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Bachelor of Computer Applications (BCA)

PROGRAMME OUTCOME

At the end of the BCA programme the students will be able to:
- Understand the fundamental concepts of computers, software hardware and peripheral devices and evolution of computer technologies.
- Work in the IT sector as system engineer, software tester, junior programmer, web developer, system administrator, software developer etc.
- Apply standard software engineering practices and strategies in software project development using open source programming environment to deliver a quality of product for business success.

PROGRAM SPECIFIC OUTCOMES

- Equip themselves to potentially rich & employable field of computer applications.
- Pursue higher studies in the area of Computer Science/Applications.
- Take up self-employment in Indian & global software market.
- Meet the requirements of the Industrial standards.

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Course Structure under NEP – 2020(BCA) Semester-I

Subject		Subject Code	Subject Title	Credits	WCH	Exam Duration	Marking Scheme		
							Int	Ext	Total
Discipline Specific Course Core (Major)	Core Course-1	US1MABCA01	Problem Solving Through C	4	4	3	50 /18	50 /18	100 /36
	Practical of Core Course-1	US1MABCA02	Practical Based On Problem Solving Through C	4	8	3	50 /18	50 /18	100 /36
Minor	Minor Course-1	US1MIBCA03	Fundamentals of Web Application	2	2	2	25/ 09	25/ 09	50 /18
	Practical of Minor Course-1	US1MIBCA04	Practical Based On Fundamentals of Web Application	2	4	2	25/ 09	25/ 09	50 /18
Inter disciplinary	Inter disciplinary Course-1	US1MDBCA05	Office Tools And Accounting	2	2	2	25/ 09	25/ 09	50 /18
	Practical of Inter disciplinary Course-1	US1MDBCA06	Practical Based On Office Tools	2	4	2	25/ 09	25/ 09	50 /18
Ability Enhancement Course		US1AEBCA07	Foundation of Communication Skills in English-I	2	2	2	25/ 09	25/ 09	50 /18
IKS/Value Added Course		US1IKBCA08	Indian Knowledge System	2	2	2	25/ 09	25/ 09	50 /18
Skill Enhancement Course/Internship/Dissertation		US1SEBCA09	Introduction to Computer Organization	2	2	2	25/ 09	25/ 09	50 /18
Minimum Qualifying Credits				22					

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BCA (Bachelor of Computer Applications) (Semester–I)

Course Code	US1MIBCA03	Title of the Course	Fundamentals of Web Application
Total Credits Of the Course	2	Hours per Week	2

Course Objectives:	To impart the knowledge of the HTML, DHTML, CSS and HTML5.

Course Content		
Unit	Description	Weightage*(%)
1.	**Creating a WebPage : I** ➢ An Introduction to HTML,HTML tags, Structure of an HTML document ➢ Text and paragraph formatting ➢ Ordered and Unordered lists ➢ Hyperlinks, Image ➢ HTML tables ➢ Frames, Framesets ➢ Designing HTML forms ➢ Advanced Elements of HTML5 Input Controls (number, date, time, calendar, ranges) ➢ Multimedia tags (<audio>,<video>)	50

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2.	**Creating a WebPage : II**	
	➤ Introduction to DHTML	
	➤ Components of DHTML	
	➤ Introduction to Cascading Style Sheets (CSS),	**50**
	➤ Ways of specifying style inline, internal, external	
	➤ Basic Syntaxes, ID and CLASS selectors, SPAN, DIV	
	➤ Fonts, Color, Background, Text ANDBorder property	

Teaching-Learning Methodology	Material for this course will be presented using multiple teaching approaches: lecture and discussion, exploration and inquiry,cooperativegroupwork, demonstrations, and presentations

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written/Practical Examination	
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance	25%
3.	University Examination	25%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Develop Web page ensuing HTML, HTML5 ,DHTML AND CSS

Suggested References:

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Sr. No.	References
1.	Ivan Bayross, Web Enabled Commercial Applications Development using HTML, DHTML, Javascript, Perl CGI, BPB, 2004.
2.	DouglasEComer: The Internet, PHI, Second Edition, May 2000.
3.	Xavier C:WorldWideWeb Design with HTML, Tata McGraw Hill Publication,2000.
4.	EricMeyer: Cascading Style Sheets–The Definitive Guide,O'Reilly–SPD,First Edition,2000.
5.	JeremyKeith, HTML5forWeb Designers,ABOOKAPART, 2010.
6.	Manuals of suitable packages.
7.	FaitheWempen, Step by Step HTML5, PHI,2011.
8.	ThomasA.Powell, HTML & CSS: The Complete Reference, Fifth Edition,TataMcGraw-Hill,2010.

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BCA (Bachelor of Computer Applications) (Semester–I)

Course Code	US1MIBCA04	Title of the Course	Practical Based On Fundamentals of Web Application
Total Credits Of the Course	2	Hours per Week	4

Course Objectives:	To provide knowledge of HTML, HTML5 ,DHTML AND CSS

Course Content		
	Description	Weightage*(%)
	Practical Based on Fundamentals of Web Application–I	100%
Teaching-Learning Methodology	Demonstrating through required ICT tools.	

Evaluation Pattern		
Sr.No.	Details of the Evaluation	Weightage
1.	Internal Written/Practical Examination	
2.	Internal Continuous Assessment in the form of practical,Viva-voce,Quizzes,Seminars,Assignments,Attendance	50%
3.	University Examination	50%
Course Outcomes: Having completed this course, the learner will be able to		
1.	Design and Develop web pages using HTML, HTML5 ,DHTML AND CSS	

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BCA (Bachelor of Computer Applications) (Semester–I)

Course Code	US1MABCA01	Title of the Course	Problem Solving Through C
Total Credits of the Course	04	Hours per Week	04

Course Objectives	1. To provide basic understanding of problem solving using algorithms and flowcharts.
	2. To impart knowledge on fundamental concepts of the C Programming language

	Course Content	
Unit	**Description**	**Weightage (%)**
1.	**Concept of Algorithm, Flowchart and Languages** ➢ Concept of an algorithm and a flowchart, need and definition ➢ Symbols used to draw a flowchart ➢ Typical examples of flowcharts and algorithms ➢ Generations of computer languages ➢ High-level and low-level languages ➢ Translators ➢ Introduction to editors and details about one of the editors	**25**
2.	**Basics of Programming** ➢ History and importance of C ➢ Basic structure of a C Program ➢ Variables and Constants	**25**

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	➢ Data types in C ➢ User defined type declaration-typedef ➢ Operators and Expressions, type conversion ➢ Formatted I/O statements, Assignment statements	
3.	**Decision Making, Loops and Arrays** ➢ Decision making and branching Statements ➢ Decision making and looping statements ➢ Arrays	25
4.	**Strings and Library Functions** – Introduction – Declaring and initializing strings – Operations on Characters – String handling functions – Common standard library functions	25

Teaching-Learning Methodology	Multiple teaching approaches: lecture and discussion, exploration and cooperative group work, demonstrations, and presentations.

Evaluation Pattern		
Sr. No.	**Details of the Evaluation**	**Weightage**
1.	Internal Written	50%
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance	

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3.	External Examination	50%

Course Outcomes	
1.	Solve problems using algorithms and flowcharts.
2.	Develop simple programs using the C Programming language.

Suggested References	
Sr. No.	**References**
1	E.Balagurusami: Programming in ANSIC. ,Eighth Edition, Tata McGraw HillPublication,2019.
2	Kernighan B.,RitchieD.:The C Programming Language, Prentice Hall,1988.
3	Cooper H.&Mullish H:The Spirit of C, Jaico Publication House,NewDelhi,1988.

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Bachelor of Computer Applications(BCA)

(Semester – 1)

Course Code	US1MABCA02	Title of the Course	Practical Based onProblem Solving Through C
Total Credits Of the Course	4	Hours per Week	8

Course Objectives:	1. To impart knowledge to design algorithms and flowcharts.
	2. To impart skill to solve simple programming problems.

Course Content		
	Description	Weightage*(%)
	Practical Based onProblem Solving Through C	100%

Teaching-Learning Methodology	Hands on training through required ICT tools.

Evaluation Pattern		
Sr.No.	Details of the Evaluation	Weightage
1.	Internal Written/Practical Examination	50%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance	
3.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Design algorithms and flowcharts.
2.	Solve simple programming problems in C.

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BCA (Bachelor of Computer Applications)(Semester–I)

Course Code	US1MABCA07	Title of the Course	Foundation of Communication Skills in English-I
Total Credits Of the Course	2	Hours per Week	2

Course Objectives:	1. Introduce themselves, describe person, place or situation
	2. Structure sentences for variety of purposes
	3. Make or respond to enquiries; raise queries as and when required
	4. Write letters for specific purposes
	5. Use modal auxiliaries efficaciously
	6. Communicate in Active and Passive Voice precisely

Course Content		
Unit	Description	Weightage *(%)
1.	**Skills of Reading and Listening & Feedback Skills, Forming Words** ➢ Techniques of Reading i.e. Eye Movement and Different Reading Styles ➢ Issues of Reading Speed and Comprehension Value ➢ Reading Gears for different reading purposes ➢ Skimming & Scanning Skills ➢ Barriers to Effective Reading ➢ Importance and purpose of Listening. ➢ Barriers to Effective Listening. ➢ Ways of improving Listening Skills. ➢ Giving Feedbacks i.e Confirmatory and Corrective ➢ Form words properly using prefixes/suffixes	50

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	➢ Use Phrasal Verbs ➢ Writing formal letters of invitation (inviting/accepting/declining), letters of complaint and intimation to civil authorities.	
2.	**Skills of Writing & Speaking** ➢ Paragraph development i.e. Topics sentence and supporting sentence, attributes of a god paragraph, types of paragraphs. Writing dialogue on given topics ➢ Use greeting and formulae in everyday conversation ➢ Notions and Functions of everyday usage ➢ Parts of Speech, Types of Sentences, Tenses, Imperatives, Modals, Voice, Determiners, Concord, Interrogation and Negation, basic prepositions Use of Phrasal Verbs Constructions and Registers. ➢ Connectives and Linkages	50

Teaching-Learning Methodology	Role Play, Discussion and Debate, Think Pair Share, Traditional classroom teaching as well as usage of ICT tools.

Evaluation Pattern		
Sr. No.	**Details of the Evaluation**	**Weightage**
1.	Internal Written / Practical Examination	50%
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance	
3.	University Examination	50%

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	Course Outcomes:- Having completed this course, the learner will be able to
1.	Introduce them; describe person, place or situation.
2.	Structure sentences for variety of purposes.
3.	Make or respond to enquiries; raise queries as and when required.
4.	Write letters for specific purposes.
5.	Use modal auxiliaries efficaciously.
6.	Communicate in Active and Passive Voice precisely.

Suggested References

Sr. No.	References
1	Meenakshi Raman &Sangita Sharma, Technical Communication; Principles and Practice, Oxford University Press.
2	Chrissie Wright, Communication Skills, Jaico Publication.
3	Grant Taylor, English Conversation Practice, New Delhi: Tata McGraw Hill.
4	R P Bhatanagar and R T Bell, Communication in English, Hyderabad, Orient Longman.
5	D Sasikumar and P V Dhamija, Spoken English, New Delhi: Tata McGraw Hill.
6	M. Farhathullah, Communication Skills for Technical Students.
7	ChampaTickoo and Jaya Sasikumar, Writing with a Purpose, Chennai, OUP.
8	David Jolly, Writing Tasks: Authentic task approach to individual Writing needs, Cambridge University Press.

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BCA (Bachelor of Computer Applications) (Semester–I)

Course Code	US1SEBCA09	Title of the Course	Introduction to Computer Organization
Total Credits Of the Course	2	Hours per Week	2

Course Objectives:	1. To provide basic understanding of logical organization and architecture of a computer. 2. To introduce fundamental concepts related to number systems and representation of information.

Course Content		
Unit	Description	Weightage* (%)
1.	**Introduction to Computer Systems, Number Systems, Representation of Information and Processor Organization** ➢ Block diagram of a simple computer and significance of different functional units ➢ Definitions of the terms: hardware, software ➢ Binary, octal, decimal, and hexadecimal number systems ➢ Conversion of numbers: binary to decimal and decimal to binary ➢ Addition and subtraction of binary numbers ➢ Representation of integers ➢ Character codes (ASCII, Unicode) ➢ Instruction execution cycle ➢ CPU organization ➢ Array processors	50

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2.	**Memory Organization, Addressing Techniques and I/O Devices**	
	➢ Primary memory: Introduction to RAM and ROM, Cache, Registers	
	➢ Secondary memory: Various types and organization of secondary storage devices such as magnetic disks, optical disks, flash memories	
	➢ Addressing techniques like Immediate, Direct, Indirect, Register, Indexing and Stack	**50**
	➢ Common types of Input / Output devices, such as Monitors, keyboard, mouse, Printers(Line, Dot Matrix, Inkjet, Laser),Scanners	

Teaching-Learning Methodology	Multiple teaching approaches: lecture and discussion, exploration and inquiry, cooperative group work, demonstrations, and presentations

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written/Practical Examination	
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance	50%
3.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Understand the fundamental concepts related to organization of a computer system.
2.	Understand the fundamental concepts related to number systems and representation of information.

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	Suggested References:	
Sr. No.	References	
1.	Tanenbaum A.S., Structured Computer Organization, Prentice-HallofIndiaPvt.Ltd,5th edition, 2005.	
2.	RajaramanV, Computer Fundamentals, Prentice-Hall of India Pvt. Ltd.(4th Edition),2003.	
3.	P.K.Sinha,PritiSinha, Computer Fundamentals,6th Edition,2003.	

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BCA (Bachelor of Computer Applications) (Semester–I)

Course Code	US1IKBCA08	Title of the Course	Indian Knowledge Systems
Total Credits Of the Course	2	Hours per Week	2

Course Objectives:	The course will enable the student teachers to
	• Examine the concept to Bhartiya concept of spirituality and its various paths.
	• Examine the Bhartiya philosophy of life derived from Shashtras (ancient scriptures) and its implications for the Bhartiya lifestyle.
	• Analyse the concept of Indian Knowledge Systems (IKS) and emphasize its importance in preserving and disseminating indigenous knowledge.
	• Highlight the contributions of IKS to the world, particularly in the fields of mathematics and astronomy.
	• Explore the Bhartiya wisdom related to life sciences.
	• Study the science of architecture in ancient India with reference to significant sites.
	• Provide an overview of Ayurveda, including its concepts, branches, important books, and pioneers in the field.
	• Explore Bhartiya literature and the Bhartiya theory of aesthetics and rasa in various art forms.

Course Content	
Unit	**Description** **Weightage*(%)**

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1	**Spritual Bharat and Introduction to IKS** • Bhartiya Concept of Spirituality: Gyaan Marg, Bhakti Marg, Karm marg, YogMarg • Bhartiya Spiritual Thinking Leading to Unity • Bhartiya Philosophy of Life Derived from Shashtras and its Implications for Bhartiy LifeStyle • Introduction to IKS and Its Importance • Introduction of Various Indian Knowledge Systems	50 %
2	**Contribution of IKS to the World** • Bhartiya Contribution in Mathematics and Astronomy • Bhartiya Wisdom related to Life Science: Physics, Chemistry, Botany • Bhartiy Science of Architecture with reference to Lothal, Mohan Jo Daro, Dholavira, Temple Architecture • Ayurveda: Concept, Branches, Books and Pioneers • Bhartiya Literature and Bhartiy Theory of Aesthetics and Rasa	50 %

Teaching-Learning Methodology	Lecture-cum-discussion, Group Discussion, Presentations, Seminars, tutorials, Research Exercises

Evaluation Pattern		
Sr.No.	Details of the Evaluation	Weightage
1.	Internal Written/Practical Examination Internal Continuous Assessment in the form of Practical, Viva voce, Quizzes, Seminars, Assignments, Attendance	50%
2.	University Examination	50%

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Course Outcomes: Having completed this course, the learner will be able to	
1.	Understand the diverse paths of spirituality in Bhartiya culture, including Gyaan Marg, Bhakti Marg, Karm Marg, and Yog Marg, and recognize their significance in individual and collective spiritual growth.
2.	Evaluate the Bhartiya philosophy of life derived from Shashtras and analyze its implications for contemporary Bhartiya lifestyles, fostering a deeper understanding of the connection between spirituality and every day life.
3.	Explain the concept of Indian Knowledge Systems (IKS) and recognize its importance in preserving and promoting indigenous knowledge, fostering a sense of cultural identity and pride.
4.	Demonstrate knowledge of various Indian knowledge systems, such as Ayurveda, Vedic sciences, Yoga, Vedanta, and Jyotish, and appreciate their contributions to human knowledge and well-being.
5.	Recognize and appreciate the significant contributions of IKS to the world, particularly in the fields of mathematics and astronomy, and understand their impact on modern scientific advancements.
6	Analyze the Bhartiya wisdom related to life sciences, including physics, chemistry, and botany, as described in ancient texts, and understand their relevance and potential applications in contemporary scientific research.
7	Identify and analyze the unique architectural features and principles of ancient Indian sites like Lothal, Mohenjo-daro, Dholavira, and temple architecture, understanding their cultural, historical, and spiritual significance.

Suggested References:

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- જુગલ કિશોર શમાર્. (૨૦૦૦). પ્રાચ્ય યભ્િ મ ભારત. કણાવ ર્ તી : સાધના પુ તક ૬કાશન
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- Singh,A.P., & Yagnik,S. (Eds.).(2019). Indian Knowledge Systems: Understanding the Human Uniqueness. Springer.

- Frawley,D., & Ranade, S.(2001). Ayurveda, Nature's Medicine. Lotus Press.

- Lad,V., & Frawley,D.(1986). The Yoga of Herbs: An Ayurvedic Guide to Herbal Medicine. Lotus Press.

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- Pollock, S. (2006). The Language of the Gods in the World of Men: Sanskrit, Culture, and Power in Premodern India. University of California Press.

- Sarma, K. V. (2008). Indian Astronomy: A Source-Based Approach. National Council of Education Research and Training.

- Narlikar,J.V.,&Padmanabhan,T.(Eds.).(2016).DevelopmentofPhysicsinIndia.Springer.

- Mahdihassan,S.(1982). Ancient Indian Botany: Its Bearing on Art and Literature. Deccan College Post-Graduate and Research Institute.

Online References:

- Indian Knowledge Systems Vol1https://iks.iitgn.ac.in/wp-content/uploads/2016/01/Indian-Knowledge-Systems-Kapil-Kapoor.pdf

- http://www.indianscience.org/index.html

- Traditional Knowledge Systems of India https://www.sanskritimagazine.com/india/traditional-knowledge-systems-of-india/

- https://orientviews.wordpress.com/2013/08/21/how-colonial-india-destroyed-traditional-knowledge-systems/

- https://www.thebetterindia.com/63119/ancient-india-science-technology/

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Syllabus as per NEP 2020 with effect from the Academic Year 2024-2025

With Effective from June 2023

BCA (Bachelor of Computer Applications) (Semester–I)

Course Code	US1MDBCA05	Title of the Course	Office Tools And Accounting
Total Credits Of the Course	2	Hours per Week	2

Course Objectives:	To introduce students to Features of word processing, presentation tool and spreadsheet. Conceptual framework of Accounting & Accounting Cycle.

Course Content		
Unit	Description	Weightage*(%)
1.	**Office applications** ➢ Introduction to word processing software, benefits of word processing software, examples of word processors ➢ Working with documents:- Basic operations, formatting text & paragraphs, using tables, shapes, inserting pictures, mail merge facility ➢ MS Excel:-Spread Sheet & its Applications, Opening Spreadsheet, Menus - main menu, Formula Editing, Formatting, Toolbars, Using Icons, Using help, Shortcuts, Spreadsheet types& Selecting Cells ➢ Shortcut Keys. ➢ **A** column or row, Mathematical operations o (Addition, Subtraction, Multiplication, Division, Exponentiation), Using others Formula. ➢ Introduction to presentation tools and their basic features	50

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	Working with presentation slides:- creating, editing, formatting and previewing, inserting picture, clipart, shapes and chart, adding header, footer, animations and slide transitions, printing slide content.	
2	**Conceptual framework of Accounting** ➢ Meaning & Definition of Accounting and Book keeping, difference between book keeping and accounting. ➢ Need of accounting. ➢ **Some basic terms: -** debtor, creditor, solvent, insolvent, bad debts, bad-debts- recoverable, income, expenditure, trade discount & cash discount. ➢ Objectives, advantages and scope of accounting. ➢ System of Book Keeping. ➢ Classification of accounts (Personal, Real & Nominal). ➢ Rules of Debit & Credit. ➢ Accounting Cycle:- Journal, Ledger and Trial balance (each meaning and specimen **or** format and its explanation with example). ➢ Specimen **or** Format of trading account, profit & loss account and balance sheet.	50

Teaching-Learning Methodology	Material for this course will be presented using multiple teaching approaches :lecture and discussion, exploration and inquiry, cooperative group work, demonstrations, and presentations
Evaluation Pattern	

Sr. No.	Details of the Evaluation	Weightage

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1.	Internal Written/Practical Examination	50%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance	
3.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Understand the concept of Conceptual Framework of Accounting & Accounting Cycle
2.	Understand features of word processing, presentation tool and spreadsheets.

Suggested References:

Sr. No.	References
1.	Manuals of PC software.
2.	Tax ali RK: PC Software made simple for Windows, Tata McGraw-Hill Publishing Co.Ltd., 2000.
3.	MaheshgwariS.N.: Introduction to Accounting, Vikas Pub.House1986.
4.	R.L.Gupta & V.K. Gupta: Principles and practices of accounting, Sultan Chand & Sons, 2019.
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BCA (Bachelor of Computer Applications) (Semester–I)

Course Code	US1MDBCA06	Title of the Course	Practical Based On Office Tools
Total Credits Of the Course	2	Hours per Week	4

Course Objectives:	To enable students to work with Word documents, Excel sheets and PowerPoint presentations.

Course Content		
	Description	Weightage*(%)
	Practical Based on Office Applications	100%

Teaching-Learning Methodology	Hands on training through required ICT tools.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination	
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance	50%
3.	University Examination	100%
Course Outcomes: Having completed this course, the learner will be able to		
1.	Work with Word documents, Excel sheets and create power point presentations.	

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