Gondwana University, Gadchiroli

Choice Based Credit System (CBCS)

Syllabus
of

M.Sc. (Computer Science) - II
(Two Years Degree Course)

Prepared by

Dr. S. B. Kishor

Chairman, BOS Computer Science

2017-2018

M.Sc. (Computer Science) – II (Semester - III)

Subject	Paper Code	Paper Name	Total Period /Week	Credit	IA	UE	Total	Min. Passing (40%)
					% of Assessment			
Core	PSCST09	**Software Testing Tools and Methodology**	4	4	20	80	100	40
	PSCST10	**Soft Computing Techniques**	4	4	20	80	100	40
	PSCST11	**Research Methodology And Operational Technique**	4	4	20	80	100	40
	PSCST12	**C#.NET**	4	4	20	80	100	40
Core Lab	PSCSP05	**Practical based on PSCST09 & PSCST10**	8	4	20	80	100	40
	PSCSP06	**Practical based on PSCST11 & PSCST12**	8	4	20	80	100	40
Ability Enhancement	PSCSS03	**Seminar**	2	1	25	-	25	10
		Total	**34**	**25**	**145**	**480**	**625**	**250**

- **Core:** Major theory papers in the concerned subject.

- **Discipline Specific Elective:** These papers will be specialization in the concerned subject.

- **Skill Enhancement course:** Student can choose this paper from any subject.

- From Elective Courses (Either Skill based and Discipline Specific), students need to select one paper form each.

- **IA**(Internal Assessment) :It will be evaluated by Internal Examiner appointed by College in consultation with the University. (Refer Appendix 1)

- **UE**(University Examination): It will be evaluated by External Examiner appointed by University. (Refer Appendix 1 & 3)

- **Period:** Each period is of 48 minutes or as per Government direction from time to time.

- In Paper Code
    - 1st Letter (U) : Represent it a Under Graduate Course.
    - 2nd Letter (S) : Represent it is Science Faculty
    - Next 2 Letter (CS) : Represent the subject Computer Science
    - Next Letter (T/P) :   T : Represent Theory Paper (Refer Appendix 1)

        P : Represent Practical (Refer Appendix 1 & 2)

        S : Represent Seminar (Refer Appendix 1)
    - Last two letter : Represent Paper No. for Ex. 01 Represent Paper no. 1

- **Lab* :**

    1) Not more than two students should be allowed to do practical on one machine.

    2) Wherever possible Practical's should be perform using Open Source Software.

  Batch: Each batch can be of Maximum 12 students

> **Note : Direction and scheme of course is available in the website of Gondwana University, Gadchiroli (www.gondwana.digitaluniversity.ac)**

M.Sc. (Computer Science) – II (Semester - IV)

Subject	Paper Code	Paper Name	Total Period /Week	Credit	% of Assessment			
					IA	UE	Total	Min. Passing (40%)
Core	PSCST13	Android Application Development	4	4	20	80	100	40
	PSCST14	Digital And Cyber Forensics	4	4	20	80	100	40
	PSCST15	Web Designing Using Asp .Net	4	4	20	80	100	40
	PSCST16	Project	4	4	20	80	100	40
Core Lab	PSCSP07	Practical based on PSCST13 & PSCST14	6	4	20	80	100	40
	PSCSP08	Practical based PSCST15	6	4	20	80	100	40
Ability Enhancement	PSCSS04	Seminar	2	1	25	-	25	10
Total			32	25	145	480	625	250

M.Sc. - II (Computer Science)

SEMESTER – III

PAPER – I : SOFTWARE TESTING TOOLS AND METHODOLOGY

[Max. Marks: 80

Unit –I: (Introduction to Testing)

Introduction: Fundamentals of Test Process, Purpose of Testing, Testing and Debugging, Software Quality, Requirement Behavior and Correctness, General Principles of Testing, Test Metrics, Model for Testing

Role of Testing in SDLC: Review of Software Development Models (Waterfall Models, Spiral Model, W Model, V Model) Agile Methodology and Its Impact on Testing, Test Levels (Unit, Component, Module, Integration, System, Acceptance, Generic)

Unit – II: (Flow Graphs, Transaction, Dataflow and Path Testing)

Flow Graphs and Path Testing: Basics Concepts of Path Testing, Predicates, Path Predicates and Achievable Paths, Path Sensitizing, Path Instrumentation, Application of Path Testing.

Transaction Flow Testing: Transaction Flows, Transaction Flow Testing Techniques.

Dataflow Testing: Basics of Dataflow Testing, Strategies in Dataflow Testing, Application of Dataflow Testing

Domain Testing: Domains and Paths, Nice and Ugly Domains, Domain Testing, Domain and Interface Testing, Domains and Testability

Unit – III: (Static, Dynamic, White Box Testing)

Static Testing: Structured Group Examinations, Static Analysis, Control Flow and Data Flow, Determining Metrics

Dynamic Testing: Black Box Testing, Equivalence Class Partitioning, Boundary Value Analysis, State Transition Test, Cause Effect Graphing and Decision Table Technique and Used Case Testing and Advanced Black Box Techniques

White Box Testing: Statement Coverage, Branch Coverage, Test of Conditions, Path Coverage, Advanced White Box Techniques, Instrumentation and Tool Support, Gray Box Testing, Intuitive and Experience Based Testing

Unit - IV: (Testing Tools and Object oriented Software)

Testing Tools: Automation of Test Execution, Requirement Tracker, High Level Review Types of Test Tools, Tools for Test Management and Control, Test Specification, Static Testing, Dynamic Testing, Non Functional Testing, Selection and Introduction of Test Tools Tool Selection and Introduction, Cost Effectiveness of Tool Introduction **Testing Object oriented Software:** Introduction to OO Testing Concepts, Differences in OO Testing

Books:
1) Baris Beizer, "Software Testing Techniques", Dreamtech, Second Edition.
2) Dr.K.V.K.K.Prasad, "Software Testing Tools", Dreamtech

References:
1) Andreas Spillner, Tilo Linz, Hans Schaefer ,"Software Testing Foundations", Shoff Publishers and Distributors
2) Srinivasan D and Gopalswamy R ,"Software Testing: Principles and Practices", Pearsoned, 2006
3) Robert V Binder, Addison Wesley ,"Testing Object oriented Systems Models, Patterns and Tools" , 1996

PAPER-II : SOFT COMPUTING TECHNIQUES

[Max. Marks: 80

Unit I (Soft Computing)

Soft Computing: Introduction of Soft Computing, Soft Computing Verses Hard Computing, Various Types of Soft Computing Techniques, Application of Soft Computing
Artificial Intelligence: Introduction, Various types of Production System, Characteristics of production system, breadth first search, depth first search techniques, other search techniques like Hill Climbing, Best first search, A* Algorithm, AO* Algorithms and various types of control strategies, knowledge represent issues, prepositional and predicted logic

Unit II (Neural Network)

Neural Network: Structure and functions of a single neural, biological neural, artificial neural, definition of ANN, taxonomy of neural net, difference between ANN and human brain, characteristics and applications of ANN, single layer network, Perceptron training algorithms, linear seperatability, Windrow and Hebb;s learning rule/Delta rule, ADALINE, MADALINE, Al V/S ANN.
Introduction of MLP, different activation functions, error back propagation algorithms, derivations of BBPA, Momentum, Limitation, Characteristic and Application of EBPA.

Unit III (Fuzzy logic)

Fuzzy logic: fuzzy set theory, fuzzy set verses crisp set, Crisp Relation and Fuzzy Relation, Fuzzy Systems: Crisp logic, Fuzzy logic, introduction and features of membership functions, fuzzy rule base system: fuzzy propositions, formations, decomposition and aggression of fuzzy rule, fuzzy reasoning, fuzzy interface system, fuzzy decision making & applications of fuzzy logic.

Unit IV (Genetic Algorithms)

Genetic Algorithms: fundamentals, basic concepts, working principle, encoding , fitness function, reproduction, genetic modeling: inheritance operators, cross over, inversion and deletion, mutation operator, bitwise operator, generational cycle, Convergence of GA, application and advance in GA, difference and similarity between GA, and other traditional methods.

Books:
1) L. Fortuna, G. Rozzotto, M. Lavorgna, "Soft Computing: New Trends and Applications", Springer. 2001
2) James Anderson , " An Introduction To Neural Networks",TheMit Press, 1995
3) Burkhardt, Henn, Hepper, Rintdorff, Schaeck. "Pervasive Computing", Pearson, 2002.Isbn 978-81-7758-280-2
4) Melanie Mitchell, "An Introduction To Genetic Algorithms" , Mit Press , 1998, Isbn 0-262-13316-4

References:
1) F. Adelstein, S.K.S. Gupta, "Fundamentals of Mobile and Pervasive Computing", TMH.
2) Mohamad H. Hassoum, " Fundamentals of Artificial Neural Network" The MIT Press 1995

M.Sc. (Computer Science) - II
(SEMESTER – III)
Paper Code : PSCST11
Paper-III : RESEARCH METHODOLOGY AND OPERATIONAL TECHNIQUE

[Max. Marks: 80

Unit – I (Introduction to Research Methodology)

Introduction to Research Methodology : Meaning, Objectives, Motivation in Research, Types, Approaches ,Importance, Research Methodology, Scientific Research, Process, Criteria for Good Research, Problems Encountered , Defining Research Problem, Developing Research Proposal, **Research Design:** Meaning, Need, Features, Important, Six P of Research

Data Collection Method- Primary Data- Observation Method, Personal Interview, Telephonic Interview, Mail Survey, Questionnaire Design.

Unit – II (Sampling Design)

Sampling Design: Implications, Steps Criteria for Sampling Procedure, Characteristics of Good Sample Design, Different Types of Sample Design, Different Types of Sample Design- (a) Probability Sampling Like Simple Random, System Random, Systematic Random, Stratified, Cluster.(B) Non Probability Sampling Like Quota, Judgmental, Convenience

Report Writing and Interpretation- Pre-Writing Considerations. Meaning and Technique of Interpretation, Different Types of Report Writing, formats of Report Writing, Thesis Writing, formats of Publication in Research Journals.

Unit –III (Large Sample Test)

Large Sample Test: Definition of Hypothesis, Basic Concepts- Null Hypothesis and Alternative, The Level of Significance, Type I and Type II Errors, Two Tailed and One Tailed, Power of Test, Testing of Mean, Testing of Differences Between Two Means, Testing of Proportion of Difference Between Two Proportion Limitations of Hypothesis Testing.

Small Sample Test: Idea of Degree of Freedom, Test Significance Based Upon T and F Statistic-Testing of Mean, Testing of Difference Between Two Means, Testing of Equality of Variances, Chi-Square Test.

Unit –IV (CHI-Square Test for Large Samples)

CHI-Square Test for Large Samples: Definition of Chi-Square, Limitations of Chi-Square Test, and Chi - Square Test As a Test of Goodness of Fit and As a Test of Independence, Yates's Correction and Its Application, **Analysis of Variance (ANOVA):** Concept, One Way ANOVA, and ANOVA in Test in Latin Square Design.

Books:

1) Kothari .C.R, **"Research Methodology-Methods and Techniques"**, New Age Publications.

2) S.P.Gupta, "Introduction to Mathematical Statics".

3) Sancheti and Kapoor, "Business Statics", Sultan Chand and Sons, New Delhi**.**

References:

1) D.K.Bhattacharyya, "Research Methodology", 1st Edition (2003), EBP, New Delhi

[**Max. Marks: 80**

Unit- I: (Understanding .Net)

Basic of .Net Framework, Evolution of C#, The C# Environment, Characteristics of C#, Comparison Among C++, and Benefits of C #.

Unit-II: (C# .Net Programming)

Overview of C# ,Basics in C#, Object oriented Aspects of C#, Delegates and Their Usefulness, Events, Errors and Exceptions Properties and Indexers, , Attributes, I/O in C#, Exception and Error Handling in C#, C# and Windows Applications

Unit-III- (Advanced Features Using C#)

Web Services, Window Services, Asp.Net Web form Controls and ADO.Net. Distributed Application in C#, Unsafe Mode, Graphical Device Interface with C#.

Unit-IV: (Net Assemblies and Attribute)

.Net Assemblies Features and Structure, Private and Share Assemblies, Built-in Attribute and Custom Attribute. Introduction about Generic. Versioning, Attributes, Reflection, Viewing Metadata, Type Discovery, Reflecting on a Type, Marshaling, Remoting, Understanding Server Object Types, Specifying a Server with an Interface, Building a Server, Building the Client, Using Single call, Threads.

Books:

1) E.Balagurusamy,"Programming in C#", Tata Mcgraw-Hill, 2004.
2) J. Liberty, "Programming C#", 2nd Ed., O'reilly, 2002.
3) Herbert Schildt, "The Complete References: C#", Tata Mcgraw-Hill, 2004.
4) Robinson Et Al, "Professional C#", 2nd Ed., Wrox Press, 2002.
References:

1) Andrew Troelsen, "C# and the .Net Platform", Press, 2003.
2) S. Thamarai Selvi, R. Murugesan, "A Textbook on C# ", Pearson, 2003

M.Sc. (Computer Science) - II (SEMESTER – III)

Practical -I
(Practical based on PSCST09 & PSCST10)

[Max. Marks: 80

Section – A: Based Soft Computing Technique using Mat Lab

Fuzzy Logic

- Different operations on Fuzzy sets.
- Linguistic variables
- Fuzzy intersections
- Fuzzy unions

Neural Network

- Properties of single neuron
- Theoretical model of neuron
- Binary model of neuron
- Essential vector operations

Genetic Algorithm

- Genetic algorithm in problem solving
- Biological terminology of genetic algorithm

Section B - Based on Software Testing

(Note :Minimum 10 practicals based on available projects)

M.Sc. (Computer Science) - II

[Max. Marks: 80

Section – A Practical based C#.NET

1. Simple Programs with C#:
   a) Write a console application that obtains four int values from the user and displays the product. Hint: you may recall that the Convert.ToDouble () command was used to convert the input from the console to a double; the equivalent command to convert from a string to an int is Convert.ToInt32 ().
   b) If you have two integers stored in variables var1 and var2, what Boolean test can you perform to see if one or the other (but not both) is greater than 10?
   c) Write an application that includes the logic from Exercise 1, obtains two numbers from the user, and displays them, but rejects any input where both numbers are greater than 10 and asks for two new numbers.
   d) Write an application that receives the following information from a set of students: Student Id:
   Student
   Name:
   Course
   Name: Date
   of Birth:
   The application should also display the information of all the students once the data is entered. Implement this using an Array of Structs.
   e) Write programs using conditional statements and loops:
      i. Generate Fibonacci series.
      ii. Generate various patterns (triangles, diamond and other patterns) with numbers.
      iii. Test for prime numbers.
      iv. Generate prime numbers.
      v. Reverse a number and find sum of digits of a number.
      vi. Test for vowels.
      vii. Use of for each loop with arrays.
2. Object oriented programs with C#
   a) Program using classes.
   b) Program with different features of C#
      i. Function Overloading
      ii. Operator Overloading
      iii. Inheritance (all types)
      iv. Constructor overloading
      v. Interfaces
      vi. Using Delegates and events
      vii. Exception handling
3. Programs using different controls.
4. Programs using CSS.
5. Programs using ASP.NET Server controls.
6. Database programs with ASP.NET and ADO.NET

7. Programs using Language Integrated query.
8. Programs securing web pages.
9. Programs using AJAX.
10. Programs using JQuery.

[Max. Marks: 25

Refer Appendix -I

M.Sc. - II (Computer Science)
SEMESTER – IV

M.Sc. (Computer Science) - II
(SEMESTER – IV)
Paper Code : PSCST13
PAPER - I : ANDROID APPLICATION DEVELOPMENT

[Max. Marks: 80

Unit-I: (Introduction to Android*)*
The Android Platform, Understanding Android Market, Layers of Android, Intent of Android Development, Types of Android Components, Mapping Applications to Processes, Creating an Android Application.

Android's Development Environment: Introduction to Android SDK, Exploring Android Development Environment and Building Android Application in Eclipse, Android Emulator and User Interfaces, Working with Views, Using Resources, and Understanding and Exploring Android Manifest File.

Unit-II: (Intents and Services)
Serving up Restaurant finder with Intent, Checking Weather with a Custom URI and Broadcast Receivers, Building a Background Weather Services, Communicating Weather alert service From Other Apps.

Storing and Retrieving Data: Using Preferences, Using the File System, Persisting Data to a Database, Working with Content provider Classes.

Networking and Web Services: An Overview of Networking and Web Services, Checking The Network Status, Communicating with a Server Socket, Working with HTTP and Web Services, Introducing Toast, Introducing Notifications, Introducing Alarms.

Unit-III: (Graphics, Animation and Multimedia)
Drawing Graphics in Android, Creating Animations with Android's Graphics API, Introducing Openly for Embedded Systems, Introduction to Multimedia and Open core, Playing Audio, Playing Video, Capturing Media, Recording Video, Simulating Your Location within The Emulator, Using Location manager and Location provider, Working with Maps, Converting Places and Addresses with Decoder.

Unit-IV: (Platform Maturity with Android Applications)
Using Android to Work in a Field Service Application, Building Android Applications in C, Bluetooth and Sensors, Integration, Android Web Development, Appwidgets, Localization, Android Native Development Kit

Books:

1) W. Frank Ableson, Robi Sen, Chris King, "Android in Action", 2nd Edition, Manning Publications Co., 2011, ISBN 978-1-935182-72-6
2) Damon Oehlman, Sebastien Blanc, "Pro Android Web Apps - Develop for Android Using HTML5,CSS3 and Javascript", Apress Publications, 2011, ISBN-13: 978-1-4302-3276-6
3) Chris Haseman, "Android Essentials", Apress Publications, 2008, ISBN-13: 978-1-4302-1064-1

References:

1) Lucas Jordan, Pieter Greyling, "Practical Android Projects", Apress Publications, 2011, ISBN-13: 978-1-4302-3243-8

PAPER – II : DIGITAL AND CYBER FORENSICS

[Max. Marks: 80

Unit I: (Introduction to Networking)
Introduction to Networking: Networking Hardware, Networking Software, Internet, Web Phishing.
History and Future of Cybercrime: Old and New Crimes, The Internet Spawns Crime, Worms Verses Viruses, Broadband, Wireless.

Introduction to Computer forensics: Computer forensics Definitions , Computers' Roles in Crimes, Computer forensics Tasks, Prepare for an Investigation, Collect Evidence, Preserve Evidence, Recover Evidence, Document Evidence, Challenges Associated with Making "Cybercrime" Laws, Jurisdictional Issues, Introduction to Computer Hardware

Unit II: (Computer Crimes and Criminals)
Computer Crimes and Criminals: Crimes, Violent Crimes: Computers Included in Terrorism, Assault Threat, Stalking, Child Pornography, Nonviolent Crimes, Trespass, Theft, Fraud, Vandalism, Address Books, Chat Logs, E-Mail, Images, Movies, Internet Browser History, Etc. Crime Timeline, Modify Access Create (Mac) Dates Associated with Files, Criminals and Crime Fighter, Understanding "Cyber , Criminals" and Their Victims, "Cyber Investigators" , Protecting Yourself on The Internet, Anti-Virus and Firewall Software.

Unit III: (Collecting and Preserving Digital Evidence)

Collecting and Preserving Digital Evidence: Admissibility of Evidence, Must Be Legally Obtained, (Obeying The 4th Amendment and Other Federal and State Laws), Must Be Competent, Relevant, and Material, Types of Evidence, Physical, Direct, Circumstantial, Demonstrative, Documentary, Documenting Evidence with Tags and Logs, Maintaining The Chain of Custody, Processes for Collecting Computer Evidence.

Building a Cybercrime Case: Bodies of Law, Constitutional Law, Criminal Law, Civil Law, Administrative Regulations, Levels of Law, Local Laws, State Laws, Federal Laws, International Laws , Levels of Culpability, Intent, Knowledge, Recklessness, Negligence, Level and Burden of Proof, Criminal Versus Civil Cases , Vicarious Liability, Laws Related to Computers, CFAA, DMCA, Can Spam.

Unit IV: (Computer Hardware, Software)
Computer Hardware: Computer Architectures, Components, Power Supply, Motherboard, Ethernet, Com, Parallel Port, Modem Etc.
Computer Software: Operating : Systems, Types of Operating Systems, Working **Preserving and Recovering Digital Evidence:** Disk Imaging, Creating a Message Digest or Hash Code for a Disk, Where Data Hides; Deleted and Erased Data, File Systems, Files, Modify Access Create (Mac) Dates to Establish Time Line, File Headers - Info About File Type.

Books:
1)   Debra Littlejohn Shiner, "Scene of the Cybercrime".
2) Vakul Sharma, "Handbook of Cyber Laws", McMillan

References:
1) Micheal Cross, "Scene of the Cybercrime" Second Edition.

M.Sc. (Computer Science) - II
(SEMESTER – IV)
Paper Code: PSCST15
PAPER – III: WEB DESIGNING USING ASP .NET

[Max. Marks: 80

Unit-I: (Web Development and Asp .Net)

Comparison of Asp and Asp .Net, Features of Asp .Net, Benefits of Asp .Net, Web forms and Their Components, Overview of Web Services. **Web Application Basics:** Web forms Model, Web forms Internals, Asp.Net Core Server Controls, Working with Page.

Unit-II: (Creating Web forms Application)

Upgrading HTML Pages to Asp.Net, Asp Pages to Asp.Net, **Adding Data in an Asp.Net Site:** ADO.Net, Paging Through Data Sources, **Creating Web forms Application**: Creating an Asp.Net Web Application Project, Responding to Events, Namespace Fundamentals Maintaining State Information.

Unit-III: (Creating a User Interface)

Using Web Controls, Using Visual Studio.Net, Validation and Rich Control, Validating Data, Navigating Between forms, Navigation between Pages, **Data Binding:** Bind Data to The UI, Transform and Filter Data Storing and Retrieving Data with ADO.Net, Accessing Data with ADO.Net, Using Data Sets on Web forms, Processing Transactions, Catching and Correcting Errors: Using Exception Handling, Using Error Pages, Logging Exceptions.

Unit-IV: (Web Services)

Creating Web Services, Discovering Web Services, Instantiating and Invoking Web Services, Testing Web Applications: Creating Tests, Running Tests. Debugging, Building and Deploying Web Applications, Creating an Installation Program, Maintaining Security: Authenticating and Authorizing Users, Using Windows Authentication, Using forms Authentication.

Books:

1) Russel, "Mastering Asp.Net", BPB Publication,
2) MatThew Macdonald, "Asp.Net the Complete References", TMH.

References:

1) Mitchell and Atkinson, "Active Server Pages 3.0 (in 21 Days)" Tecmedia"
2) David Buser, John Kauffman, Juan T. Llibre, Brian Francis,Dave Sussman,Chris Ullman,Jon Duckett, "Beginning Active Server Pages 3.0", Wrox Press.

M.Sc. (Computer Science) - II
(SEMESTER – IV)

Paper Code: PSCST16

Project

[Max. Marks: 80

Instruction:

Towards the end of the second semester of study, a student will be examined in the Course "Project Work".

   a. Project Work may be done individually or in groups (Maximum 2 students) in case of bigger projects. However if project is done in groups, each student must be given a responsibility for a distinct module and care should be taken to monitor the progress of individual student.

   b. The Project Work should be done using the tools covered in M.Sc. (Computer Science)

   c. The Project Work should be of such a nature that it could prove useful or be relevant from the System-oriented/Application/commercial / management angle.

   d. The project work will carry 100 marks.

   e. The external viva-voce examination for Project Work would be held as per the Examination Time Table of the second year of study, by a panel of one external and one Internal examiner.

   f. Head/Co-ordinator of Computer Dept. must reject any project title which was already carried out in any computer course in the college. He must maintain a Record that lists the projects along with other detail (like Guide, Session, and Number of students working on project etc) that was carried out so far and must be shown to external examiner at the time of examination.

Types of Project

As majority of the students are expected to work out a project in some industry/research and development laboratories/educational institutions/software export companies, it is suggested that the project is to be chosen which should have some direct relevance in day-today activities of the candidates in his/her institution. The Applications Areas of project - Financial/Marketing/Database Management System/ Relational Database Management System/E-Commerce /Internet/ Manufacturing/ web Designing/Hardware and Software interaction based etc.

Project Proposal (Synopsis)

The project proposal should be prepared in consultation with the guide. The Project Guide May alter the sequence as given below depending upon the nature of project. The project guide must be a person having minimum Qualification M.Sc. (Computer)/ MCA/ M.Sc.(Maths/Electronics/Statistics/Physics + Post B.Sc. Dip. In Comp. Sc. & Appl.) The project proposal should clearly state the objectives and environment of the proposed project to be undertaken. It should have full details in the following form:

Title of the project
Objectives and Hypothesis of the Project
Project Category (DBMS/RDBMS/OOPS/Web Designing/Internet etc.)
Tools/Platform, Languages to be used

A complete Structure of the program:
i.Analysis.
ii.Numbers of Modules.

iii. Data Structures or Tables
iv. Process Logic.
v. Types of Report Generation.
Scope of future Application.

Project Report Formulation.
1.Title Page.
2.Certificate Page.
3.Declaration Page.
4.Acknowledgment Page.
5.Index or Content Page.
6.Documentation.
    i. Introduction/Objectives.
    ii. Preliminary System Analysis.
        Identification of Need.
        Preliminary
        Investigation.
        Feasibility Study.
        Need of New System.
        Flaws in Present
        System.
    iii. Project Category.
    iv. Software Requirement Specification.
    v. Detailed System Analysis.
        Data Flow Diagram.
        Numbers of Modules and Process
        Logic. Data Structures and Tables.
        Entity-Relationship Diagram.
    vi. System Design.
        Source Code.
        Input screen & Output Screen.
  Vii Validation Checks.
  Viii Implementation, Evaluation and Maintenance.
  Ix Security Measures taken.
  X Future Scope of the project.
  Xi Bibliography
Appendix
Survey Questionnaire

M.Sc. (Computer Science) - II
(SEMESTER – IV)

Practical -I
(Practical based on PSCST05 & PSCST06)

[Max. Marks: 80

Practical I Based on Android Application.

1. Testing your android development environment perform following operations.
   a. Add the sample application to a project in your eclipse workspace.
   b. Create an Android Virtual Device (AVD) for your sample project.
   c. Create a launch configuration for your sample project.
   d. Run your sample application in Android Emulator.
2. Write a program to build your first Android Application "Hello World" with common activity.
3. Write a program which will implement Sub menu in android application.
4. Write a program which will implement Context menu (Floating List of Menu Items) in android application.
5. Write a program to displays the use of Relative Layout Views with different attributes.
6. Write a program to displays the use of Linear Layout Views with different attributes.
7. Write a program to implement a menu which uses check-able items in Menu.
8. Write a program to implement a Custom Button and handle the displayed message on button press.
9. Write a program to implement the Table layout in View Group that displays child View elements in rows and columns.
10. Write a program to implement the List View in your android application.
11. Write a program to implement tween animation and rotate the text in your android application.
12. Write a sample program to create a progress bar for your android applications.
13. Write a program to show how to use Date picker control of ADK in your android applications.
14. Write a program which enables you to draw an image using bitmap class object.
15. Write a program which shows you how to handle any type of interruption in your android application.
16. Write a program which allows you to set an image as wallpaper.
17. Write a program which allows you to get image from web and displayed them using the Image View.
18. Write a program which shows you how to create a scrollview when text is not visible on one page.
19. Write a program which will shows you how to run any video file.

M.Sc. (Computer Science) - II
(SEMESTER – IV)
Paper Code : PSCSP08

[Max. Marks: 80

Practical II: Based on Web designing using ASP.NET

List of Practical

1. Design simple web application using ASP.NET.

2. Design web application with different validations.

3. Design on line database application.

4. Design data report application.

5. Design web application for uploading files on web.

6. Design AJAX application.

7. Design localized web application.

8. Design WPF browser application.

9. Authentication and authorization in asp..

10. Deployment and publishing web sites.

Paper Code: PSCSS04
SEMINAR

[Max. Marks: 25

Refer Appendix -I

Evaluation Rules

A) Internal Assessment:

1. The internal assessment marks shall be awarded by the concerned teacher.
2. The internal assessment marks shall be sent to the University after the Assessment in the prescribed format and direction by University.
3. General guidelines for Internal Assessment are:
   a) The internal assessment marks assigned to each theory paper on the basics of the performance in any two assignments (each of 10 marks) as described below selected by concerned teacher.
      1. Class Test / Sessional examination
      2. On-line Test
      3. Theory Assignments
      4. Programming Assignments
      5. Study tour
      6. Industrial visits
      7. Visit to educational institutions and research organizations, field work, Conference etc
      8. Group discussions
      9. Seminar Presentation
      10. Publishing Research Paper
      11. Review of Research Papers
      12. Participation in Departmental Activities
   b) There shall be no separate / extra allotment of work load to the concerned teacher related to above assignments. He/ She shall conduct the Internal assessment activity during the regular teaching days / periods as a part of regular teaching activity.
   c) The concerned teacher / department / college shall have to keep the record of all the above activities until six months after the declaration of the results of that semester.
   d) At the beginning of each semester, every teacher / department / college shall inform his / her students unambiguously the method he / she propose to adopt and the scheme of marking for internal assessment.
   e) Teacher shall announce the schedule of activity for internal assessment in advance in consultation with HOD.

B) Seminar

   In seminar, the student will have to deliver a seminar on any topic relevant to the syllabus / subject encompassing the recent trends and development in that field / subject. The topic of the seminar will be decided at the beginning of each semester in consultation with the supervising teachers. The student has to deliver the seminar which will be followed by discussion.

   The students should submit the seminar report typed and properly bound in one copy to the head of the department along with soft copy in CD. The said shall be evaluated by the concerned supervisor / head of the department. The concerned teacher / department / college shall have to keep the record of Seminar Reports until six months after the declaration of the results of that semester.

C) Practical Assessment:

Time: Minimum 2 Hours 30 Min. for conducting the practical examination subject to the condition the availability of computers and printers at the center.

Marks Distribution: A practical mark will be allocated by Internal & External Examiner as per the following format

Sr. No.	Particulars	Max. Marks
a.	Writing, Execution and Printout of Program	32
b.	Writing Program	16
c.	Practical Record	16
d.	Viva Voce	16
	Total	**80**

Note : 1) The Written work should be completed within max. 45 minutes.

2) For execution and taking printout max. 45 minutes is reserved.

E) Theory Paper Assessment : Theory papers will be held as per the scheduled given by the university and examinee needs to score minimum 40% of marks to clear the paper including internal assessment marks.

F) Revaluation: There is also a provision for the Revaluation only for theory papers examination conducted by University (i.e. it is not applicable for Internal Assessment) as per the rules and fee structure prescribed by University.

<div align="center">

Appendix 2
Practical Examination

</div>

1. Each practical carries 100 marks. The scheme of marking shall be as per given in the syllabi of respective subjects.
2. Practical performance shall be jointly evaluated by the External and Internal Examiner. In case of discrepancy, the External Examiner's decision shall be final.
3. Duration of practical examination will be Minimum 2 Hours 30 Min.
4. The Practical Record of every student shall carry a certificate as shown below, duly signed by the teacher-in-charge and the Head of the Department. If the student fails to submit his / her certified Practical Record duly signed by the Teacher-In-Charge and the Head of the Department, he / she shall not be allowed to appear for the Practical Examination and no Marks shall be allotted to the student.

5. The certificate template shall be as follows:

<div align="center">

C E R T I F I C A T E

</div>

Name of the College / Institution : _

Name of the Department: _

     This is to certify that this Practical Record contains the bonafide record of the practical work of Mr. / Mrs. / Ku. _of M.Sc.(Computer Science) _ _ _ _ Semester _ _ _ _ _ during the academic year _ _ _ _ _.

     The candidate has satisfactorily completed the practical's prescribed for the course by Gondwana University, Gadchiroli for the subject _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Dated : _ _ / _ _ / _ _ _ _

Signature of the teacher who taught the examinee

1._ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

2._ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

<div align="right">

Head of the Department

</div>

Pattern of Question Paper

General Rules and Regulations regarding pattern of question paper for the semester end examination is as given below:

1. There will be four units in each paper.
2. Maximum marks of each theory paper will be 80.
3. Question paper will consist of five questions, each of 16 marks.
4. Four questions will be based on four units with internal choice.
5. Fifth question will be compulsory with questions from each of the four units having equal weightage and there will be no internal choice.

Master of Science		
M.Sc. (Computer Science) – [I / II]	**Semester – [I / II/ III / IV]**	
Paper Code:	**Paper: Name of Paper**	

Time: 3 Hours] **[Max. Marks: 80**
Note: 1) All questions are compulsory and carry equal marks.
2) Draw Neat and Labeled diagram and use supporting data wherever necessary.
3) Avoid vague answers and write specific points/answer related to questions.

Q1 Either (From Unit 1)	
a)	8
b)	8
Or	
c)	8
d)	8
Q2 Either (From Unit 2)	
a)	8
b)	8
Or	
c)	8
d)	8
Q3 Either (From Unit 3)	
a)	8
b)	8
Or	
c)	8
d)	8
Q4 Either (From Unit 4)	
a)	8
b)	8
Or	
c)	8
d)	8
Q5 Solve all questions	
a) (From Unit 1)	4
b) (From Unit 2)	4
c) (From Unit 3)	4
d) (From Unit 4)	4