
| 3 | Teach Yourself JAVA By Joseph O'Neil & Herb Schildt, Tata McGraw-Hill | |
| 4 | Programming with Java, A Primer by E. Balagurusamy's Tata McGraw-Hill Edition | |
| <p>Question Paper Scheme: University Examination Duration: 3 Hours Note for Examiner: - (I) Questions 1 and 4 are compulsory with no options. (II) Internal options should be given in questions 2, 3, 5 and 6.</p> <p>SECTION - I Q.1 –8 Marks Q.2 –11 Marks Q.3 –11 Marks</p> <p>SECTION - II Q.4 –8 Marks Q.5 –11 Marks Q.6 –11 Marks</p> | | |

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| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | Master of Computer Application | | | | Branch/Spec. | Master of Computer Application | | | |
| Semester | III | | | | Version | 1.0.0.0 | | | |
| Effective from Academic Year | | 2016-17 | | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | P13A3NET | | Subject Name | | Elective – I Networking | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | | CE | SEE | Total |
| | L | TU | P | TW | | | | | |
| Credit | 1 | 1 | 2 | - | 4 | Theory | 40 | 60 | 100 |
| Hours | 1 | 1 | 4 | - | 6 | Practical | 20 | 30 | 50 |
| Pre-requisites: | | | | | | | | | |
| To get knowledge about different types of network devices and network concept and layer of network. Understand the concept of security related network. | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| Students will be able to understand, how data is sent from one device to another with layer technology and security, protocols. | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| | SECTION –I | | | | | | | | |
| 1 | BASIC CONCEPT OF COMPUTER NETWORK Uses of Computer Networks, Types of Computer Network (LAN, MAN, WAN), Intranet, Extranet and Internet, Network Topologies: Star, Ring, Bus, Tree, Mesh, and Hybrid, OSI reference Model & TCP / IP Reference models: Functions of Each Layer, Name of the Main Protocols in each layer, Difference between OSI Model & TCP/IP model | | | | | | | | 9 |

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| 2 | PHYSICAL LAYER Guided Media – Twisted Pair, Coaxial Cable – Baseband and Broadband, Fiber Optics cable and network, Different Connectors: RJ45, RG 59, RG 58, RG 11, BNC AND Cables CAT 5, CAT 5E, CAT 6, Unguided Media – Radio wave, Micro wave, Infrared, Geo Synchronous Satellite Communication, Bluetooth technology, Transmission Impairments – Noise, Attenuation and Distortion, Bandwidth, frequency, Wavelength, Line Configuration, Network Interface card, Media Converter, Connecting Devices: Repeater, Difference between Hub, Switch and Router, Bridge, Gateway, Modem | 10 |
| 3 | DATA LINK AND MEDIUM ACCESS SUB LAYER Physical and Logical Address, IPV 4 and IPV 6, Framing and Frame Format, Introduction to Flow control, Error Control, Channel Allocation: Static Channels Allocation and Dynamic Channel Allocation, Multiplexing & De Multiplexing- FDM, TDM and WDM, IEEE Standards: IEEE 802.3: Ethernet – Standard, Fast, Gigabit and Ten Gigabit Ethernet, Frame Format of Ethernet, IEEE 802.4: Token Bus, IEEE 802.5: Token Ring, Introduction to Polling and ALOHA. | 10 |
| SECTION –II | | |
| 4 | NETWORK AND TRANSPORT LAYER Universal Identifier, Classes of Network, IP Addressing, special addresses, Subnet Masking, Supernet. Delivery and Routing of IP Packets, Routing Table, Routing Methods (Next-Hop, Network specific, Host specific, Default routing), Static Vs Dynamic routing, Introduction to Routing Algorithms : Shortest Path Routing, Flooding, Flow Based Routing, Distance Vector Routing, Broadcast Routing (Routing for Mobile Hosts), Connection oriented Vs Connectionless services, Direct Vs Indirect Delivery, TCP & UDP, and Difference between TCP & UDP, Dynamic Host Configuration Protocol –DHCP Scope, DHCP Lease Mechanism. | 11 |
| 5 | UPPER LAYER Overview of Cryptography: Encryption, Decryption, Plain Text, Cipher Text And Various Techniques of Cryptography, Introduction to Secret-key (private key) and Public-key, Digital Signature ,Introduction to Firewall, Domain Name System – Its purpose and how it works, Overview of different Application layer protocols and their use (Rlogin, Telnet, FTP, TFTP, SNMP & SMTP). | 11 |
| 6 | PRACTICAL APPROACHES | 9 |

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| | Remote Assistance & Desktop Sharing, Net meeting Configuration (Team Viewer), Crimping, Firewall Configuration, Wi-Fi router Configuration, Manageable Switch Configuration, Server Configuration: Creating workgroup, domain and active directory | |
| Practical content | | |
| List of programs specified by the subject teacher based on above mentioned topics | | |
| Text Books | | |
| 1 | Data Communications and Networking by Behrouz Forouzan Tata McGraw Hill | |
| Reference Books | | |
| 1 | Computer Networks by Andrew S. Tanenbaum Pearson Edition | |
| 2 | TCP/IP Protocol Suite by Behrouz Forouzan Tata McGraw Hill | |
| | <p>Question Paper Scheme:</p> <p>University Examination Duration: 3 Hours</p> <p>Note for Examiner: -</p> <p>(I) Questions 1 and 4 are compulsory with no options.</p> <p>(II) Internal options should be given in questions 2, 3, 5 and 6.</p> <p>SECTION - I</p> <p>Q.1 –8 Marks</p> <p>Q.2 –11 Marks</p> <p>Q.3 –11 Marks</p> <p>SECTION - II</p> <p>Q.4 –8 Marks</p> <p>Q.5 –11 Marks</p> <p>Q.6 –11 Marks</p> | |

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| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | Master of Computer Application | | | | Branch/Spec. | Master of Computer Application | | | |
| Semester | III | | | | Version | 1.0.0.0 | | | |
| Effective from Academic Year | | 2016-17 | | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | P13A3WD2 | | Subject Name | | Elective – I Web Designing-II | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | | CE | SEE | Total |
| | L | TU | P | TW | | | | | |
| Credit | 1 | 1 | 2 | - | 4 | Theory | 40 | 60 | 100 |
| Hours | 1 | 1 | 4 | - | 6 | Practical | 20 | 30 | 50 |
| Pre-requisites: | | | | | | | | | |
| To develop rich and responsive, cross browser support website with client side storage and scripting language | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| Student can develop rich and responsive, cross browser support website with client side storage and scripting language | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| | SECTION –I | | | | | | | | |
| 1 | HTML 5 Introduction, Attributes, Semantic Elements, Media Element, Events, Form validation with HTML5 | | | | | | | | 3 |

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| 2 | CSS Responsive Introduction, The Viewport, Grid-View, Media Queries, Images, Videos, Frameworks | 3 |
| 3 | AngularJs Overview, AngularJs - MVC Architecture, Directives : ng-app, ng-init, ng-model,ng-repeat, Expression using number, string, array, object, Controllers using ng-controller, Filters and tables. Forms validation with AngularJs events | 9 |
| SECTION –II | | |
| 4 | Jquery Overview of JQuery, JQuery Effects and JQuery Validation JQuery UI: jQuery - Interactions, jQuery - Widgets, jQuery – Theming JQuery AJAX: jQuery - AJAX Introduction, jQuery - AJAX load() Method, jQuery - AJAX get() and post() Methods. | 5 |
| 5 | Bootstrap Introduction to Bootstrap, Incorporate Bootstrap into an HTML document, Bootstrap Tables, list, forms, Input groups, Images, Icon, Progress bars, Panels, Thumbnails, Alerts, Responsive embed, Navbar.Bootstrap Grid system, Bootstrap Layout :Fixed,Fluid,Responsive .Bootstrap Typography, Bootstrap pagination | 10 |
| Practical content | | |
| List of programs specified by the subject teacher based on above mentioned topics | | |
| Text Books | | |
| 1 | HTML 5 Developer's Cookbook , By Chuck Hudson, Tom Leadbetter | |
| Reference Books | | |
| 1 | Professional AngularJs , By Valeri Karpov,Diego netto,Wrox Pub. | |
| 2 | Pro AngularJs ,By Adam Freeman,Apress | |
| 3 | JQuery For Dummies , By Lynn Beighley, Wiley Publications. | |
| 4 | JQuery IN Action, By Bear Bibeault & Yehuda Katz, second edition, manning publication | |
| 5 | Bootstrap By Jake spurlock ,O'RELLY | |
| Question Paper Scheme: University Examination Duration: 3 Hours Note for Examiner: - (I) Questions 1 and 4 are compulsory with no options. (II) Internal options should be given in questions 2, 3, 5 and 6. | | |

SECTION - I

Q.1 –8 Marks

Q.2 –11 Marks

Q.3 –11 Marks

SECTION - II

Q.4 –8 Marks

Q.5 –11 Marks

Q.6 –11 Marks

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| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | | Master of Computer Application | | | Branch/Spec. | | Master of Computer Application | | |
| Semester | | III | | | Version | | 1.0.0.0 | | |
| Effective from Academic Year | | | 2016-17 | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | | P13A4SE | Subject Name | | Software Engineering | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | | CE | SEE | Total |
| | L | TU | P | TW | | | | | |
| Credit | 2 | 1 | - | - | 3 | Theory | 40 | 60 | 100 |
| Hours | 2 | 1 | - | - | 3 | Practical | - | - | - |
| Pre-requisites: | | | | | | | | | |
| To help students to build skills that enable them to analysis and design high quality, reliable software that is easy to modify, maintain and test. | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| At the end of the course, the student will be able to: | | | | | | | | | |
| Apply software Development models and methods to design software. | | | | | | | | | |
| Analysis for various software Risks and Manage Quality in software. | | | | | | | | | |
| Understand various testing Strategy and control project scheduling | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| SECTION –I | | | | | | | | | |
| 1 | Introduction to Software Engineering: What is Software, Characteristics of Software, Applications of Software, Software Myths | | | | | | | | 2 |
| 2 | A Generic View of Software : Software Engineering : A layered Technology, A Process framework, The Capability Maturity Model Integration (CMMI), Process Patterns | | | | | | | | 3 |

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| 3 | Process Models : The Waterfall Model, Incremental Process Models: The Incremental Model, The RAD Model, Evolutionary Software Process Models: Prototyping, The Spiral Model, Concurrent Development Model, Specialized Process Models: Component-Based Development, Aspect oriented Software Development | 7 |
| 4 | Metrics For Process and Projects : Software process and project metrics, Software measurement: Size Oriented Metrics, Function Oriented Metrics | 3 |
| 5 | Software project planning : Project planning objectives, Software scope, Decomposition Techniques, Empirical estimation models, The Make/Buy Decision | 4 |
| 6 | WebApp Design : WebApp Design Quality, Design Goals, A Design Pyramid for WebApps, WebApp Interface Design, Aesthetic Design, Content Design, Architecture Design, Navigation Design | 3 |
| SECTION –II | | |
| 7 | Risk analysis and Management : Reactive versus proactive risk strategies, Software risks, Risk identification, Risk projection, Risk refinement, Risk mitigation, monitoring, and management, The RMMM Plan. | 3 |
| 8 | Project scheduling and technique : Basic concept, Defining a task set for the software project, Defining a task Network, Scheduling, Earned value analysis | 3 |
| 9 | Software Quality Assurance : Quality Concepts, The Quality Movement, Software Quality Assurance, Software Reviews, Formal Technical Reviews, Statistical Software Quality Assurance, Software Reliability, The Quality standards | 5 |
| 10 | Conventional Testing Techniques : Software testing fundamentals, Internal and External view of Testing, White-box Testing, Basis path testing, Control structure testing, Black-box testing, Model Based Testing, Testing for specialized Environments, Architectures and Applications | 5 |
| 11 | Web Application Testing Techniques : | 4 |

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| | Testing concepts of WebApps, Testing Process overview, Content Testing, User Interface Testing, Component Level Testing, Navigation Testing, Configuration Testing, Security Testing, Performance Testing | |
| 12 | Re-engineering : Business Process Reengineering, Software Reengineering, Reverse Engineering, Restructuring, Forward Engineering | 3 |
| Practical content | | |
| N. A. | | |
| Text Books | | |
| 1 | Software Engineering , by Roger Pressman, Mc-Graw Hill 7 th Edition | |
| Reference Books | | |
| 1 | Software Engineering , by Ian Sommerville, Addison Wesley. | |
| 2 | Fundamentals of Software Engineering , by Rajib Mall, Prentice Hall of India | |
| 3 | Object Oriented Software Engineering , by Jacobson, Jonsson, Overgaard, Christerson, Addison Westley | |
| <p>Question Paper Scheme: University Examination Duration: 3 Hours Note for Examiner: - (I) Questions 1 and 4 are compulsory with no options. (II) Internal options should be given in questions 2, 3, 5 and 6.</p> <p>SECTION - I Q.1 –8 Marks Q.2 –11 Marks Q.3 –11 Marks</p> <p>SECTION - II Q.4 –8 Marks Q.5 –11 Marks Q.6 –11 Marks</p> | | |

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| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | | Master of Computer Application | | | Branch/Spec. | | Master of Computer Application | | |
| Semester | | III | | | Version | | 1.0.0.0 | | |
| Effective from Academic Year | | | 2016-17 | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | | P13A5COM | Subject Name | | Computer Based Optimization Models | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | CE | SEE | | Total |
| | L | TU | P | TW | | | | | |
| Credit | 3 | 1 | - | - | 4 | Theory | 40 | 60 | 100 |
| Hours | 3 | 1 | - | - | 4 | Practical | - | - | - |
| Pre-requisites: | | | | | | | | | |
| It helps students to find the optimum solution for better decision making. | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| Student can apply the various operation research methods to find optimum solution. | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| SECTION –I | | | | | | | | | |
| 1 | Operation Research:An Introduction History, Definition, scope and phases of operations research, Models and Modeling in OR, Methodology and Applications of OR, Computer software for Operation Research | | | | | | | | 4 |
| 2 | Linear Programming Linear Programming, Structure and Assumption of Linear Programming, Mathematical Form of General LPP, Formulation of an LPP, Slack, Surplus and Artificial Variables, Standard Form of LPP, Solution of an LPP using Graphic Method and Simplex Method, Two-Phase and Big-M Method, Special cases in LPP: Alternate Optimum solution, An Unbounded Solution, Infeasible Solution | | | | | | | | 11 |
| 3 | Transportation Problem Mathematical Model of Transportation problem, Methods to find initial basic feasible solution, North-West corner method(NWCM), Least Cost Method(LCM), Voggel's | | | | | | | | 9 |

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| | approximation method, Method for finding optimal solution – MODI method, Special cases in Transportation Problem. | |
| 4 | Replacement Models Introduction, Types of Failure, Replacement of items whose efficiency deteriorates with time: Model I: Replacement policy for items whose running cost increases with time and value of money remains constant during a period, Model II: Replacement policy for items whose running cost increases with time but value of money changes with constant rate during a period. | 6 |
| SECTION –II | | |
| 5 | Assignment Problem Introduction, Mathematical Model, Method to find an optimal solution- Hungarian Method, Variations in assignment problem- multiple optimal solutions, Maximization case in assignment problem, Unbalanced assignment problem, restrictions on assignment | 7 |
| 6 | Sequencing Problem Introduction to sequencing problems- Processing n jobs through two machines, processing n jobs through three machines, Processing n jobs through m machines, processing two jobs through m machines | 4 |
| 7 | Project Management PERT and CPM: Introduction, Basic Difference between PERT and CPM, Phases of Project Management, PERT / CPM Network Components and Precedence Relationship, Critical Path Analysis-Forward Pass Method , Backward Pass Method , Float of an Activity and Event, Critical Path, Time estimation and Critical Path in Net-Work Analysis | 11 |
| 8 | Theory of Games Introduction, Two – Person Zero Sum game, Pure strategies (Minimax&Maximinprinciples) Games with saddle point, Rules to determine saddle point. | 5 |
| 9 | Simulation Nature and meaning of simulation, types of simulation, advantages and disadvantages of simulation. | 3 |
| Practical content | | |
| N. A. | | |
| Text Books | | |
| 1 | Operation Research: Theory and Application By J. K. Sharma- McMillan | |

| Reference Books | |
|-----------------|--|
| 1 | Introduction to Operation Research By K.K. Chawla, Vijay Gupta, bhushan Kumar. |
| 2 | Operation Research By R. Pannerselvam - PHI |
| 3 | Quantitative techniques in Management by N. D. Vohra, TMH |
| | <p>Question Paper Scheme:</p> <p>University Examination Duration: 3 Hours</p> <p>Note for Examiner: -</p> <p>(I) Questions 1 and 4 are compulsory with no options.</p> <p>(II) Internal options should be given in questions 2, 3, 5 and 6.</p> <p>SECTION - I</p> <p>Q.1 –8 Marks</p> <p>Q.2 –11 Marks</p> <p>Q.3 –11 Marks</p> <p>SECTION - II</p> <p>Q.4 –8 Marks</p> <p>Q.5 –11 Marks</p> <p>Q.6 –11 Marks</p> |
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| GANPAT UNIVERSITY | | | | | | | | | |
|---|---|--------------------------------|-----------------|----|---|-----------|--------------------------------|-----------|-------|
| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | | Master of Computer Application | | | Branch/Spec. | | Master of Computer Application | | |
| Semester | | III | | | Version | | 1.0.0.0 | | |
| Effective from Academic Year | | | 2016-17 | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | | P13B6ACS | Subject Name | | Elective – II Advanced Communication Skills | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | CE | SEE | | Total |
| | L | TU | P | TW | | | | | |
| Credit | 2 | 1 | - | - | 3 | Theory | 40 | 60 | 100 |
| Hours | 2 | 1 | - | - | 3 | Practical | - | - | - |
| Pre-requisites: | | | | | | | | | |
| <ul style="list-style-type: none"> To enable the students to acquire soft skills. To train the students for selection procedure which includes aptitude test, group discussion, presentation skills and personal interviews To enable the students for professional correspondence . | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| <ul style="list-style-type: none"> Acquire required abilities and professionalism to appear in group discussion and personal interview. Acquire abilities for professional correspondence | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| SECTION –I | | | | | | | | | |
| 1 | Presentation Skill Introduction to Presentation: Definition, Nature, and Importance of Oral Presentation Planning and Preparation of Presentation: Six Great Helpers in Preparing Presentation - Defining Purpose of Presentation, Analysing Audience and Locale, Organizing Content, Preparing Outline, Use of Visual Aids in | | | | | | | | 7 |

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| | Presentation, Rehearsing and Presentation, Attention Grabbers in the Delivery of Presentation, Steps of Preparing Presentation | |
| 2 | Public Speaking Skill Introduction to Public Speaking, Definition and Nature, Purposes of Public Speaking, Types of Speech: extemporaneous, manuscript, impromptu and memorization. Paralinguistic Features. | 4 |
| 3 | Group Discussion and Debate Definition, Nature and Importance, Characteristics of Successful Group Discussion, Group Discussion Strategies, Evaluation Components in GD as Part of a Selection Process: knowledge, communication skills, group behavior & leadership potential. Debate: Definition, Nature and Importance, Difference between Group Discussion and Debate, Practice through mock GD and Debate in the classroom. | 6 |
| 4 | Interviewing Skills Definition, Objectives and Process of Interview, Types of Interviews, Strategies for Successful Job Interview, Skills and Attributes Most Employers Look For, Factors Responsible for Failure, Pre- Interview Preparation Techniques, Types of Interview Questions, Answering Strategies, Frequently Asked Interview Questions. | 6 |
| SECTION –II | | |
| 5 | Official Correspondence Correspondence with different authorities like government departments, civic authorities, office bearers of financial institutions, insurance agencies etc | 4 |
| 6 | Report, Notice-Agenda & Minutes of Meeting Purpose of a Report, Types of Reports, Structure and Style of Reports, Committee Reports, Individual Reports, Drafting of Notice, Agenda and Minutes of Meeting | 5 |
| 7 | Job Application & Resume Writing Significance of Resume and Job Application, Structure of Job Application and Resume, Tips for Effective Job Application, Drafting of Job Application with Resume | 4 |
| 8 | Proposal Writing Nature and Significance of Proposal, Types of Proposals, Structure of Formal Proposals, Parts of a Formal Proposal, Writing Tips, Drafting of Formal Proposals | 5 |

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| 9 | Technical Articles Nature and Significance Technical Articles, Types of Technical Articles: Journal Articles and Conference Papers, Review and Research Articles, Elements of Technical Articles, Writing Strategies, Drafting of Technical Articles | 4 |
| Practical content | | |
| N. A. | | |
| Text Books | | |
| 1 | Effective Technical Communication by Ash raf Rizvi M., Tata McGraw – Hill Publishing Company Limited; New Delhi; 2005 | |
| Reference Books | | |
| 1 | Technical Communication Principles and Practice by Raman, Meenakshi & Sharma Sangeeta. OUP, New Delhi; 2008. | |
| 2 | Business Communication by Ramchandran K.K. at al. McMillan India Pvt. Ltd, New Delhi; 2007 | |
| 3 | Effective English Communication by Mohan Krishna & Raman, Meenakshi. Tata McGraw – Hill Publishing Company Limited; New Delhi; 2000 | |
| 4 | Principles and Practice of Business Communication by Doctor Aspi & Doctor Rhoda. Sheth Publishers Pvt Ltd; 2001 | |
| <p>Question Paper Scheme:</p> <p>University Examination Duration: 3 Hours</p> <p>Note for Examiner: -</p> <p>(I) Questions 1 and 4 are compulsory with no options.</p> <p>(II) Internal options should be given in questions 2, 3, 5 and 6.</p> <p>SECTION - I</p> <p>Q.1 –8 Marks</p> <p>Q.2 –11 Marks</p> <p>Q.3 –11 Marks</p> <p>SECTION - II</p> <p>Q.4 –8 Marks</p> <p>Q.5 –11 Marks</p> <p>Q.6 –11 Marks</p> | | |

| GANPAT UNIVERSITY | | | | | | | | | |
|--|--|--------------------------------|-----------------|----|--|-----------|--------------------------------|-----------|-------|
| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | | Master of Computer Application | | | Branch/Spec. | | Master of Computer Application | | |
| Semester | | III | | | Version | | 1.0.0.0 | | |
| Effective from Academic Year | | | 2016-17 | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | | P13B6CPD | Subject Name | | Elective – II Career & Personality Development | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | CE | SEE | | Total |
| | L | TU | P | TW | | | | | |
| Credit | 2 | 1 | - | - | 3 | Theory | 40 | 60 | 100 |
| Hours | 2 | 1 | - | - | 3 | Practical | - | - | - |
| Pre-requisites: | | | | | | | | | |
| Student can get knowledge regarding document and interview preparation, resume writing and improved skill in aptitude and reasoning | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| By this curriculum students can get awareness regarding what types of preparation is required before appearing in the interview process. | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| SECTION –I | | | | | | | | | |
| 1 | Career Planning & Goal Setting What is Career Planning? Importance of Career Planning(01) Process of Career Planning and Development(01) Steps involved in Career Development System, Factors affecting Career Planning(01) Goal Setting(02) Need for goal selection, Types of Goal (Short Term & Long Term)(01) Dream vs. Goal vs. Desire(01) | | | | | | | | 6 |
| 2 | Document Preparation & Presentation Resume Assistance: Job Search & On campus Recruitment: Seeking job vacancies(01) Drafting, Resume Preparation, Writing Cover Letters(01) | | | | | | | | 6 |

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| | <p>Presentation Skills: Eye to eye contact, Rehearsal, Voice Modulation(01) Keys to Effective Communication: Active Listening, Observation, Holding Conversation, Objection handling (02) Types of Communication: Face-to-Face, E-mail, Video Conferencing, Telephonic, Written, Verbal, Formal , informal, legal(01).</p> | |
| 3 | <p>Group Discussion & Public Speaking Importance of Group Discussion (01), Commencing Group Discussion, Essential Skills to Demonstrate in GD (02), Role Play in GD, Characteristics of Group Discussion(01), Organizational Group Discussion, Common GD Topics(02), Evaluation Components in GD (knowledge, communication skills, Group behavior, Leadership skills)(01) Preparation for a Speech; evaluating your plus and minuses as a speaker; achieving confidence in your ability to present(01), Use of body language and vocal deliveries; Speeches at special occasions; Speaking with confidence(02)</p> | 10 |
| SECTION –II | | |
| 4 | <p>Basic Programming Skills Interview question for DBMS & ADBMS (01), Interview question for .Net Framework(01), Interview question for PHP(01), Interview question for Operating System and System Programming (01), Interview Question for Distributed and Parallel Databases (01), Interview Question for Grid and Cloud Computing (01) Interview Question for Logic development and Programming (01), Interview Question for J2EE Framework (01), Interview question for Data Structure and Analysis Design of Algorithm (02)</p> | 8 |
| 5 | <p>Time Management How good is your time management? (01), Prioritizing Activities - urgency and importance (01) Keeping a time log, Identifying your personal time wasters, Dealing with interruptions(02) Daily/weekly Planning (01)</p> | 5 |
| 6 | <p>Aptitude, Reasoning and Data Interpretation Mathematics, Profit, Loss and discount, average and its application, Ratio, proportion and variation, Time and work, Time speed and distance, sequence and series, probability(04) Series, Classification, Coding and Decoding, Logical Venn Diagram, Alpha-numeric Sequence Puzzle, Number Ranking and Time Sequence Test, Logical Sequence of Words, Arithmetical Reasoning, Blood Relation (04)</p> | 10 |

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| | Series, Analogy, Analytical Reasoning, Spotting out the embedded figure, Completion of incomplete pattern, Figure Matrix (02) | |
| Practical content | | |
| N. A. | | |
| Text Books | | |
| 1 | Quantitative Aptitude for CAT by Nishit Singha, Pearson Education | |
| Reference Books | | |
| 1 | Quantitative Aptitude by Trishna, Knowledge System. | |
| 2 | A Modern Approach to Verbal Reasoning by R.S.Aggarwal , S.Chand & Company Ltd | |
| 3 | A Modern Approach to non-Verbal Reasoning by R.S.Aggarwal , S.Chand & Company Ltd | |
| 4 | Puzzles by ShakuntalaDevi | |
| 5 | Objective General knowledge by edgar Thorpe and Showick Thorpe , Pearson Education | |
| 6 | Effective Technical communication By M Ashraf Rizvi, Tata MaGraw-Hill Publishing Company Ltd | |
| 7 | How to Succeed at Interview by Andreas , Tata MaGraw-Hill Publishing Company Ltd | |
| 8 | As none of the book covers entire syllabus, material has to be prepared using Web. | |
| <p>Note for Examiner</p> <p>Exam has two parts:</p> <ol style="list-style-type: none"> 1) Internal (40%) 2) External (60%) <p>Internal Exam</p> <ul style="list-style-type: none"> • Internal Exam weight age is 40%. • Attendance has 5 marks. • Assignment / presentation / other activities have 5 marks. • Interview and viva voce have 10 marks. • Continuous evaluation test has 20 marks. <p>External / University Exam</p> <ul style="list-style-type: none"> • University exam weight is 60% • University exam must contain two components 1) Interview (Viva) Or GD 2) Written Test(Objective Test) • Interview component must be a viva voce type and of 20 marks. • Written Test component must be objective type of question and of 40 marks | | |

- Written Test must be objective and given with solution.
- University Exam will be conducted online.

University Exam Paper Structure

- Written Test must contain the objective type of questions from all components of the syllabus.
- In examination scheme there will be no negative marking.
- Duration of Written Test must be 1:30 Hr
- 40 Multiple Choice Questions are to be asked.

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|---------------------------------|----------------------------------|-----------------|-------------------------------------|-----------|-----------------|--------------------------------|-------|------------------|---|-------|-----------------|---|-------|----------------------------|-----|-------|-----------|----|-------|--|
| FACULTY OF COMPUTER APPLICATION | | | | | | | | | | | | | | | | | | | | |
| TEACHING AND EXAMINATION SCHEME | | | | | | | | | | | | | | | | | | | | |
| Programme | Master of Computer Application | | | | Branch/Spec. | Master of Computer Application | | | | | | | | | | | | | | |
| Semester | IV | | | | | | | | | | | | | | | | | | | |
| Effective from Academic Year | 2016-17 | | Effective for the batch Admitted in | June 2016 | | | | | | | | | | | | | | | | |
| 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 | C | SE | Total | |
| | | L | T | Total | P | T | Total | L | T | Total | P | T | Total | | | | E | E | I | |
| P14A1OST | Open Source Technology | 2 | 1 | 3 | 2 | - | 2 | 2 | 1 | 3 | 4 | - | 4 | 40 | 60 | 100 | 20 | 30 | 50 | |
| P14A2GUI2 | GUI PROGRAMMING – II | 2 | 1 | 3 | 2 | - | 2 | 2 | 1 | 3 | 4 | - | 4 | 40 | 60 | 100 | 20 | 30 | 50 | |
| P14A3JP2 | JAVA PROGRAMMING – II | 2 | 1 | 3 | 2 | - | 2 | 2 | 1 | 3 | 4 | - | 4 | 40 | 60 | 100 | 20 | 30 | 50 | |
| P14A4DWM | DATA WAREHOUSING AND DATA MINING | 2 | 1 | 3 | - | - | - | 2 | 1 | 3 | - | - | - | 40 | 60 | 100 | - | - | - | |
| | Elective-III | 2 | 1 | 3 | - | - | - | 2 | 1 | 3 | - | - | - | 40 | 60 | 100 | - | - | - | |
| | Elective-IV | 2 | 1 | 3 | - | - | - | 2 | 1 | 3 | - | - | - | 40 | 60 | 100 | - | - | - | |
| Total | | 18 | 9 | 27 | 6 | - | 6 | 18 | 9 | 27 | 12 | - | 12 | 360 | 540 | 900 | 60 | 90 | 150 | |

Elective-III

P14A5SOA Service Oriented Architecture

P14A5DES Data Encryption and Data Security

P14A5SP System Programming

Elective-IV

P14B6ERP Enterprise Resource Planning And Management

P14B6GIS Geographical Information System and Global Positioning System

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FACULTY OF COMPUTER APPLICATION

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|---|---|---------|-----------------|----|-------------------------------------|--------------------------------|-----|-----------|-----|
| Programme | Master of Computer Application | | | | Branch/Spec. | Master of Computer Application | | | |
| Semester | IV | | | | Version | 1.0.0.0 | | | |
| Effective from Academic Year | | 2016-17 | | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | P14A1OST | | Subject Name | | Open Source Technology | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | CE | SEE | Total | |
| | L | TU | P | TW | | | | | |
| Credit | 2 | 1 | 2 | - | 5 | Theory | 40 | 60 | 100 |
| Hours | 2 | 1 | 4 | - | 7 | Practical | 20 | 30 | 50 |
| Pre-requisites: | | | | | | | | | |
| The course aims to explore features of open source technology named PHP to design dynamic web pages using core PHP and incorporate MVC to design responsive web pages. | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| Upon completion of this course, the student will be able to: Design and develop dynamic PHP web pages. Apply the concepts of MVC to design web pages incorporating validation techniques. | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| | SECTION –I | | | | | | | | |
| 1 | Introduction Introduction to Open Source Technologies, Introduction to PHP, Advantages and disadvantages of PHP, Client-side scripting, Server-side scripting, Canonical PHP tags, including files, Syntax of PHP, Comments, Variables, Datatypes in PHP, HTTP, GET arguments, POST arguments | | | | | | | | 2 |
| 2 | Strings & Array Strings in PHP, String functions, Creating and using Arrays, Multidimensional Arrays, using iteration functions, using foreach | | | | | | | | 3 |

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| 3 | File system and System Functions Understanding PHP file permissions, File reading and writing functions, File system and Directory functions, Date and Time Functions, Graphic (GD Library Functions) | 5 |
| 4 | Session and Cookies Sessions in PHP, Session functions, Cookies, The setcookie() function, Deleting cookies, Reading cookies | 2 |
| 5 | E-mail Sending E-mail with PHP, Windows configuration, Linux configuration, the mail function, Sending Mail from a Form | 2 |
| 6 | Object-Oriented programming with PHP Basic PHP constructs for OOP, defining classes, accessing member variables, creating instances, constructor, inheritance, overriding functions, chained subclassing, advanced OOP features, public, private, and protected members, interfaces , constants , abstract classes, simulating class functions, calling parent functions, automatic calls to parent constructors, simulating method overloading | 4 |
| SECTION –II | | |
| 7 | MySQL and PDO Introduction to MySQL, Creating MySQL databases with PHP, MySQL data types PHP Data Objects - Introduction, Installing/Configuring, Connections and Connection management, Prepared PDO statements, The PDOStatement class. | 10 |
| 8 | PHP and XML Introduction to XML, working with XML, creating XML file, store data to the XML, manipulating the XML, reading data from XML, Web Services | 5 |
| 9 | MVC(Cake PHP Introduction to CakePHP, Installation Process, MVC introduction, Using models and model properties, Configuration, Creating HTML forms and validations in CakePHP, Database configuration, Understanding the CRUD, CakePHP convention, Request and response. Theme | 12 |
| Practical content | | |
| List of programs specified by the subject teacher based on above mentioned topics | | |

| Text Books | |
|-----------------|--|
| 1 | PHP 6 and MySQL by Tim Converse and Joyce Park, Bible publication |
| Reference Books | |
| 1 | Beginning PHP6, Apache, MySql web Development , by Timothy Boronczyk, Elizabeth Naramore. wrox publication |
| 2 | Beginning PHP and MySQL , by W. Jason Gilmore, Apress |
| 3 | The Complete Reference PHP , by Steven Holzner, TATA McGRAW-HILL Publication |
| 4 | CakePHP - From Novice to Professional , David Golding, Apress |
| 5 | CodeIgniter 2 Cookbook , Rob Foster, Published by Packt Publishing Ltd. |
| 6 | PDO – Manual : http://php.net/manual/en/book.pdo.php |
| | <p>Question Paper Scheme:</p> <p>University Examination Duration: 3 Hours</p> <p>Note for Examiner: -</p> <p>(I) Questions 1 and 4 are compulsory with no options.</p> <p>(II) Internal options should be given in questions 2, 3, 5 and 6.</p> <p>SECTION - I</p> <p>Q.1 –8 Marks</p> <p>Q.2 –11 Marks</p> <p>Q.3 –11 Marks</p> <p>SECTION - II</p> <p>Q.4 –8 Marks</p> <p>Q.5 –11 Marks</p> <p>Q.6 –11 Marks</p> |

| GANPAT UNIVERSITY | | | | | | | | | |
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| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | | Master of Computer Application | | | Branch/Spec. | | Master of Computer Application | | |
| Semester | | IV | | | Version | | 1.0.0.0 | | |
| Effective from Academic Year | | | 2016-17 | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | | P14A2GUI2 | Subject Name | | GUI Programming-II | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | CE | SEE | | Total |
| | L | TU | P | TW | | | | | |
| Credit | 2 | 1 | 2 | - | 5 | Theory | 40 | 60 | 100 |
| Hours | 2 | 1 | 4 | - | 7 | Practical | 20 | 30 | 50 |
| Pre-requisites: | | | | | | | | | |
| To develop dynamic website in asp.net with MVC structure. | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| Student can develop dynamic websites. | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| SECTION –I | | | | | | | | | |
| 1 | Introduction to ASP.NET MVC: MVC Pattern and MVC applied to Web Frameworks, MVC overview, Advantages & Disadvantages of ASP.NET MVC, Software Requirement and Installation for ASP.NET MVC | | | | | | | | 4 |
| 2 | The MVC Application Structure: Creating an ASP.NET MVC Project, Project Templates, Convention over Configuration, Running the Application, Creating Model, Setting up/ Creating Routes, Creating Controllers, Creating Views | | | | | | | | 4 |
| 3 | The View: The View: The Purpose of views, Viewdata, ViewBag and TempData, Strongly typed view, Adding View, The Razor View Engines: Introduction Razor View Engines, Razor Code Expressions, Razor Syntax: Implicit Code Expression, Explicit Code Expression, Unencoded Code Expressions, Code Block, Combining Text and Markup, Mixing Code and | | | | | | | | 7 |

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| | Plain Text, Code Delimiter, Calling Generic Method, Types of Views [Master or Layouts, Partial] | |
| 4 | Forms and HTML Helpers: Using Forms Method, Automatic Encoding, Inside HTML Helpers, Adding Inputs, Helpers, Models and View Data, Strongly type helpers, Other Input Helpers. | 5 |
| 5 | Data Annotations and Validation: Annotating Orders for Validation, Using Validation Annotations, Looking behind Annotations Curtain, Custom Validation Logic, Display and Edit Annotations | 5 |
| SECTION –II | | |
| 6 | The Model: Modeling the SampleApplication usingScaffolding a store manager: What is Scaffolding, Empty Controller, Controller with Empty Read/Write Actions, Controller with Read/Write Actions and Views, Using Entity Framework, Executing the Scaffolding Template, Executing the Scaffolding Code, Editing an Album, Model Binding.. | 10 |
| 7 | The Controller : Controller Basics, Home Controller, Creating New Controllers, Write Action Methods, Parameters in Controller Actions, Routing: URL,Introduction to Routing, Defining Route, Named Routes, MVC Areas,Catch-ALL Parameter, Custom Route Constraints, Using Routing with Web Forms,Sessions, Application and Cache variables,Filters, Global Filters, Creating Custom Filters, Controller Templates | 10 |
| 8 | AJAX with ASP.NETMVC AJAX: AJAX Concept, Ajax in ASP.NET MVC, Implementation in the Controller and The View, Partial Page Update, Structured Data Exchange, Ajax Helpers, Ajax with jQuery | 4 |
| Practical content | | |
| List of programs specified by the subject teacher based on above mentioned topics | | |
| Text Books | | |
| 1 | Professional ASP.NET MVC 4 By Jon Galloway, Phil Hack, Brad Wilson, K. Scott Allen, WROX Publication | |

| Reference Books | |
|-----------------|--|
| 1 | Programming ASP.NET MVC 4 By Jess Chadwick, Todd Snyder, Hrusikesh Panda, REILLY Publication |
| 2 | Pro ASP.NET MVC 4 by Adam freeman, A Press publication. |
| | <p>Question Paper Scheme:</p> <p>University Examination Duration: 3 Hours</p> <p>Note for Examiner: -</p> <p>(I) Questions 1 and 4 are compulsory with no options.</p> <p>(II) Internal options should be given in questions 2, 3, 5 and 6.</p> <p>SECTION - I</p> <p>Q.1 –8 Marks</p> <p>Q.2 –11 Marks</p> <p>Q.3 –11 Marks</p> <p>SECTION - II</p> <p>Q.4 –8 Marks</p> <p>Q.5 –11 Marks</p> <p>Q.6 –11 Marks</p> |

| GANPAT UNIVERSITY | | | | | | | | | |
|--|---|--------------------------------|-----------------|----|-------------------------------------|-----------|--------------------------------|-----------|-------|
| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | | Master of Computer Application | | | Branch/Spec. | | Master of Computer Application | | |
| Semester | | IV | | | Version | | 1.0.0.0 | | |
| Effective from Academic Year | | | 2016-17 | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | | P14A3JP2 | Subject Name | | Java Programming – II | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | CE | SEE | | Total |
| | L | TU | P | TW | | | | | |
| Credit | 2 | 1 | 2 | - | 5 | Theory | 40 | 60 | 100 |
| Hours | 2 | 1 | 4 | - | 7 | Practical | 20 | 30 | 50 |
| Pre-requisites: | | | | | | | | | |
| To understand the web enabled projects with database application along with MVC architecture in the context of jsp and servlets | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| Students will have following skills: | | | | | | | | | |
| <ul style="list-style-type: none"> • They can create Web Pages and set templates in jsp pages • They can implement session handling at server side using API and client side using cookies • They can perform database operations like insert, update, delete and fetching data from a database server and use in a web application created in JSP and Servlets | | | | | | | | | |
| They can implement MVC architecture in Web applications using Servlets and JSP | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| SECTION –I | | | | | | | | | |
| 1 | ServletBasics and LifeCycle: BasicServletStructure,GeneratingplaintextandHTMLusingServlet,service method,doXXX methods, init method, destroy method | | | | | | | | 2 |
| 2 | Request-Response Headers and StatesCodes: ReadingFormDatafromServlets,ReadingRequestHeaders,HTTP1.1RequestHeaders,Changing thePageaccordingtohowtheUsergotthere,AccessingStandardCGIVariables,SpecifyingStatesC | | | | | | | | 3 |

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| | odes,HTTP1.1StatesCodes,Redirections,SettingResponseHeaders, Building Excel Spreadsheets,Generating JPEG images | |
| 3 | Cookies and SessionTracking: SendingandReceivingCookies,CookieAttributes,SessionversesPersistentCookies,RememberingUserPreferences,NeedforSessionTracking,SessionTrackingBasics,SessionTrackingAPI,Encoding URLs,Accumulatinga Listof UserData | 4 |
| 4 | JSP Basics: BasicSyntax,TemplateText,Expressions,ComparingServletstoJSP,Scriptlets,Declarations,Preddefined(implicit) Objects | 3 |
| 5 | Page Directive Attributes: import,contentType,pageEncoding,session,isELIgnored,buffer,autoFlush,info,errorPage,isErrorPage,isThreadSafe,extends, language | 2 |
| 6 | Files and Applets inJSP: jsp:include,includeDirective,jsp:forward,Includingappletsforjavapluginusingjsp:plugin | 2 |
| 7 | JavaBeans and JDBC inJSP and Servlets: BasicTasks,SharingBeanswithscopes,MVCwithRequestDispatcher,SummarizingMVCcodeby DataSharing,JDBCExamplesusingSimpleStatementsandPreparedStatements inServlets and JSP | 6 |
| SECTION –II | | |
| 8 | GettingStarted With JSF: WhyJavaServerFaces,ASimpleExample,DevelopmentEnvironmentsforJSF,AnAnalysisof the SampleApplication,JSF FrameworkServices | 2 |
| 9 | ManagedBeans and Navigation: DefinitionofaBean,CDIBeans,MessageBundles,BeanScopes,ConfiguringBeans,TheExpressionLanguageSyntax,StaticNavigation,DynamicNavigation,Redirection,RESTful Navigation and BookmarkableURLs,Advanced Navigation Rules | 4 |
| 10 | Standard JSF Tags: AnOverviewoftheJSFCoreTags,AnOverviewoftheJSFHTMLTags,Panels,TheHead,Body,andFormTags,TextFieldsandTextAreas,ButtonsandLinks,SelectionTags,Messages | 4 |

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| 11 | Facelets: FaceletsTags, Templating with Facelets, Custom Tags, Loose Ends | 2 |
| 12 | Data Tables: The DataTable Tag—h:dataTable, ASimpleTable, Headers, Footers, and Captions, Styles, JSF Components in Tables, Editing Tables, Database Tables, Table Models, Scrolling Techniques | 3 |
| 13 | Conversion and Validation: Overview of the Conversion and Validation Process, Using Standard Converters, Using Standard Validators, Bean Validation, Programming with Custom Converters and Validators, Implementing Custom Converter and Validator Tags | 4 |
| 14 | Event Handling and JDBC in JSF: Events and the JSF Life Cycle, Value Change Events, Action Events, Event Listener Tags, Immediate Components, Passing Data from the UI to the Server, Phase Events, System Events, Putting It All Together, Basic Database Operations like Insert, Update, Delete, Select in JSF Applications | 4 |
| Practical content | | |
| List of programs specified by the subject teacher based on above mentioned topics | | |
| Text Books | | |
| 1 | Core Servlets and Java Server Pages Volume 1 and 2, Second Edition, 2004 By Marty Hall and Larry Brown, PEARSON Education | |
| Reference Books | | |
| 1 | Core Java Server Faces, Third Edition, 2011 By David Geary and Cay Horstmann, PEARSON Education | |
| 2 | The Complete Reference Java Server Faces 2.0 Edition 2010 By Ed Burns and Chris Schalk, Tata McGraw-Hill | |
| Question Paper Scheme: University Examination Duration: 3 Hours Note for Examiner: - (I) Questions 1 and 4 are compulsory with no options. (II) Internal options should be given in questions 2, 3, 5 and 6. SECTION - I Q.1 –8 Marks Q.2 –11 Marks | | |

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| | Q.3 –11 Marks |
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| | SECTION - II |
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| | Q.4 –8 Marks |
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| | Q.5 –11 Marks |
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| | Q.6 –11 Marks |
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| GANPAT UNIVERSITY | | | | | | | | | |
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| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | | Master of Computer Application | | | Branch/Spec. | | Master of Computer Application | | |
| Semester | | IV | | | Version | | 1.0.0.0 | | |
| Effective from Academic Year | | | 2016-17 | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | | P14A4DWM | Subject Name | | Data Warehousing And Data Mining | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | CE | SEE | | Total |
| | L | TU | P | TW | | | | | |
| Credit | 2 | 1 | - | - | 3 | Theory | 40 | 60 | 100 |
| Hours | 2 | 1 | - | - | 3 | Practical | - | - | - |
| Pre-requisites: | | | | | | | | | |
| To understand the basic principles, concepts, architecture, methods and application of data warehousing and data mining for decision support. | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| Students will able to understand and use the application of data warehousing and data mining for decision support. | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| SECTION –I | | | | | | | | | |
| 1 | Data Warehousing Introduction, Operational Database System, OLTP, OLAP, Multitier Architecture, Data Warehouse Model, OLAP Operations, Data Warehouse Design and Usage, OLAP Server Architecture | | | | | | | | 12 |
| 2 | Data Preprocessing Introduction to Data Preprocessing, Data Cleaning, Introduction to Data Integration and Transformation, Attribute Subset Selection, Sampling, Data Cube Aggregation, Introduction to Data Transformation and Data Discretization, Concept Hierarchy Generation for Nominal Data | | | | | | | | 6 |
| 3 | Data Generalization by Attribute-Oriented Induction Attribute Oriented Induction for Data Characterization, Algorithm, Class comparisons | | | | | | | | 4 |
| SECTION –II | | | | | | | | | |

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| 4 | Data Mining Introduction to Data Mining, Importance of Data Mining, Types of Data for Data Mining, Kinds of Patterns, Major Issues in Data Mining | 5 |
| 5 | Mining Frequent patterns, Associations and Correlations Basic concepts and a road map, Market Basket Analysis, Apriori Algorithm, FP Growth Algorithm | 6 |
| 6 | Classification Introduction to Classification, Decision Tree Induction, IF-THEN Rules. | 5 |
| 7 | Applications and Trends in Data Mining Complex Data Types for Mining, Biological Sequence, Statistical Data Mining, Financial Data Analysis, Retail and Telecommunication Industries, Science and Engineering, Intrusion Detection and Prevention, Data Mining and Society | 7 |
| Practical content | | |
| N. A. | | |
| Text Books | | |
| 1 | Data Mining: Concepts and Techniques by Jiawei Han & Micheline Kamber, Jian Pei, Morgan Kaufmann Publishers | |
| Reference Books | | |
| 1 | Building the Data Warehouse by W. H. Inmon, Wiley Dreamtech India Pvt Ltd. | |
| 2 | Data Warehousing: Design, Development and Best Practices by Mohanty, Soumendra, TMG | |
| 3 | Data Warehousing, Data Mining & OLAP by Alex Berson & Stephen J. Smith, TMG | |
| 4 | Introduction to Data Mining with Case Studies by G.K. Gupta, EEE, PHI | |
| 5 | Data Mining by H.M. Dunham & S. Sridhar Pearson Education | |
| Question Paper Scheme: University Examination Duration: 3 Hours Note for Examiner: - (I) Questions 1 and 4 are compulsory with no options. (II) Internal options should be given in questions 2, 3, 5 and 6. SECTION - I Q.1 –8 Marks Q.2 –11 Marks Q.3 –11 Marks | | |

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| | SECTION - II |
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| | Q.4 –8 Marks |
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| | Q.5 –11 Marks |
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| | Q.6 –11 Marks |
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| GANPAT UNIVERSITY | | | | | | | | | |
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| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | | Master of Computer Application | | | Branch/Spec. | | Master of Computer Application | | |
| Semester | | IV | | | Version | | 1.0.0.0 | | |
| Effective from Academic Year | | | 2016-17 | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | | P14A5DES | Subject Name | | ELECTIVE - III Data Encryption and Data Security | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | CE | SEE | Total | |
| | L | TU | P | TW | | | | | |
| Credit | 2 | 1 | - | - | 3 | Theory | 40 | 60 | 100 |
| Hours | 2 | 1 | - | - | 3 | Practical | - | - | - |
| Pre-requisites: | | | | | | | | | |
| To understand the various security and data encryption methods. | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| To understand the need for computer security, analyze the vulnerabilities in the computer system, learn about how to handle simple cyber-attacks and understand the legal aspects to handle cyber-crimes and cyber frauds. | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| SECTION –I | | | | | | | | | |
| 1 | Overview and Introduction of Encryption Methods Conventional Encryption Principles, Conventional encryption algorithms, cipher block modes of operation, location of encryption devices, key distribution Approaches of Message Authentication, Secure Hash Functions and HMAC | | | | | | | | 9 |
| 2 | Various Attacks Methods Security Attacks (Interruption, Interception, Modification and Fabrication), Security Services (Confidentiality, Authentication, Integrity, Non-repudiation, access Control and Availability) and Mechanisms, A model for Internetwork security, Internet Standards and RFCs, TCP session hijacking, ARP attacks, route table modification, UDP hijacking, and man-in-the-middle attacks. | | | | | | | | 7 |
| 3 | Public key cryptography principles | | | | | | | | 7 |

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| | Public key cryptography principles, public key cryptography algorithms, digital signatures, digital Certificates, Certificate Authority and key management Kerberos, X.509 Directory Authentication Service | |
| SECTION –II | | |
| 4 | IP Security Overview IP Security Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations and Key Management | 6 |
| 5 | Web Security Web Security Requirements, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET) | 5 |
| 6 | Viruses and Related threats Intruders, Viruses and related threats, nature and structure of Virus. | 3 |
| 7 | Email privacy Email privacy: Pretty Good Privacy (PGP) and S/MIME. | 4 |
| 8 | Firewall Design principles Firewall Design principles, Trusted Systems, Intrusion Detection Systems | 4 |
| Practical content | | |
| N. A. | | |
| Text Books | | |
| 1 | Network Security Essentials (Applications and Standards) by William Stallings Pearson Education. | |
| Reference Books | | |
| 1 | Web service contract Design & Versioning for SOA By Thomas Erl, PHI | |
| 2 | Hack Proofing your network by Ryan Russell, Dan Kaminsky, Rain Forest Puppy, Joe Grand, David Ahmad, Hal Flynn IdoDubrawsky, Steve W. Manzuik and Ryan Permech, wileyreamtech, | |
| 3 | Fundamentals of Network Security by Eric Maiwald (Dreamtech press) | |
| 4 | Network Security - Private Communication in a Public World by Charlie Kaufman, Radia Perlman and Mike Speciner, Pearson/PHI. | |
| 5 | Principles of Information Security , Whitman, Thomson. | |
| 6 | Cryptography and network Security , Third edition, Stallings, PHI/Pearson | |
| 7 | Network Security: The complete reference , Robert Bragg, Mark Rhodes, TMH 6. Introduction to Cryptography, Buchmann, Springer | |
| Question Paper Scheme: | | |

University Examination Duration: 3 Hours

Note for Examiner: -

(I) Questions 1 and 4 are compulsory with no options.

(II) Internal options should be given in questions 2, 3, 5 and 6.

SECTION - I

Q.1 –8 Marks

Q.2 –11 Marks

Q.3 –11 Marks

SECTION - II

Q.4 –8 Marks

Q.5 –11 Marks

Q.6 –11 Marks

| GANPAT UNIVERSITY | | | | | | | | | |
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| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | | Master of Computer Application | | | Branch/Spec. | | Master of Computer Application | | |
| Semester | | IV | | | Version | | 1.0.0.0 | | |
| Effective from Academic Year | | | 2016-17 | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | | P14A5SOA | Subject Name | | ELECTIVE - III SERVICE ORIENTED ARCHITECTURE | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | CE | SEE | | Total |
| | L | TU | P | TW | | | | | |
| Credit | 2 | 1 | - | - | 3 | Theory | 40 | 60 | 100 |
| Hours | 2 | 1 | - | - | 3 | Practical | - | - | - |
| Pre-requisites: | | | | | | | | | |
| To gain understanding of the basic principles of service orientation with underlying the service design and advanced concept of service composition, orchestration and Choreography including WS-* specification standards | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| Students will understand how to implement web services in business using SOA. | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| SECTION –I | | | | | | | | | |
| 1 | Introducing SOA : Fundamental SOA, Characteristics, Misperceptions, Benefits, Pitfalls of adopting SOA | | | | | | | | 4 |
| 2 | The Evolution of SOA : SOA timeline, Continuing evolution of SOA, Comparing SOA with past architectures | | | | | | | | 5 |
| 3 | Web Services and Primitive SOA: Web services framework, Service descriptions, Messaging | | | | | | | | 6 |
| 4 | Activity Management and Composition : Message exchange patterns, Service activity, Coordination, Atomic transactions, Business activities, Orchestration, Choreography | | | | | | | | 7 |
| SECTION –II | | | | | | | | | |

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| 5 | Principles of Service-Orientation : Anatomy of SOA, Common principles and interrelation | 5 |
| 6 | Service Layers : Service-orientation and contemporary SOA, Service layer abstraction, Application service layer, Business service layer, Orchestration service layer, Agnostic services, Service layer configuration scenarios | 4 |
| 7 | SOA Delivery Strategies : SOA delivery lifecycle, Top-down strategy, Bottom-up strategy, agile strategy | 4 |
| 8 | Introduction to Service-Oriented Analysis : Benefits of a business-centric SOA, Deriving business services | 5 |
| 9 | Introduction to Service-Oriented Design : WSDL related XML schema language basics, WSDL language basics, SOAP language basics, Service interface design tools | 5 |
| Practical content | | |
| N. A. | | |
| Text Books | | |
| 1 | Service-Oriented Architecture Concepts, Technology and Design By Thomas Erl, Low Price Edition-PEARSON Education | |
| Reference Books | | |
| 1 | Web service contract Design & Versioning for SOA By Thomas Erl, PHI | |
| 2 | SERVICE-ORIENTED COMPUTING Semantics, Processes, Agents By Munindar P. Singn, Michael N. Huhns | |
| <p>Question Paper Scheme: University Examination Duration: 3 Hours Note for Examiner: - (I) Questions 1 and 4 are compulsory with no options. (II) Internal options should be given in questions 2, 3, 5 and 6.</p> <p>SECTION - I Q.1 –8 Marks Q.2 –11 Marks Q.3 –11 Marks</p> <p>SECTION - II Q.4 –8 Marks</p> | | |

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| | Q.5 –11 Marks |
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| | Q.6 –11 Marks |
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| GANPAT UNIVERSITY | | | | | | | | | |
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| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | | Master of Computer Application | | | Branch/Spec. | | Master of Computer Application | | |
| Semester | | IV | | | Version | | 1.0.0.0 | | |
| Effective from Academic Year | | | 2016-17 | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | | P14A5SP | Subject Name | | ELECTIVE - III System Programming | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | CE | SEE | | Total |
| | L | TU | P | TW | | | | | |
| Credit | 2 | 1 | - | - | 3 | Theory | 40 | 60 | 100 |
| Hours | 2 | 1 | - | - | 3 | Practical | - | - | - |
| Pre-requisites: | | | | | | | | | |
| Make aware to the students about the design and internal working of the system soft wares | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| Student is able to do the system programming with the design of system software | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| SECTION –I | | | | | | | | | |
| 1 | Introduction Introduction to System Software with Assemblers, Macro Processor and Linking Techniques | | | | | | | | 4 |
| 2 | Assemblers Features of assembly language, mnemonics table, symbol table, directives, location counter, methods of translation, list files, Design of one pass and two pass assembler | | | | | | | | 12 |
| 3 | Macro processors Macro in assembly language, macros name table, macro definition table, and macro with Symbols, nesting of macros. | | | | | | | | 7 |
| SECTION –II | | | | | | | | | |
| 4 | Linker and loader Various linking technique, various loading techniques, Loaders Schemes, Design of an absolute loader, Design of direct linking loader, overlays, Relocatability | | | | | | | | 10 |

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| 5 | Compiler General Model of Compiler, phase of Compiler, Lexical Analysis, Syntax Phase, Interpretation Phase, Intermediate Form, Storage allocation, Code Generation, Top-down and Bottom-Up parsing | 12 |
| Practical content | | |
| N. A. | | |
| Text Books | | |
| 1 | System programming By John J. Donovan - TMH Publications | |
| Reference Books | | |
| 1 | System programming and Operating System By Dhamdhare D M- TMH Publications | |
| | <p>Question Paper Scheme:</p> <p>University Examination Duration: 3 Hours</p> <p>Note for Examiner: -</p> <p>(I) Questions 1 and 4 are compulsory with no options.</p> <p>(II) Internal options should be given in questions 2, 3, 5 and 6.</p> <p>SECTION - I</p> <p>Q.1 –8 Marks</p> <p>Q.2 –11 Marks</p> <p>Q.3 –11 Marks</p> <p>SECTION - II</p> <p>Q.4 –8 Marks</p> <p>Q.5 –11 Marks</p> <p>Q.6 –11 Marks</p> | |

| GANPAT UNIVERSITY | | | | | | | | | |
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| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | Master of Computer Application | | | | Branch/Spec. | Master of Computer Application | | | |
| Semester | IV | | | | Version | 1.0.0.0 | | | |
| Effective from Academic Year | | 2016-17 | | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | P14B6ERP | | Subject Name | | ELECTIVE - IV Enterprise Resource Planning And Management | | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | | CE | SEE | Total |
| | L | TU | P | TW | | | | | |
| Credit | 2 | 1 | - | - | 3 | Theory | 40 | 60 | 100 |
| Hours | 2 | 1 | - | - | 3 | Practical | - | - | - |
| Pre-requisites: | | | | | | | | | |
| <ul style="list-style-type: none"> To understand the concepts, modules of ERP To understand the various strategies of MIS | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| To understand and explain various fundamentals and modules of Enterprise Resource Planning (ERP), To understand the implementation of ERP life cycle, E-Business, E-Commerce, SCM, CRM , also understand the different management information system for decision making purpose. | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| | SECTION –I | | | | | | | | |
| 1 | Importance of MIS MIS Concepts: Definition, Problems with MIS, Role of MIS, Knowledge requirement with MIS, Planning: Definition, Planning Terms, Levels of Planning, Planning Problems, Leading: Defining Motivation, Types of Motivation, Motivation Process, Theories of Motivation, Early Views of Motivation, Contemporary Views of Motivation (Need Theory, Equity Theory, Expectancy Theory, Reinforcement Theory,Goal-Setting Theory) Leadership: Defining Leadership, Behavioral Approach to Leadership (Leadership Function, Leadership Style–Autocratic, Democratic) | | | | | | | | 10 |

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| 2 | Information Systems in the Enterprise Transaction Processing System (TPS), Knowledge work System (KWS), Office Support System (OSS), Management Information System (MIS), Decision Support System (DSS), Executive Support System (ESS), Relationship of Systems to another Seven - S Model, Management Levels: Top, Middle and Bottom | 7 |
| 3 | E-Commerce and M-Commerce Definition of Electronic Commerce, Features of E-Commerce, Benefits of ElectronicCommerce, Business Models of Electronic Commerce, Electronics Payment System, Defining M-Commerce, Advantages and disadvantages of M-Commerce, Comparisons of E-Commerce v/s M-Commerce | 5 |
| SECTION –II | | |
| 4 | Introduction: ERP Overview, Enterprise, and Benefits of ERP, ERP Myths, Business Process Reengineering, Supply Chain Management, CRM | 4 |
| 5 | ERP Implementation: ERP Implementation lifecycle, Implementation Methodology, Hidden Costs in ERPimplementation, Organizing the implementation (Implementation Team),Vendors, Consultants | 7 |
| 6 | The Business Module: Business module in an ERP package, Finance, Manufacturing, Human Resource, Plant Maintenance, Material Management, Sales and Distribution, Project Management module | 8 |
| 7 | Present and future of ERP: Enterprise Integration Applications, ERP and E-Commerce, ERP and Internet, Future directions in ERP | 4 |
| Practical content | | |
| N. A. | | |
| Text Books | | |
| 1 | Management by Stoner, Freeman, Gilbert, 6 th Edition, PHI Publication | |
| Reference Books | | |
| 1 | Management Information System by Kenneth C. Laudon, Jane P. Laudon, 8 th Edition, Pearson Education Publication | |
| 2 | Management Information System by t. lucey 8 th edition bpb publication | |
| 3 | ERP Demystified By Alexis Leon-TMH | |

Question Paper Scheme:

University Examination Duration: 3 Hours

Note for Examiner: -

(I) Questions 1 and 4 are compulsory with no options.

(II) Internal options should be given in questions 2, 3, 5 and 6.

SECTION - I

Q.1 –8 Marks

Q.2 –11 Marks

Q.3 –11 Marks

SECTION - II

Q.4 –8 Marks

Q.5 –11 Marks

Q.6 –11 Marks

| GANPAT UNIVERSITY | | | | | | | | | |
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| FACULTY OF COMPUTER APPLICATION | | | | | | | | | |
| Programme | | Master of Computer Application | | | Branch/Spec. | | Master of Computer Application | | |
| Semester | | IV | | | Version | | 1.0.0.0 | | |
| Effective from Academic Year | | | 2016-17 | | Effective for the batch Admitted in | | | June 2016 | |
| Subject code | | P14B6GIS | | Subject Name | | ELECTIVE - IV Geographical Information System and Global Positioning System | | | |
| Teaching scheme | | | | | Examination scheme (Marks) | | | | |
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | | CE | SEE | Total |
| | L | TU | P | TW | | | | | |
| Credit | 2 | 1 | - | - | 3 | Theory | 40 | 60 | 100 |
| Hours | 2 | 1 | - | - | 3 | Practical | - | - | - |
| Pre-requisites: | | | | | | | | | |
| To understand concepts and data models of GIS applications | | | | | | | | | |
| Learning Outcome: | | | | | | | | | |
| Understand the vector and raster data models, Understand how GIS aids in management decisions, Understand GPS technology and how it works, Understand how GIS and GPS aids in management decisions | | | | | | | | | |
| Theory syllabus | | | | | | | | | |
| Unit | Content | | | | | | | | Hrs |
| SECTION –I | | | | | | | | | |
| 1 | Fundamentals of GIS Defining GIS, components of GIS, spatial data, spatial data-maps, characteristics, spatial data modeling, attribute data management-database data model, GIS applications and developments in database | | | | | | | | 7 |
| 2 | Input-Output and Data Analysis in GIS Data input and editing– methods, editing, integration, Data analysis-measurements, queries, reclassification, buffering, map overlay, interpolation, analysis of surfaces, network analysis, spatial analysis, Analytical modeling in GIS -physical, environment and human processes, output from GIS –maps, non-cartographic output, spatial multimedia, decision support. | | | | | | | | 12 |
| 3 | Introduction to Arcview (Software for GIS) | | | | | | | | 4 |

| SECTION –II | | |
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| 4 | Issues in GIS Development of computer methods for spatial data, Issues in GIS–data quality and errors, sources of errors, human and organizational issues, GIS project design and management–problem identification, designing a data model, project management, Implementation, evaluation, the future of GIS, Internet resources of GIS. | 10 |
| 5 | Remote Sensing Principles of remote sensing, remote sensing system-classification, Imaging, characteristics, extraction of information from images–metric and thematic, Integration of RS and GIS | 7 |
| 6 | Global Positioning Systems (GPS) Introduction to GPS, Accuracy of GPS, Differential GPS, and Applications of GPS, Integration of GIS and GPS | 5 |
| Practical content | | |
| N. A. | | |
| Text Books | | |
| 1 | An Introduction to Geographical Information Systems by Heywood, Cornelius and Carver-Person Education Asia 2000 | |
| Reference Books | | |
| 1 | Concepts and techniques of Geographic Information Systems by C. P. Lo and Albert Yeung- PHI, New Delhi | |
| 2 | Fundamentals of Geographic information Systems by Michael N. Demers-John Wiley & Sons (ASIA) Pvt Ltd. 2nd Edition | |
| 3 | ArcGIS Developer’s Guide for Visual Basic Applications by Razvi-Onword Press, 2002 | |
| Question Paper Scheme: University Examination Duration: 3 Hours Note for Examiner: - (I) Questions 1 and 4 are compulsory with no options. (II) Internal options should be given in questions 2, 3, 5 and 6. SECTION - I Q.1 –8 Marks Q.2 –11 Marks Q.3 –11 Marks SECTION - II | | |

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| | Q.4 –8 Marks Q.5 –11 Marks Q.6 –11 Marks |
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