Uttarakhand Sanskrit University

Haridwar

CURRICULUM

FOR

Post Graduate Diploma in Computer Applications

(P.G.D.C.A.)

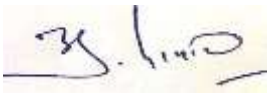
(01 Year Full Time: 02 Semester Program)

(Effective from the Session 2024-25)

Uttarakhand Sanskrit University, Haridwar

Post Graduate Diploma in Computer Applications (PGDCA)

Name of Program	Post Graduate Diploma in Computer Applications (PGDCA)
Duration	One (01) Year Program divided into two (02) Semesters
Eligibility	Graduate degree from a recognized University.
Objective of Program	PGDCA program is aimed towards building prospective career in the field of computer application. The program is designed with the objective to provide knowledge and skills in the various aspects of computer applications and core programming. Students will also be trained in the latest trends of information technology.
Program Outcome	• PGDCA equips the students with skills required for designing, developing applications in Information Technology. • Students will able to learn the latest trends in various subjects of computers & information technology. • Recognize computer system, its components and relationship amongst them. • Understand about critical concepts like programming languages & applications development. • Work on different System Software and Application Software. • Acquire required skillset to excel in the field of Information Technology.
Medium of Instruction	English / Hindi
Program Structure	The Semester wise break up for the courses in 2 semesters is as given below.
Program Passing Rules	As per norms of University for PG Courses.



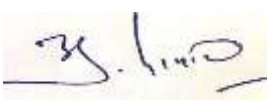

Uttarakhand Sanskrit University, Haridwar
Post Graduate Diploma in Computer Applications (PGDCA)

Semester – I

S.No.	Paper Code	Paper Name	External Examinations Marks	Internal Assessment Marks	Total Marks	Credits
1	DCA01	Computer Fundamental	80	20	100	4
2	DCA02	Operating System & PC Packages	80	20	100	4
3	DCA03	Emerging Trends in Computer	80	20	100	4
4	DCA04	Programming in C	80	20	100	4
5	DCA05	Practical -1 Based on DCA01, 02 and 03			100	2
6	DCA06	Practical -2 Based on Programming in C			100	2
					600	20

Semester – II

S.No.	Paper Code	Paper Name	External Examinations Marks	Internal Assessment Marks	Total Marks	Credits
1	DCA07	Data Base Management System	80	20	100	4
2	DCA08	Web Technology	80	20	100	4
3	DCA09	Object Oriented Programming using Python	80	20	100	4
4	DCA10	Practical -1 Based on DBMS & Web Technology			100	2
5	DCA11	Practical -2 Based on Python			100	2
6	DCA12	Project Work			100	4
					600	20
7		**अनिवार्य संस्कृत ज्ञान परीक्षा** (विश्वविद्यालय में संचालित सभी व्यावसायिक पाठ्यक्रमों हेतु अनिवार्य)			100	Non-Credit



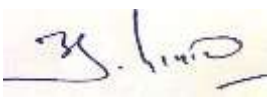

Uttarakhand Sanskrit University, Haridwar
(P.G. Diploma in Computer Application) - 01Year
PGDCA - I Semester
Paper Name: Computer Fundamental
Paper- I

Time: 03 Hours **Total Marks: 100**
Credit: 04 **External Marks: 80**
Internal Marks: 20

Unit	Description
1	**Computer:** History of Development of Computers, Computer System Concept, Block diagram of Computer, Computer System Characteristics, Advantages and Disadvantages, Types of Computers, Basic Components of a Computer System – CPU, Control Unit, ALU, Register, Motherboard, System bus, SMPS, UPS;
2	**Input Devices:** Keyboard, Mouse, Joystick, Scanners, Digital Camera, MICR, OCR, OMR, OBR, Light pen, Touch Screen. **Output Devices:** Monitors – Characteristics, Types of Monitor; Printers- Impact, Non-Impact Printer, Dot Matrix, Inkjet, Laser Printer; Sound Card and Speakers;
3	**Computer Memory:** Primary Memory: RAM, ROM, EPROM, EEPROM, Cache Memory; Primary Memory vs Secondary Memory. **Storage Devices**: Magnetic Disks, Hard Disk Drives, Floppy Disks, Optical Disks, Blue-Ray Disk, Other portable storage devices, Cloud Storage(Like Google Drive etc.)
4	**Computer Programming Languages**- Machine, Assembly and High Level; Number System of Computers- Binary, Decimal, Octal, Hexadecimal; ASCII, Unicode; **Computer Software:** Software and its Need, Types of Software's - Application software: Application Software Uses and Examples; System Software, Compiler, Assemblers, Interpreter, Device Drivers, Utility Programs; Virus and Antivirus;
5	**Computer Networking Fundamentals:** Basic concept of Computer Network, Need and Uses of Computer Networks, Type of Computer Network, Component of Communication: Sender, Receiver, Transmission medium and Protocols Network Topology, Transmission Categories- Simplex, Half Duplex & Full Duplex, Networks connecting devices, Network Hardware Components, , Introduction to OSI Reference and TCP/IP Model, Introduction to - IP Addressing, Subnet mask and Network Address Classes;

Text & Reference Books:

1. Sinha P.K., "*Computer Fundamentals",* BPB Publication.
2. Goel.A, "*Computer Fundamentals*", Reprint, Pearson Education.
3. Thareja R., "*Fundamentals of Computers*", Oxford University Press.
4. Rajaraman,V.,"*Computer Fundamentals",* PHI.
5. Srivastva C., "*Fundamentals of Information Technology*", Kalyani Publishers.
6. Data Communication and Networking – B. Forouzan – MCGrawth Hill.



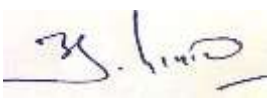

Uttarakhand Sanskrit University, Haridwar
(P.G. Diploma in Computer Application) - 01Year
PGDCA - I Semester
Paper Name: Operating System & PC Packages
Paper- II

Time: 03 Hours **Total Marks: 100**
Credit: 04 **External Marks: 80**
Internal Marks: 20

Unit	Description
1	**Operating System:** Operating System Concepts, Needs of an operating System, Evolution of OS, Types of OS, Structure of operating System, Elements and Functions of OS, Operating system components and services, Virtual Machine, Overview of Windows OS, Basic Operations with Windows OS, Working with Windows OS, Comparison of LINUX and Windows OS. **Office Package:** Introduction, Functions of Office, Introduction to Office Automation, Role of computer in Office automation and management Office Automations, MS office Features, Components of MS office; Introduction to Open office, Uses of Google Docs.
2	**MS Word**: Introduction, Area of use, Starting Word, Different Bars, Document View, Text Area, Exiting Word; Creating, Editing, Saving, Closing, Printing and Opening an Existing Document. Working with Fonts, Style, Layout, Paragraph, Cut, Copy, Paste, Undo and Redo, Spell Check, Find, Replace, Bullets, Numbering, Header, Footer, Page-Setup, Page Number. Creating Table, Modifying Table, Merging of Cells, Split Cells, Insert Pictures, Symbols and Graphics. Mail Merge, Importing and exporting to and from various formats.
3	**MS PowerPoint:** Starting MS-PowerPoint, different Bars, Different Types of Views and Exiting MS-PowerPoint. Creating a New Presentation, Working with Slides, Applying Design Templates, Applying Custom Animations, Applying Slide Transitions. Saving a Presentation, Running a Presentation, Closing a Presentation and Opening an Existing Presentation. Working with Notes, Handouts, Columns & Lists, Adding Graphics, Sounds and Movies to a Slide;
4	**MS Excel:** Introduction, Area of use, Concepts of Workbook & Worksheets, Starting MS-Excel, different Bars, Row, Column and Cell. Exiting MS-Excel. Creating a New Workbook, Working with Cells. Working with Fonts. Merging of Cells. Inserting a Row and Column, Deleting a Row and Column. Saving a Workbook, Closing a Workbook. Different Data Types and Operators used in Excel, Working with Calculation and Functions. Working with Chart.
5	**Introduction of MS Access:** Database, Tables, Create Table, Insert data in table, Data types in MS Access. Microsoft Office Picture Manager: Introduction and uses; **Introduction of DTP:** Definition of D.T.P, Uses and Advantage of DTP, Working with Microsoft Publisher for DTP.

Text & Reference Books:

1. Stallings W., "Operating systems", Pearson.
2. Jain S. "*MS Office 2010 Training Guide*", BPB Publications.
3. Kroenke D., Nilson D., "*Microsoft Office 365 in Business*", US Edition, Wiley India Pvt. Ltd.
4. Sinha P.K., "*Computer Fundamentals",* BPB Publication.
5. Goel.A, "*Computer Fundamentals*", Reprint, Pearson Education.
6. Prakhar Complete Course For DTP (Coreldraw, Pagemaker, Photoshop)



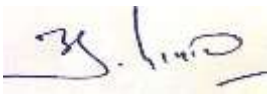

Uttarakhand Sanskrit University, Haridwar
(P.G. Diploma in Computer Application) - 01Year
PGDCA - I Semester
Paper Name: Emerging Trends in Computer
Paper- III

Time: 03 Hours **Total Marks: 100**
Credit: 04 **External Marks: 80**
Internal Marks: 20

Unit	Description
1	**Internet Communication:** Internet Concepts, Internet Architecture, Applications of Internet, Various Internet Services, Intranet, Extranet, ISP, Modes of Connecting Internet (Hotspot, Wi-Fi, LAN Cable, Broadband, USB Tethering), WWW, URL, HTTP & HTTPS, IP, FTP, Web Browsers, Search Engines, E-mail Concepts, Internet Chatting, Audio, Video conferencing.
2	**E-Services:** e- Commerce & Governance Services: Basics of e-Commerce, Basics of e-Governance, Basics of Mobile Commerce, Digital Locker, Social Networking; E-Learning resources; Digital Financial Tools: Introduction to Online Payment Systems, OTP, QR Code, Credit Card, Debit Card, eWallet, UPI, AEPS, Online Payment Apps, Internet Banking, Online Bill Payment.
3	**Cloud Computing**: Introduction of cloud computing: Characteristics and components of cloud computing, Advantage and challenges of cloud computing, Types of Clouds, Services models, Cloud Reference Model.
4	**Artificial Intelligence:** Introduction to AI, Concept of AI, Advantages and Disadvantages of AI, Application of AI, current status of AI, scope, Type of AI, uses of AI in daily life, future of AI, AI Tools; Introduction of Machine learning and Deep learning.
5	**Overview of Future skills:** Introduction to - IOT, Big data, Virtual Reality and Blockchain Technology; **Overview of Cyber Security:** Introduction to Cyber Security, Cyber Security Need, Goal of Cyber Security, Securing PC, Securing Browser, Securing Email and Social Media Accounts, Securing Smart Phone.

Text & Reference Books:

1. Jain V.K. ,"*O Level Module - M 1.2 - Internet& Webpage Designing*"– BPB Publications.
2. Turban, Efraim, and David King, "Electronic Commerce: A Managerial Perspective", Pearson Education Asia, Delhi.
3. Whiteley D, "*E - Commerce: Strategy, Technologies and Applications*", Tata McGraw Hill.
4. Cloud Computing, Principle and Paradigms, Edited By Raj Kumar Buyya, Jemes Broberg, A Goscinski, Pub.- Wiley.
5. Kumar Saurabh, "Cloud Computing", Wiley Pub.
6. Dr. Dheeraj Mehrotra "Basics of Artificial Intelligence and Machine Learning".
7. Cyber Crime Impact in the New Millennium, by R. C Mishra, Auther Press.



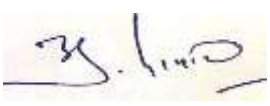

Uttarakhand Sanskrit University, Haridwar
(P.G. Diploma in Computer Application) - 01Year
PGDCA - I Semester
Paper Name: Programming in C
Paper- IV

Time: 03 Hours **Total Marks: 100**
Credit: 04 **External Marks: 80**
Internal Marks: 20

Unit	Description
1	Basic definition of Pseudo Code, Algorithm, Flowchart, Program; Fundamentals of C: Introduction of C language, Data Types, Variables, Identifiers, Constant, Modifier, Keywords, Assignment Statements, I/O Statements, I/O function; Operators and Expressions: Expression in C, Different types of Operators: Arithmetic, Relational, Logical, Assignment, Conditional, Increment and Decrement, Bitwise, Comma and sizeof operator, Precedence and associatively of Operators, type casting.
2	**Decision and Control Structures**: Conditional Statement – if, if-else, Nested if-else, switch-case; Loops: while, do while, for loop; Jump Statements: break, continue, goto and return. **Storage Classes:** Automatic, External, Static, Register; **Arrays:** Definition, Application of Array, 1-Dimensional, Multi-dimensional array and its declaration,
3	**Functions:** Function Types, function declaration, function definition, function call (Call by value, Call by reference), Formal and Actual parameter, Recursive function. **String:** Operations of Strings, String Length, Compare, Concatenate, Reverse, Copy, Character Search using array.
4	**Pointers**: Declaration, Passing pointer to a Function, Operations on Pointers, Array accessing through pointers, Dynamic Memory Allocation. **Structures and Unions:** Structure declarations, definitions, array of structure, pointers to structures, Union definition and declaration.
5	**File Handling:** Introduction of File, Types of file in C, Modes of Files; File Operations: Opening, Closing, Reading and Writing; Examples of file handling programs; Command Line Arguments;

Text & Reference Books:

1. Balagurusamy, E: Programming in ANSI C, Tata McGraw-Hill publication
2. Gottfried Byron S: Programming with C, Tata McGraw-Hill publication
3. Kerninghan & Ritchie: The C Programming Language, PHI.
4. Balagurusamy, “Programming in C”, Tata McGraw-Hill Education.
5. Yashavant Kanetkar, “Let us C”, BPB publication.




Uttarakhand Sanskrit University, Haridwar
(P.G. Diploma in Computer Application) - 01Year
PGDCA - I Semester
Paper Name: Practical & Viva
Paper- V (Practical-1 Based on Paper-I, II and III)

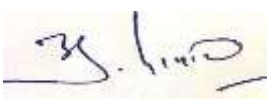
Credit: 02 **Total Marks: 100**

Practical-1 Based on Paper-I, II and III
Description:
➢ Computer Hardware ➢ Basics of DOS and Linux commands ➢ Basic Windows and Linux operations ➢ MS Office package (Word processing, Spreadsheet and Presentation) ➢ MS Access: Database, Tables, Create Table, Insert data in table, Data types in MS Access. ➢ Microsoft Office Picture Manager: ➢ Microsoft Publisher for DTP. ➢ Working with Google Docs. ➢ Basics of Computer Network ➢ Internet Concepts and uses of internet in different fields. ➢ Use of e-Resources, Applications, Tools.

Uttarakhand Sanskrit University, Haridwar
(P.G. Diploma in Computer Application) - 01Year
PGDCA - I Semester
Paper Name: Practical & Viva
Paper- VI

Credit: 02 **Total Marks: 100**

Practical-2 Based on Paper-IV (Programming in C)
Description:
➢ Algorithm and Flowchart. ➢ Fundamental of C Programs. ➢ Programs to implement different types of Operators. ➢ Programs using Control Statements and Loop Control Structures. ➢ Programs to implement concepts of Array. ➢ Programs to implement concepts of String. ➢ Programs to implement concepts of Functions. ➢ Programs to implement concepts of Pointers. ➢ Programs using Structures. ➢ Programs using Files.

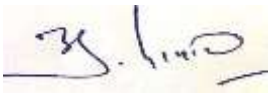



Uttarakhand Sanskrit University, Haridwar

Post Graduate Diploma in Computer Applications

PGDCA – II Semester

Semester – II						
S.No.	**Paper Code**	**Paper Name**	**External Examinations Marks**	**Internal Assessment Marks**	**Total Marks**	**Credits**
1	DCA07	Data Base Management System	80	20	100	4
2	DCA08	Web Technology	80	20	100	4
3	DCA09	Object Oriented Programming using Python	80	20	100	4
4	DCA10	Practical -1 Based on DBMS & Web Technology			100	2
5	DCA11	Practical -2 Based on Python			100	2
6	DCA12	Project Work			100	4
					600	20
7		**अनिवार्य संस्कृत ज्ञान परीक्षा** (विश्वविद्यालय में संचालित सभी व्यावसायिक पाठ्यक्रमों हेतु अनिवार्य)			100	Non-Credit



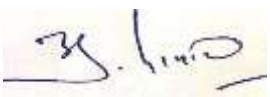

Uttarakhand Sanskrit University, Haridwar
(P.G. Diploma in Computer Application) - 01Year
PGDCA - II Semester
Paper Name: Data Base Management System
Paper- VII

Time: 03 Hours **Total Marks: 100**
Credit: 04 **External Marks: 80**
Internal Marks: 20

Unit	Description
1	Definition of DBMS, Database System Architecture, File Processing System Vs DBMS, Advantages and Disadvantages of DBMS, Users of DBMS, DBA and DBA Responsibilities, RDBMS, RDBMS vs DBMS;
2	Data Models: Relational Model, Network Model, Hierarchical Model, Entity Relationship Model, Entity Relationship Diagram (ERD), Relational Databases, Relational data model concept, Terms: Tuple, Attribute, Relationship and its Type;
3	Keys: Super Key, Candidate Key, Primary Key, unique, Foreign Key; Introduction to Normalization, Data Anomalies in NF, Normal Form: 1NF, 2NF, 3 NF; Introduction to Relational Algebra and Joins.
4	Introduction of SQL, Characteristics of SQL, Basic Structure, SQL Commands: DDL, DML, DCL Commands; Create and Use Database, Data types in SQL, Create Table, Insertion of data into the tables, SELECT Statement, SQL Clause, WHERE Clause, Viewing of data into the tables, Deletion operations, Updating the contents of the table, Modifying the structure of the table, Renaming table, Destroying tables; Data Constraints, Type of Data Constraint.
5	Viewing The Data: SQL Operator: Arithmetic Operators, Logical Operators, Relational Operators, Comparison Operators; SQL Searching: Range Searching, Pattern Searching; SQL Functions: Aggregate Functions, Number Functions, Group Functions, Scalar Functions, Data Conversion Functions, Character Functions; Manipulating Dates in SQL, SQL Sub queries Joins.

Text & Reference Books:

1. Elmasri R, Navathe S.B., "*Fundamentals of Database Systems*", Benjamin Cummings Publishing Company.
2. JD Ullman, Garcia-Molina, "Database System: The Complete Book", Pearson Education India.
3. S.K Singh, "Database Systems: Concepts, Design and Applications", Pearson Education India.
4. Ramakrishnan R., Gehrke J., "*Database Management System*", McGraw-Hill (IE).
5. Ivan Bayross, "Database Concepts & Systems for Students", Shroff Publishers & Distributors Pvt Limited.
6. Silberschats, Kroth and Sudershan, "*Principles of Database Systems*", McGraw Hill Publication.




Uttarakhand Sanskrit University, Haridwar
(P.G. Diploma in Computer Application) - 01Year
PGDCA - II Semester
Paper Name: Web Technology
Paper- VIII

Time: 03 Hours **Total Marks: 100**
Credit: 04 **External Marks: 80**
Internal Marks: 20

Unit	Description
1	**Introduction to Web Technologies**: Application of Web Technologies, Components of Web Technologies (Web Page, Web Server, Mail Server, Cookies, etc), Static and Dynamic Websites, Web Publishing Concepts, Domain Name Registration, Web Space Registration, Management and uploading (utilities like FTP), Client-Server Architecture.
2	**HTML:**, Introduction To HTML, Elements of HTML Syntax, HTML Tags, Title, Head & Body Sections, Building HTML Documents, Formatting Tags, Inserting Texts, Images, Hyperlinks, Backgrounds and Colour Controls, List, Table, Use of Font Size & Attributes,
3	**Forms and Controls**: Text, Radio, Checkbox, Combo Box, Select, Button. HTML 5 & Syntax, HTML5 Document Structure (section, article, aside, header, footer, nav, dialog, figure), Attributes of HTML 5, Web Form (datetime, date, month, week, time, number, range, email, url), Audio / Video, Introduction to CSS and Java Script.
4	**PHP:** Introduction to PHP**,** PHP Variable, Static & global variable, GET & POST method, PHP Operator, Conditional Structure & Looping Structure, Array, User Defined Functions, Math Function, Date Function.
5	Handling form with GET & POST, Session, Server variable, PHP Components; Working with MySQL using PhpMyAdmin, SQL DML Statement (Insert, Update, Select, Delete), Command, PHP-MySQL Connectivity, PHP-MySQL Functions;

Text & Reference Books:

1. Internet for Everyone - Alexis Leon and Mathews Leon, Vikas Publications.
2. HTML A Beginner's Guide, Tata McGraw-Hill Education.
3. Internet for Every One: Alexis Leon, Leon Techworld, Publication.
4. Greenlaw R; HeppE, "Fundamentals of Internet and WWW", Tata McGraw-Hill.
5. Raj Kamal, "Internet& Web Technologies", Tata McGraw-Hill Education, Publication.
6. Welling & Thomson's *PHP and MySQL Web Development.*

Uttarakhand Sanskrit University, Haridwar
(P.G. Diploma in Computer Application) - 01Year
PGDCA - II Semester
Paper Name: Object Oriented Programming using Python
Paper- IX

Time: 03 Hours **Total Marks: 100**
Credit: 04 **External Marks: 80**
Internal Marks: 20

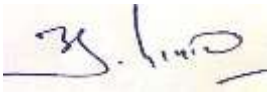
Unit	Description
1	Object Oriented Programming Concept: Introduction, Concepts of Object-Oriented Programming, Benefits of OOP, Applications of OOP.
2	Introduction to Python, History of Python and versions, Features of Python programming, Application of Python, Variables, Expressions and Statements: Values and types, Variables, keywords, Operators and operands, Expressions and statements; Control Structures: Selection Structure (if… else), Iteration structures (while, for and Nested loops), break, continue and pass Statements.
3	Python Native Data Types: Numbers, Lists, Tuples, Sets, Dictionary, Array; Strings: Introduction, Strings in Python, String Operations, String methods; Input-Output: Printing on screen, Reading data from keyboard, Opening and closing file, Reading and writing files.
4	Python Functions: Introduction, Advantages of Functions, Function definition in Python, Flow of execution, Calling Function, Functions with arguments, Recursion, Functions with return statements, Built-in functions, Type Conversion functions, Math functions.
5	Python Modules: Module definition, need of modules, creating a module, importing module; Python Packages; Exception Handling: Except clause, Try, finally clause; GUI Programming, Introduction to Tkinter Programming, Introduction to Numpy.

Text & Reference Books:

1. Sheetal Taneja & Naveen kumar, Python Programming a Modular approach – A Modular approach with Graphics, Database, Mobile and Web applications, Pearson.
2. Martin C. Brown, Python: The Complete Reference, Osborne/McHraw Hill.
3. Wesley J. Chun, "Core Python Programming", Pearson Education.
4. PYTHON Programming (for beginners) – By Adam Stewart.

Web References:

1. NPTEL & MOOC courses titled Python programming
2. http://spoken-tutorial.org/tutorial-search/?search_foss=Python&search_language=English
3. http://docs.python.org/3/tutorial/index.html
4. http://interactivepython.org/courselib/static/pythonds




Uttarakhand Sanskrit University, Haridwar
PGDCA - II Semester
Paper Name: Practical & Viva
Paper- X

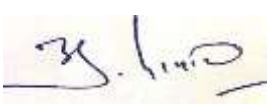
Credit: 02 **Total Marks: 100**

Practical-1 Based on DBMS and Web Technology (HTML, PHP)
Description
➢ Introduction to MySQL and SQL Commands. ➢ DDL Commands ➢ DML Commands ➢ TCL Commands ➢ SQL Query ➢ Working with HTML tags ➢ Designing of Web page using HTML ➢ Working with PHP ➢ Designing of Web pages using PHP ➢ Web application development using HTML and PHP ➢ Database connectivity through PHP with MySQL.

Uttarakhand Sanskrit University, Haridwar
PGDCA - II Semester
Paper Name: Practical & Viva
Paper- XI

Credit: 02 **Total Marks: 100**

Practical -2 Based on Python
Description
➢ Fundamental of Python Programs. ➢ Programs implementing Data Types and Operators. ➢ Programs using Control Statements. ➢ Program to implement the concept of Python Native Data Types: Numbers, Lists, Tuples, Sets, Dictionary, Array. ➢ Programs to implement concepts of String. ➢ Program to implement Input-Output operations. ➢ Programs to implement Functions. ➢ Program to implement Python Modules. ➢ Program to implement Python Packages. ➢ Programs to implement concepts of Exception Handling. ➢ Programs to implement File Handling. ➢ Programs to implement concepts of OOPs. ➢ Programs to implement GUI concept.




Uttarakhand Sanskrit University, Haridwar
(P.G. Diploma in Computer Applications) - 01Year
PGDCA - II Semester
Paper Name: Project
Paper- XII

Total Marks: 100 **Credit: 04**

Project Description	Total
Course Work on System Analysis and Design for Project: ➢ Basics of System, System element, System Planning and Analysis, SDLC, DFD, DSS, Data and fact gathering techniques, Feasibility study. **Project Development:** ➢ Project must be developed in the computer laboratory of concern institute under the supervision of faculties of concern subject. **Project should be based on:** ➢ DBMS – RDBMS (MySQL, Oracle, etc.) ➢ Programming/Scripting Language (HTML, PHP, Java, Python etc.) ➢ Or any other new technology based. **Format of the Student Project Report on Completion of the Project:** ➢ Cover page as per format ➢ Certificate of project guide ➢ Declaration / Self Certificate ➢ Acknowledgement ➢ **Main Report** ❖ Objectives & Scope of the project ❖ Theoretical Background of Project ❖ Definition of problem ❖ System Analysis, Design and Planning ❖ Methodology adopted, System Implementation & Detail of Hardware & Software used ❖ System maintenance & Evaluation ❖ Cost and benefit Analysis ❖ Detailed Life Cycle of the project ❖ User/Operational Manual- including security aspects, access rights, back up, Controls etc. ❖ Conclusion ❖ References ❖ Soft copy of the project on CD/DVD/USB. **Note:** ➢ At the time of Presentation of project and viva-voce examination, each student must have certified hard copy and soft copy of developed project.	Project Work: 60 Presentation & Viva: 40

अनिवार्य संस्कृत ज्ञान परीक्षा

(विश्वविद्यालय में संचालित सभी व्यावसायिक पाठ्यक्रमों हेतु अनिवार्य)

अनिवार्य संस्कृत ज्ञान परीक्षा पाठ्यक्रम

पूर्णांक : 100
उत्तीर्णांक : 48

1. संस्कृत में संख्याएँ :– 15 अंक

एक से 100 तक संख्याओं में से किन्हीं पाँच संख्याओं का संस्कृत में लेखन।

2. सन्धियाँ :– 15 अंक

यण् सन्धि, दीर्घ सन्धि, अयादि सन्धि, गुण एवं वृद्धि सन्धियों में से किसी एक सन्धि की परिभाषा एवं उदाहरण।

3. छन्द :– 10 अंक

अनुष्टुप, वंशस्थ, मालिनी, उपेन्द्रवज्रा, इन्द्रवंज्रा, शिखरिणी, शार्दूलविक्रीडितम् इन छन्दों में से किन्हीं दो छन्दों के लक्षण एवं उदाहरण।

4. निबन्ध :– 20 अंक

विद्या, सत्संगतिः, सदाचारः, परोपकारः, अहिंसा, सत्यमेवजयते, संस्कृत भाषा में 10 पँक्तियों का एक लघु निबन्ध।

5. अनुवाद :–

संस्कृत से हिन्दी – 10 अंक
हिन्दी से संस्कृत – 10 अंक

6. शब्द एवं धातु रुप :–

राम, हरि, गुरु, नदी, रमा शब्दों में से किसी एक शब्द के किसी भी एक विभक्ति में रुप लिखना। 10 अंक

भू पठ्, गम् धातु के लट् लोट्, लृट्, विधिलिङ्, लङ लकारों में से एक लकार के रुप पूछे जायेंगे। 10 अंक

सहायक पुस्तकें :–

1. प्रारम्भिक रचनानुवाद कौमुदी – डॉ0 कपिल देव द्विवेदी।
   विश्वविद्यालय प्रकाशन वाराणसी।
2. छन्दोदिशतिका – चौखम्भा विद्या भवन वाराणसी।