BIJU PATTNAIK COMPUTER CENTER
SYLLABUS OF DCA
BIJUPATTNAIK COMPUTER CENTRE
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Theory marks	400	PRACTICAL	160
INTERNAL	150	PROJECT	40
FULL marks	750	PASS MARK	60% Theory, 40% Practical

Paper	course	Theory	Viva/Assignment
1	Fundamental of computer & OS	40	10
2	Office Automation (Word, Excel, PPT)	80	20
3	Computer Network, Internet technology & Security	80	20
4	Programming in C++	80	20
5	Database Management System (DBMS)	40	10
6	Web Design (Html, Css, Java Script, Xml)	80	20
7	Pc application LAB	40	10
8	Web Design LAB	40	10
9	C++ LAB	40	10
10	SQL & ACESS LAB	40	10
11	PROJECTS	40	10

<u>COMPUTER FUNDAMENTL</u>

<u>UNIT-1</u>

Computer history, generation, characterstic, type of computer, computer component, computer organization, input& output, CPU, storage unit, peripherals.

UNIT-2

Data, types of data, information's, number system, ALU, Boolean algebra, logic gates.

UNIT-3

Memory, Ram, Rom, Motherboard, port, software (system, application).

UNIT- 4

Language, machine level, assembly, high level, operating system, CUI, GUI, linux, unix, windows XP, Windows 98, vista, win 7(overview), PC .

UNIT-5

 Hardwares,Drivers,networking,cleint,server,microprocessors,DOS.

OPERATING SYSTEM

UNIT-1

Operating system concept, OS as resource manager, processor management, single user, multi user, device management, virtual storage information management, command interpreter and command of DOS, multimedia keyboard functional commands, booting and advance booting commands, Bios, BIP sounds.

UNIT-2

User interface, CUI, Linux operating system, GUI-window, definition of GUI, getting started, using mouse, windows components, windows icons mouse and pop ups, task bar, folder and drive management, control menu, menu bar, border, title bar, maximize minimize, scroll bar, command button, optional button, check box, list box.

UNIT-3

Windows 7, my computer, libraries, searching for files, desktop management, gazettes, sorting and grouping view with arrangement, securities of drives, device manager, help and supports, error messages, shortcuts, pin up, my network place, control panel, shortcut keys.

UNIT-4

Utility programs, accessing peripherals, driver installation, device manager, system protections, error messages, printer, scanner management, pen drive, memory card, data manipulations, formatting, data recovery, application software installation, blocking and removing unwanted software. Virus, malwares, antivirus, management of system registry, defragments, cleans temporary files. System restores, operating system utilization shortcut, maintaining power figuring, shortcut creation, program shortcut, task manager, help and support.

OFFICE AUTOMATION
UNIT-1

Accessories, calculator, math input panel, notepad, paint, promote desktop connection, run, snipping tools, sound recorder, sticky notes, typing procedure, key drill, Typing Master pro, Multi language input. Akruti, Shreelipi, Math types & Dictionary

UNIT-1 (WORD)

Getting Started with Word ,Starting Word, Opening a saved Word document, make save and save as document, Previewing a document Creating a folder, Printing a document, restricted and unrestricted document, mark as final, overview of send e-mail ,Closing a document and exiting Word, Writing a Document, page setup, Navigate through a document, Scroll through text, Add font style and size, change style, Insert and delete text in a document, Copy, cut and paste, Use the clipboard, set paragraph, Clear formatting.   Page break, cover pages, insert and draw table, insert and reposition a picture, Insert an object from an application, symbol & equation. page setup, Adjust margin, orientation,

column setting, Themes, font color, set page background, border and shading, adjust paragraph setting, line numbers, watermark, line spacing, position, Set and change indentations, arrange text, text wrapping, Alignment text, grouping, rotation. Reference of document, table of content, add text of contents, sort table data, creating nested table, adding footnotes, arrange footnotes, insert endnote, insert citation, biography, caption, cross reference, index, table of authorities. Mailing of word document, create envelope and level, get start mail merge, write and insert field, add address block, add greeting line, insert merge field, add rules, preview result, finish mailing. Review on word document, proofing, check spelling and grammar, set language, word count, add comments, delete comments, tracking. Document view, full screen view, web layout view, other view, show ruler and guideline, message bar, zoom, add a new window, arrange window, split window, switch window, macros ,securities, Control ,xml, templets, create PDF.

UNIT-2 (POWERPOINT)

Power point views, entering the text, moving the text, changing the color, working with slide (recording slides, duplicating slides, deleting slides, adding animated cartoon to a slide, adding slide transitions, a notating slides during a slide show, annotation effect rehearsing a presentation), adding text transitions, making slide shows, hiding a slide.

Customizing PowerPoint, application seting , custom thems ,customing PowerPoint, tab seting,custuming the slide colour, working with template(slide master, title master, master & design template, modify slides based on the slide master creating template).

Presentation on the web, the web tool bar publishing a presentation on the web, setting up hyperlink, using multimedia, including movie clips in presentation, including sound in a presentation, additional location of (clip art, picture, sound, video), option for move and clips, object linking and embedding, editing linked and embedding objects, transferring text into p.p from word, embedding MS p.p in a side, insert slides from other presentation, saving file for use in another application.

UNIT-3 (EXCEL)

Section 1: Introduction   Getting to Know Excel   The Work Surface
NavigationInterface   FormattingTabs and Ribbons   Document Windows
First File   Navigation Tips Office Button and Save   Basic Math
Section2: Entering, Editing and Formatting Data   Introduction   Fonts, Fills,
Cut, Copy, and Paste   Alignment Paste Special   Entering Data   Cell Styles
Comments Replacing values   Undo and Redo Moving, Finding,   Cell
Referencing   Function Anatomy   Math Functions Basic Statistics Logic
Functions Section 3: Formatting Introduction   Custom and Special Formats
Currency Format   Format Painter   Formatting Dates   Section 4:
Managing Worksheets, Introduction, Temporal Functions, External Links,
Adding, Deleting and Hiding Worksheets, Grouping Worksheets, Intermediate
Formula Knowledge, Moving, Copying, Deleting, Naming and Moving
Worksheets,Copying Worksheets, Hiding Grouped Worksheet,

Section 5: Modifying Rows and Columns, Introduction, Modifying Cell Width
and Height,   Inserting Multiple Columns & Rows, Hiding and Unhiding ,
Rows and Columns, Inserting and Deleting olumns and RowsInserting &
Deleting Cells

Section 6: Understanding Formulas , Introduction Using Relative , and
Absolute References, Searching for Formulas, Copying Formulas, Common
Formulas, Using Operations, Creating Formulas, AutoSum, Section 7:
Changing Views, Introduction, Formula Auditing, Workbook Views, Viewing
Multiple Windows, Minimize The Ribbon, Freeze Panes, Conditional Math,
Split Windows, Worksheet Backgrounds, Watermarks, Show/Hide, Zoom
Features, Section 8: AutoFill and Custom Lists   , Introduction, AutoFill
Non-Adjacent Cells, AutoFill on Multiple Sheets, Series Formatting, Creating
Custom Lists, AutoFill a Series, Section9: Conditional Formatting,
Introduction, Color Scales, Custom Formatting Rule, Highlight Cells Rules,
Top/Bottom Rules, Data Bars Section 10: Tables, Introduction   ,
Summaries With Pivot Table, Insert a Table and Style Options, Add Rows and
Columns, Perform a Function in a Table,   Section 11: Data Tools,
Introduction   ,Text To Columns, Goal Seek, Data Validation, Drop-Down

Lists, Removing Duplicates, Scenario Manager,Section 12: Referencing Formulas, Introduction, Consolidating Data – With or Without Links   ,Trace the Precedents and Dependents, Using the Watch Window, Multiple Sheet ReferencesSection 13: Ranges and Dates, Introduction, Date Formulas, Cell Names, Named Ranges, Formulas with Cell Names, Section 14: Lookups,Introduction, VLOOKUP, VLOOKUP Exact Match, HLOOKUP, HLOOKUP Exact Match,   Section 15: Conditional Logic, Introduction, SUMIF, IF Statement,Nested IF AND OR, NOT, IFERROR, AVERAGEIF,COUNTIF & COUNTIFS, SUMIFS, AVERAGEIFS, Sectionn 16: Text Formulas, Introduction, Case Formulas, Fix Number Fields, Trim Spaces, Substitute Text, Sectionn 17: Introduction, to Charts, Introduction, Picture Fill, Chart Types,   Instant Chart,Update Chart, Column Chart, Adjust Chart Size, LineChart,Scatter Chart, Section 18: Formatting Charts, Introduction, Axis Options, Chart Title, Legends,Data Labels, Chart Styles, Chart Layouts, Add Labels Section 19: Adding Graphics to Spreadsheets, Introduction, Insert Pictures, Modifying Pictures,Insert Shapes, Insert SmartArt, Apply Themes, Arrange, Session 20: Outline, Sort, Filter, and Subtotal,Introduction, Group and Ungroup, Sort Data, Sort Multiple Levels, Filter Data, Advanced Filter,Conditional Sorting and Filtering , Sorting with Custom Lists, Subtotal, PivotTables, Introduction, Creating PivotTables Choosing Fields, PivotTable Layout, Filtering PivotTables, Modifying PivotTable Data, PivotCharts, Protecting Data, Workbook Passwords, Protecting Workbooks, Unlocking Cells, Collaboration, Document Properties, Inserting Hyperlinks, Sharing a Workbook, Track Changes, Accept/Reject Changes, Mark as Final, Printing, Page Orientation,Page Breaks, Print Area,Margins, PrintTitles, Headers and Footers, Scaling, Sheet Options, Saving a Workbook, Save As Previous Version, Auto Recover Save Options, Templates, Save As PDF, Save AsWeb Page, Macro-Enabled Workbook, Section 21: Macros, Macro Security, Recording a Macro   , Assign a Macro to a Button or Shape   , Run a Macro upon Opening a Workbook, How to Inspect and Modify a Macro.

Computer Network, Internet technology &Security

UNIT- I

Introduction to Data Communication– Network models, protocols and architecture, standards organizations, line configuration, topology, transmission mode, classification of networks, OSI reference model, TCP/IP model.

UNIT- II

Analog and digital signals, Data encoding, parallel and serial transmission, modems, transmission media: guided media, unguided media, transmission impairment, performance, Synchronous and asynchronous transmission.

UNIT- III

Principles of internetworking– connection– oriented, connectionless, Routing concepts, routing algorithms– distance-vector routing, link state routing, shortest path routing. Congestion control, QOS, internetworking, network devices.

UNIT- IV

INTERNET & E-MAIL

The history of the internet, what is internet, components of the internet(world wide web, telnet, e-mail, ftp, UseNet, http), pages on the web, retrieving documents on the web-URL(anatomy of a URL), access the world wide web: web browsers(e-mail, telnet, ftp)Email discussion group, UseNet news, chat and instant messaging, the tool bar, additional toolbar option, useful option on the menu bar, saving web document for later use, download e-mail and print, customising internet.

UNIT- V

Network security requirements and attacks, public key and private key encryption and digital signatures, digital certificate, firewalls, IDS (Intrusion Detection System)

PROGRAMMING IN C & C++

UNIT- I

Introduction to "C" Language: Fundamentals, simple I/O statements, reading and writing, data types constants, variable, operators & expressions, library function, control statements, if-else, while, do-while, goto, for statements switch, break, looping statements, functions recursion, arrays, multidimensional arrays, strings & pointers.

UNIT- II

Programming in C++, functions, class, object, constructor and destructor: Call by reference, call by value, return by reference, inline function, constant argument, function overloading, static member function, static data member,. Classes: implementing class, classes and members, accessing class members, implementing class methods, array of object, friend function. Constructor & destructors: parameterized constructor, multiple constructor, constructor with default argument, copy constructor, destructor.

UNIT- III

Operator overloading & type casting: Operator overloading, unary operator overloading, binary operator overloading, manipulates string using operator overloading, type conversions: basic to class, class to basic, class to class.

UNIT- IV

Inheritance, virtual function: single inheritance, multilevel inheritance, multiple inheritance, hybrid inheritance, hierarchical inheritance, virtual base class, abstract class.

UNIT-V

Pointer & File: Pointer to object, this pointer, virtual function and pure virtual function. File: opening and close file, detecting end of the file

RELATIONAL DATABASE MANAGEMENT SYSTEM

UNIT- I

Overview of Database Management: Data, information, data independence, database administration roles, DBMS architecture, different kinds of DBMS users importance of data dictionary, contents of data dictionary, types of database languages. Data models: network, hierarchical, relational. Introduction to distributed database, client/server databases, object-relational databases, introduction to ODBC concept

UNIT- II

Relational Model: Entity relationship model as a tool for conceptual design-entities attributes and relationships. ER diagrams; concept of keys: candidate key, primary key, alternate key, foreign key; strong and weak entities, case studies of ER modeling generalization; specialization and aggregation, Converting an ER model into relational schema. Extended ER features, introduction to UML, Representation in UML diagram.

UNIT- III

Structured Query Language (SQL): Relational Algebra: select, project, cross product different types of joins (inner join, outer joins, self join); set operations, tuple relational calculus, domain relational calculus, simple and complex queries using relational algebra, stand alone and embedded query languages, introduction to SQL constructs (SELECT...FORM, WHERE... GROUP BY... HAVING ... ORDERBY...), INSERT, DELETE, UPDATE, VIEW definition and use, temporary tables, nested queries, and correlated nested queries, integrity constrains: Not null, unique, check, primary key, foreign key, reference, triggers.

UNIT- IV

Relational database design: Normalization concept in logical model; pitfalls in database design, update anomalies: functional dependencies join dependencies, Normal forms (INF, 2NF, 3NF). Boyce code normal form, decomposition, multi-valued dependencies, 4NF, 5NF. Issues in physical design; concepts of indexes, file organization for relational tables, de-normalization, clustering of tables, clustering indexes.

UNIT- V

Introduction to Query processing and protection the database: parsing, translation, optimization, evaluation and overview of query processing. Protecting the database

integrity, security and recovery, Domain constraints, referential integrity, assertion, triggers, security & authorization in SQL

WEB DESIGN

Web Technologies

Under the topic of introduction to web technologies in the web designing course syllabus, students get to learn about technical aspects of creating a website as well as types of websites. Here are the key topics covered under this section:

How does a website work?

Web standards and W3C elements

Domains and Hosting

Clients and Server Scripting Languages

Responsive Web Designing

HTML

HTML is an integral part of a web design course syllabus and is described as hypermark text language. It is a key element of creating a website, in this subject, you will get to understand how HTML elaborates the general structure of a web page design as well as tags and the concept of HTML files. After which designing a web page will be taught along with hyperlinking and the tools that you can use in a web page design process. The recent version of HTML is HTML 5 on which you will get familiarised with the tools featured on it.

CSS

Talking about the tools essential for web page designing, cascading style sheets a.k.a CSS is something you will learn along the journey of this course. It is the language used to comprehend a web page's overall presentation that consists of its layout, fonts as well as colours and themes. Another unique fact about CSS is that it doesn't require HTML and function independently. This separation assists CSS in adapting a webpage to different environments. The latest CSS3 is replete with amazing features that will be introduced to you in this course and you will also get to learn the tips and tricks of it.

JavaScript

JavaScript is another programming language that is a chief part of the web designing course syllabus. It is a logic-based language in programming and interactive websites with cool tabs, sliders, calls to action and other dynamic features that are made with JavaScript. All these interactive effects that are implemented in designing a website contribute to its uniqueness and that's why mastering this programming language can turn you into an excellent web designer.

Bootstrap

Bootstrap is associated with all the three pivotal topics mentioned above, i.e. HTML, CSS, and JavaScript. In simple terms, it can be described as useful bits of code that are written in programming languages of HTML, CSS, and JavaScript. What it does is that it turns a website into a responsive one. Also, it is an open-source and free tool that ensures that you do not write too many CSS codes thus decreasing the load. As part of the web design course syllabus, you will get to learn this front-end development framework to furnish a better understanding of both web development as well as web design.

Adobe Dreamweaver

Adobe Dreamweaver will be taught to you as part of your web design course syllabus when you are studying programming languages like HTML and CSS. What's great about Adobe Dreamweaver is that anyone can use it to design and develop a website without having to know any coding. This program is a lifesaver for individuals who need to create many website designs at the same time. It's a wonderful time-saver, but you'll just need a basic understanding of HTML and CSS to use it. Although Adobe Dreamweaver can save time in some situations, it does not replace the requirement to understand the foundations of programming languages. When utilizing Adobe Dreamweaver, a fundamental grasp of programming languages is still required.