BCA (Honours) 4 Years Programme
(For the Academic Year 2023-24 Onwards)

Detailed Syllabus

Year - I

SEMESTER-I

The Maharaja Sayajirao University of Baroda Faculty of Science Department of Computer Applications	Academic Year	2023-2024
Bachelor of Computer Applications (Honours)		

Year	I	**Core** **BCAXXXX**: **Fundamentals of Computers and PC Tools**	**Credits / Hours per week**	**3**
Semester	**I**	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**	**100**
Mode of Transaction		Lectures and Tutorials		

Course Outcomes

CO1: Understanding the concept of input and output devices of Computers

CO2: Learn the functional units and classify types of computers, how they process information and how individual computers interact with other computing systems and devices.

CO3: Understand an operating system and its working, and solve common problems related to operating systems

CO4: Understand a Database System and its working

CO5: Understand Networks and its various components

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Profess

										ional Ethics (PE)
1	**Introduction to Computers** - Characteristics of Computers, History of Computers, Classification of Computers, Applications of Computers, Basic Organization of a Computer **Input and Output Devices**- Keyboard, Mouse, Scanners, Monitors, Speakers and Headphones, Printers **Computer Memory and Processors** - Memory Organization, Memory Hierarchy, Primary Memory, Cache Memory, Secondary Storage Devices, Offline Storage Basic Processor Architecture, CPU Registers, Types of Processors	15	33%							
2	**Computer Software** - Classification of Computer Software, Applications Software, System Software, Utility Software **Operating Systems** - Evolution of Operating Systems, Process Management, Memory Management, File Management, Device Management **Database Systems** - File Systems vs Database Systems, Applications of Database Systems	15	34%							
3	**Computer Networks** - Basics Elements of a Communication Process, Advantages of Computer Networks, Types of Networks, Physical Components of a Network Wireless Media, Networking Devices, Network Topologies, Data Transmission Mode **MS Office Tools**-Professional Document writing using Word Processing Tool, Data Processing using Spread Sheet, Creating Dynamic and Informative Slide Show using Power	15	33%							

	Point								
	Microsoft Windows, DOS and Linux								

Text Book

1	Fundamentals of Computers, Reema Thareja, Oxford University Press

Reference Books

1	Computer Fundamentals Concepts Systems and Applications, Priti Sinha, Pradeep Sinha, BPB Publications
2	Computer Fundamentals, Anita Goel, Pearson Education India

	The Maharaja Sayajirao University of Baroda Faculty of Science Department of Computer Applications	Academic Year		2023-2024

Bachelor of Computer Applications (Honours)

Year	I	Core BCAXXXX: Introduction to Programming with Python	Credits / Hours per week	4
Semester	I	Year of Introduction: 2023 Year of Syllabus Revision:	Maximum Marks / Grade	100
Mode of Transaction		Lectures and Tutorials		

Course Outcomes
CO1: Develop, document, and debug modular Python programs of reasonable complexity
CO2: Write programs in Python using data types, identifiers, operators, and variables
CO3: Working with string, List, Dictionary in Python
CO4: Solve real-life problems using suitable and efficient programming constructs in Python
CO5: Writing user defined function in Python

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Professional

									Ethics (PE)
1	Problem Solving Using Computers - Program Development Life Cycle [SDLC cycle], Program Design Tools: Algorithms, Flowcharts, Pseudocodes, Algorithms, Pseudocodes, Flowcharts, Generations of Programming Languages, Categorization of High-level Languages, Programming Paradigms, Popular High-level Languages, Programming Tools

Getting Started with Python- History, Features, Setting up path, Working with Python, Basic Syntax, Variable and Data Types, Operators

Conditional Statements-If , If- else, Nested if-else. Looping and Control Statements- For, While, Nested loops, Infinite Loops, Break, Continue, Pass | 15 | 25% | | | | | | | |
| 2 | String Manipulation- Accessing Strings, Basic Operations, String slices, Function and Methods

Lists- Introduction, Accessing list, Operations, Working with lists, Function and Methods

Tuple- Introduction, Accessing tuples, Operations, Functions and Methods

Dictionaries - Introduction, Accessing values in dictionaries, Working with dictionaries, Properties

Sets – Set Operations, Set Functions | 15 | 25% | | | | | | | |
| 3 | Functions- Introduction, Built-in functions and Used defined functions, Defining a function, Calling a function, Types of functions, Function Arguments, Anonymous | 15 | 25% | | | | | | | |

	functions, Global and local variables Modules and Packages- Importing a Module, Using Modules, Making a Module from Pre-existing Code, Creating and using Packages								
4	File Handling and Exception Handling Classes and Objects	15	25%						

Text Book

1	Python Programming Using Problem Solving Approach, Reema Thareja, Oxford University Press
2	Core Python Programming, R. Nageswara Rao, Dreamtech Press

Reference Books

1	Learning Python: Powerful Object-Oriented Programming, Mark Lutz, O'reilly ·
2	Learn Python in 7 Days, Mohit Raj, Bhaskar N. Das , Packt Pub
3	Head First Python - A Brain-Friendly Guide, Barry Paul, O'reilly
4	Introduction to Computation and Programming Using Python by John V Guttag, Prentice Hall of India
5	Problem Solving and Python Programming, E Balagurusamy, McGraw Hill Education,2018

The Maharaja Sayajirao University of Baroda Faculty of Science Department of Computer Applications	Academic Year	2023-2024

Bachelor of Computer Applications (Honours)				
Year	**I**	**Core** **BCAXXXX: Digital Electronics**	**Credits / Hours per week**	**3**
Semester	**II**	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**	**100**
Mode of Transaction		Lectures and Tutorials		

Course Outcomes

CO1: Understand the basic number system and Boolean algebra.
CO2: Understand the basics of combinational and Sequential circuits.
CO3: Know about Flip flops and their designing.
CO4: Analyze about State reduction techniques and various hazards present in the circuit.
CO5: Understanding the concepts of VHDL programming for designing Digital circuits.

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Professional

#										Ethics (PE)
1	**Number Systems** - The Decimal System, The Binary System, Octal System, Hexadecimal System **Boolean Algebra and Logic Circuits** - Boolean Algebra, Minterms and Maxterms, Simplification of Boolean functions, Logic Gates	15	34%							
2	**Simplification of Boolean Expressions using Karnaugh Map**	15	33%							
3	**Combinational Circuits**- Adder, Subtractor, Coder and Decoder, Multiplexer and Demultiplexer **Sequential Circuits**- Flip-Flops, Registers and Counters **Computer Arithmetic (fixed and floating point)**	15	33%							

Text Book

1	Fundamentals of Digital Circuits: Kumar A. Anand, Prentice Hall India

Reference Books

1	Digital Fundamentals, T. L. Floyd and R. P. Jain, Pearson Education
2	Digital Design, M. Morris Mano, Pearson Education, Pearson Education
3	Computer System Architecture, M. Morris Mano, Pearson Education

The Maharaja Sayajirao University of Baroda Faculty of Science Department of Computer Applications	Academic Year	2023-2024

| Bachelor of Computer Applications (Honours) |||

Year	I	Core **BCAXXXX**: Foundational Mathematics (Linear Algebra and Calculus)	Credits / Hours per week	3
Semester	I	Year of Introduction: 2023 Year of Syllabus Revision:	Maximum Marks / Grade	100
Mode of Transaction		Lectures and Tutorials		

Course Outcomes
CO1: To familiarize students with the determinants and Matrices.
CO2: To familiarize students with the power of Linear Algebra for Problem Solving in computing.
CO3: To familiarize students with the power of Differential and Integral Calculus for Problem Solving in computing.

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Profess

										ional Ethics (PE)
1	**Determinants:** Definition, Minors, Cofactors, Properties of Determinants **Matrices:** Definition, Types of Matrices, Matrix Operations-Addition, Subtraction, Scalar Multiplication and Multiplication of Matrices, Adjoint, Inverse, Transpose of a matrix, Symmetric and skew symmetric matrices, Matrix representation of data, Elementary operations on matrices, Singular and non-singular matrices Cramer's Rule, Rank of Matrix Caley-Hamilton Theorem, eigenvalues and eigen vectors, LU decomposition. **Solution of system of homogeneous and non-homogeneous linear equations:** Gauss elimination, Matrices, elementary row operations, row-equivalence, and row space.	20	50%							
2	**Limits & Continuity:** Limit at a Point, Properties of Limit, Computation of Limits of Various Types of Functions, Standard limits (without proof). Continuity at a Point, Continuity Over an Interval, Properties of continuous functions, Intermediate Value Theorem, Type of Discontinuities, Differentiability **Differentiation:** Derivative, Derivative as a rate of change, Derivatives of Sum, Differences, Product & Quotients, Chain Rule, Derivatives of standard functions Derivatives of Composite Functions, Logarithmic Differentiation, Rolle's Theorem, Mean Value Theorem, Expansion of Functions (Maclaurin's	12	30%							

	& Taylor's), Indeterminate Forms, L' Hospitals Rule, Maxima & Minima, Curve Tracing, Successive Differentiation & Leibniz Theorem. Partial derivatives.								
3	**Integration:** Integral as Limit of Sum, Standard formulas, Indefinite Integrals, Methods of Integration Substitution, By Parts	8	20%						

Text Book

1	None

Reference Books

1	Introduction to Linear Algebra Gilbert Strang, Wellesley-Cambridge Press
2	Linear Algebra: Theory and Applications Ward Cheney, David Kincaid, Jones & Bartlett Publishers
3	Integral Calculus, P K Mittal & Shanti Narayan, S. Chand Publishing
4	Differential Calculus, P K Mittal & Shanti Narayan, S. Chand Publishing
5	Calculus with analytical Geometry, Louis Leithold, Harper & Collins Publications.

The Maharaja Sayajirao University of Baroda Faculty of Science Department of Computer Applications		Academic Year		2023-2024
Bachelor of Computer Applications (Honours)				
Year	**I**	**Core / Elective / Foundation** **BCAXXXX: Technical Writing and** **Professional Communications Lab**	**Credits / Hours per week**	**2/4**
Semester	**I**	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**	**100**
Mode of Transaction		Lectures and Tutorials		

Course Outcomes

CO1: Students will be enabled to understand the nature and objective of Technical Communication relevant for the work place as Engineers.

CO2: Students will utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions.

CO3: Students would imbibe inputs by presentation skills to enhance confidence in face of diverse audience.

CO4: Technical communication skills will create a vast know-how of the application of the learning to promote their technical competence.

CO5: It would enable them to evaluate their efficacy as fluent & efficient communicators by learning the voice-dynamics.

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Profess

										ional Ethics (PE)
1	**Fundamentals of Technical Communication:** Technical Communication: Features; Distinction between General and Technical Communication; Language as a tool of Communication; Dimensions of Communication: Reading & comprehension; Technical writing: sentences; Paragraph; Technical style: Definition, types & Methods; The flow of Communication: Downward; upward, Lateral or Horizontal; Barriers to Communication.

Forms of Technical Communication: Technical Report: Definition & importance; Thesis/Project writing: structure & importance; synopsis writing: Methods; Technical research Paper writing: Methods & style; Seminar & Conference paper writing; Key-Note Speech: Introduction & Summarization; Expert Technical Lecture: Theme clarity; Analysis & Findings; 7 Cs of effective business writing: concreteness, completeness, clarity, conciseness, courtesy, correctness, consideration. | 30 | 50% | | | | | | | | |
| 2 | **Technical Presentation: Strategies & Techniques** Presentation: Forms; interpersonal Communication; Class room presentation; style; method; Individual conferencing: essentials: Public Speaking: method; Techniques: Clarity of substance; emotion; Humour; Modes of Presentation; Overcoming Stage Fear: Confident speaking; Audience Analysis & retention of audience interest; Methods of Presentation: Interpersonal; Impersonal; Audience Participation: Quizzes & Interjections.

Technical Communication Skills: Interview skills; Group Discussion: Objective & Method; Seminar/Conferences Presentation skills: Focus; Content; Style; Argumentation | 30 | 50% | | | | | | | | |

| | skills: Devices: Analysis; Cohesion & Emphasis; Critical thinking; Nuances: Exposition narration & Description; effective business communication competence: Grammatical; Discourse competence: combination of expression & conclusion; Socio-linguistic competence: Strategic competence: Solution of communication problems with verbal and non-verbal means.

Kinesics & Voice Dynamics:
Kinesics: Definitions; importance; Features of Body Language; Voice Modulation: Quality, Pitch; Rhythm; intonation; Pronunciation; Articulation; stress & accent; Linguistic features of voice control: Vowel & Consonant Sounds. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|

Text Book

1	Technical Communication – Principles and Practices, Meenakshi Raman & Sangeeta Sharma, Oxford University Press

Reference Books

1	Business Correspondence and Report Writing, Prof. R.C. Sharma & Krishna Mohan, Tata McGraw Hill & Co. Ltd

The Maharaja Sayajirao University of Baroda Faculty of Science Department of Computer Applications	Academic Year	2023-2024

			Bachelor of Computer Applications (Honours)		
Year	**I**	**Value-Added Courses** **BCAXXXX: Environmental Studies**	**Credits / Hours per week**		**3**
Semester	**I**	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**		**100**
Mode of Transaction		Lectures and Tutorials			

Course Outcomes

CO1: Discover knowledge in ecological perspective and value of environment.

CO2: Understand the significance of various natural resources and its management.

CO3: Demonstrate a comprehensive understanding of the world's biodiversity and the importance of its conservation.

CO4: Categorize different types of pollutions and their control measures. Discover effective methods of waste Management. Analyze global environmental problems and come out with best possible solutions.

CO 5: Understand environmental laws and sustainable development.

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Profess

										ional Ethics (PE)
1	**Introduction to Environmental Studies:** Multidisciplinary nature of environmental studies. Scope and importance; Concept of sustainability and sustainable development **Ecosystems** What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems: a) Forest ecosystem, b) Grassland ecosystem, c) Desert ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) **Natural Resources: Renewable and Non-Renewable Resources:** Land resources and land-use change; Land degradation, soil erosion and desertification. Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Water: Use and over-exploitation of surface and ground water, floods, droughts conflicts over water (international & inter-state). Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.	16	34%								
2	**Biodiversity and Conservation:**	16	34%								

	Levels of biological diversity: Genetic, species and ecosystem diversity Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots. India as a mega-biodiversity nation; Endangered and endemic species of India. Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value. **Environmental Pollution** Environmental pollution: types, causes, effects and controls; Air, water, soil, noise pollution. Nuclear hazards and human health risks Solid waste management, Control measures of urban and industrial waste Pollution case studies.										
3	**Environmental Policies & Practices** Climate change, global warming, ozone layer depletion, acid rain and impacts human communities and agriculture. Environment Laws: Environment Protection Act; Air (Prevention & Control Pollution) Act; Water (Prevention and control of Pollution) Act; Protection Act; Forest Conservation Act. International agreements: Montreal Kyoto protocols and Convention on Biological Diversity (CBD). Nature reserves, tribal populations and rights, and human wildlife conflicts Indian context	13	32%								

Human Communities and the Environment Human population growth: Impacts on environment, human health and welfare Resettlement and rehabilitation of project affected persons; case studies. Disaster management: floods, earthquake, cyclones and landslides. Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan Environmental ethics: Role of Indian and other religions and cultures in environmental conservation Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi). **Field Work** • Visit to a local area to document environmental assets-river/forest/grassland/hill/mountain • Visit to a local polluted site – Urban / Rural / Industrial / Agricultural • Study of common plants, insects, birds • Study of simple ecosystems-pond, river, hill slopes, etc (Field work equal to 5 lecture hours)									

Text Book

1	Textbook for Environmental Studies for Undergraduate Courses of all Branches of Higher Education, Erach Bharucha

Reference Books

1	None

The Maharaja Sayajirao University of Baroda Faculty of Science Department of Computer Applications			Academic Year		2023-2024
Bachelor of Computer Applications (Honours)					
Year	**I**	Value-Added Courses BCAXXXX: Understanding India	**Credits / Hours per week**		**3**
Semester	**I**	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**		**100**
Mode of Transaction		Lectures and Tutorials			

Course Outcomes
CO1: Contemporary India with its historical perspective
CO2: Indian knowledge systems (IKS) and contribution to the world
CO3: India's struggle for freedom

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Professional Ethics (PE)
1	Bharatavarsha: concept and its evolution; Vedic, Epic and	15	34%						

	Puranic traditions and the making of Modern India. Traditional Knowledge System: Gurukuls, Pathsalas, Tols, Maktabs, Madrasas Beginnings of Modern Education: Main features of British Government's educational policies Growth of higher and technical education in India Development of literary traditions: Panini, Kalidasa, Veda Vyasa, Valmiki.								
2	State and Imperial formation: Rise of Janapadas, the Mauryas, the Kushanas, the Guptas, Pallava, Cholas and Vijaynagra Empire. Origin and growth of major religious streams: Vedic, Jainism, Buddhism, Bhakti and Sufism, Brahmo Samaj, Arya Samaj, Religious philosophy of Sri Aurobindo India's struggle for freedom: 1857 as the First War of Independence. Important heroes of Freedom struggle: Birsa Munda, Bhagat Singh, Chanderasheikher Azad, Subash Chandra Bose. Formation of Indian National Congress and contribution of Mahatama Gandhi; Making of Indian constitution and its salient features. Re-emergence of Swadeshi Movement in India; Flagship Programmes: Jan Dhan Yojna; Skill India Mission; Make in India; Atam Nirbar Bharat.	15	33%						
3	India's contribution to the world, Medical Scence: Charaka, Sushruta. Mathematics and Astronomy: Aryabhata, Baudhyana, Brahmagupta, Ramanujam. Physics: Kanad, P. C. Roy, Raman	15	33%						

Text Book	
1	None

Reference Books	
1	A Cultural History of India, A. L. Basham, Oxford University Press
2	A Wonder that was India, A. L. Basham, Rupa
3	An Approach to Indian Art, N. R. Ray, Publication Bureau
4	Marshaling the Past: Ancient India and its Modern Histories, Navanjot Lahiri, Permanent Black
5	History and Culture of Indian People (Relevant Volumes and Chapters), R.C. Majumdar (ed.), Bhartiya Vidya Bhawan
6	History of Education in Modern India, 1758-1986, S. C. Ghosh, Orient Longman

	The Maharaja Sayajirao University of Baroda Faculty of Science Department of Computer Applications	Academic Year	2023-2024

Bachelor of Computer Applications (Honours)

Year	**I**	**Value-Added Courses** **BCAXXXX: Health & Wellness, Yoga** **Education, Sports and Fitness**	**Credits / Hours per week**	**3**
Semester	**I**	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**	**100**
Mode of Transaction		Lectures, Tutorials and Practical		

Course Outcomes

CO1: Understand the basic concept, dimensions and determinants of health and wellness

CO2: Understand the importance of nutrition and balance diet in maintaining healthy lifestyle.

CO3: Know the impact of globalization on health

CO4: Integrate their physical, mental, and spiritual faculties to maintain self-discipline, self- control, to learn handled oneself well in all life situations.

CO5: Understand the concept and importance of yoga education

CO6: Classify yoga and the role of yoga for maintaining physical and mental health and personality development

CO7: Practice different yogic practices.

CO8: Understand the concept of sports and fitness and Describe the role of sports and fitness for personality development

CO9: Differentiate sports in different periods (ancient post-independence and traditional sports

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Develo	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) develop	Relation to Gender (G), Environment and Sustainability (ES), Human

								pment (SD)	mental needs	Values (HV)and Professional Ethics (PE)
1	**Health & Wellness** Concept of health and fitness, dimensions and determinants of health & fitness, Nutrition and Balance diet, Basic Concept of immunity, Relationship between diet & fitness, Globalization and its impact on health, BMI (Body Mask Index) for all age group. **Practicum** • Organization of health awareness programme in community • Preparation of health profile • Preparation of a chart on balance diet	15	34%							
2	**Yoga Education** Concept of Yoga: Meaning, Characteristics, Misconceptions, aims and objectives, need and importance of yoga. Origin and history of yoga in Indian context, classification of yoga: Raja Yoga (Ashtong Yoga). Hatha Yoga, Sankhya Yoga, Bhakti Yoga & Mantra Yoga, Yoga and Health, Yoga for stress management. **Practicum** • Yogic Practices- Asana, Kriya, Mudra, Bandha, Dhyana, Surya Namaskar. • Contemporary Practices: yogic Sukshma Vyayama, Cyclic Meditation (s-vyasa), Mindfulness based stress reduction Technique	15	33%							

	(kabatzin), Mind - Sound Resonance Technique (s-vyasa), Raja Yoga Meditation (Brahmakumaris), Transcendental Meditation (Mahesh yogi), Zen Buddhist Meditation, Yoga Nidra (BSY), Savita Ki Dhyan Dharana (DSVV)									
3	**Sports and Fitness** Concept of Sports and fitness, Aims and objectives, importance of sports and fitness, Fitness components, Difference between games and sports, History of sports, Ancient Greece, Ancient and Modem Olympics, Asian Games and common wealth games, Post- Independence Period- Various Policies, Institutions, SAI Khelo India, Fit India Movement Traditional sports of Jharkhand viz- Khokho, Kabadi, archery, Wrestling hockey, cricket & football, Sports and fitness for personality development **Practicum** • Participation in one major game one individual sports • Practicing general and specific warm-up, Aerobics and Zumba workout. • Practicing cardio Respiratory fitness, Treadmill Argometer, Run Test, 9-minute Walk, Skipping and Running	15	33%							

Text Book

1	None

Reference Books

1	Yoga the path to holistic health, BK. S Iyenger, Dorling Kindersely
2	Health Education and Hygiene, BC Rai, Prakashan Kendra

| 3 | Health and physical education, Puri, K. Chandra, S.S Surjeet Publication | 3 |

The Maharaja Sayajirao University of Baroda Faculty of Science Department of Computer Applications			Academic Year		2023-2024
Bachelor of Computer Applications (Honours)					
Year	I	Value-Added Courses BCAXXXX: First Aid and Emergency Care	Credits / Hours per week		3
Semester	I	Year of Introduction: 2023 Year of Syllabus Revision:	Maximum Marks / Grade		100
Mode of Transaction		Lectures, Tutorials and Practical			

Course Outcomes

CO1: Administering basic life support skills including cardiopulmonary resuscita on

CO2: Providing first aid of simple and multiple system trauma such as Controlling hemorrhage

- Managing Burns and wounds
- Manually stabilizing injured extremities
- Identifying signs of Stroke and heart a ack and safe transfer a er first aid without delay in transfer.
- Manage general medical complaints seizures and animal bites (snake /dog bite)

CO3: Giving emergency care

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)an

										d Professional Ethics (PE)
1	First aid basics: first aid, importance of first aid, first aider, laws of first aid, contents of an ideal first aid kit, dealing with an emergency. First aid in burns: Types of burns, danger of burns, first aid in dry burns and scalds, electrical burns, chemical burns, sunburn, heatstroke.	15	34%							
2	First aid in wounds and injuries: types of wounds- small cuts and abrasions, Head injury- nose bleed, bleeding gums, bleeding from varicose veins, Shocks- causes of shock and its first aid. First aid in poisoning: poisoning by swallowing, gases, injections, skin absorption, Animal bites, snake bites and insect stings.	15	33%							
3	First aid in foreign objects entering the sense organs: foreign body in the eye, ear, nose, skin, swallowing of foreign objects. First aid in drowning, fractures of bones, causes and types of fractures, dislocation. Emergency response: Cardiac Emergencies and Unconscious choking, CPR, steps for performing CPR, CPR for newborns and infants, recovery position	15	33%							

Text Book

1	Indian First Aid Manual, Indian Red Cross Society, Available at: https://www.indianredcross.org/publications/FA-manual.pdf
Reference Books	
1	The authorized manual of St. John Ambulance, St. Andrew's Ambulance association and the British red cross society, First Aid manual, Dorling Kindersley, London
2	American college of emergency physicians, First Aid manual, Dorling Kindersley, London
3	Clement Text book on First Aid & Emergency Nursing, JP brothers
4	Philip Jevon, Emergency care and First Aid for Nurses, A practical guide, Churchill Living Stone

	The Maharaja Sayajirao University of Baroda **Faculty of Science** **Department of Computer Applications**	**Academic Year**		**2023-2024**
	Bachelor of Computer Applications (Honours)			
Year	**I**	**Value-Added Courses** **BCAXXXX: The Constitution of India**	**Credits / Hours per week**	**3**
Semester	**I**	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**	**100**
Mode of Transaction		Lectures and Tutorials		

Course Outcomes

CO1: Understand the meaning and importance of Constitution

CO2: Explain about making of Indian Constitution - contribution of Constituent assembly on it.

CO3: Describe the Salient (Outstanding) features of Indian Constitution.

CO4: Describe the importance of Preamble of the Indian Constitution and its significance.

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employ ability (Emp)/ Entrepr eneursh ip (Ent)/ Skill Develo pment (SD)	Releva nce to Local (L)/ Nationa l (N)/ Region al(R)/G lobal (G) develop mental needs	Relatio n to Gender (G), Enviro nment and Sustain ability (ES), Human Values (HV)an d Profess ional Ethics (PE)

1	**Indian Constitution: Making and basic premise** Meaning and Significance of Constitution. Constituent Assembly- Composition, Objectives Preamble and Salient features of the Indian Constitution. Fundamental Rights, Fundamental Duties. Directive Principles	15	34%						
2	**Union and State Government** President of India- Election, Powers and functions Prime Minister and Cabinet – Structure and functions Governor- Powers and functions Chief Minister and Council of Ministers – Functions.	15	33%						
3	**Legislature and Judiciary** Parliament – Lok Sabha and Rajya Sabha – Composition and powers State Legislative Assembly and Legislative Council – Composition and powers Judicial System in India – Structure and features Supreme Court and High Court: Composition, Jurisdiction. **Governance and Constitution** Federalism in India - Features Local Government -Panchayats –Powers and functions; 73rd and 74th amendments Election Commission – Composition, Powers and Functions; Electoral Reforms Citizen oriented measures – RTI and PIL – Provisions and significance.	15	33%						

Text Book

1	Constitution of India available at https://legislative.gov.in/constitution-of-india/

Reference Books

1	Durga Das Basu,Introduction to the Constitution of India, Gurgaon; LexisNexis
2	M.V. Pylee, India's Constitution,New Delhi; S.Chand Pub
3	J.N.Pandey, The Constitutional Law of India, Allahabad; Central Law Agency
4	K B Merunandan, Bharatada Samvidhana Ondu Parichaya, Bangalore, Meragu Publications,
5	K.Sharma, Introduction to the Constitution of India, Prentice Hall of India, New Delhi,
6	P.M Bakshi, Constitution of India, Universal Law Publishing House, New Delhi

SEMESTER-II

	The Maharaja Sayajirao University of Baroda **Faculty of Science** **Department of Computer Applications**	Academic Year	2023-2024

| **Bachelor of Computer Applications (Honours)** ||||

Year	I	**Core / Elective / Foundation** **BCAXXXX: Programming with C and C++**	**Credits / Hours per week**	**4**
Semester	**II**	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**	**100**
Mode of Transaction		Lectures and Tutorials		

Course Outcomes

CO1: Ability to program in C and C++

CO2: Ability to work with arrays of complex objects.

CO3: Understanding a concept of object-oriented thinking and program design.

CO4: Understanding a concept of functional hierarchical code organization.

CO5: Ability to handle possible errors during program execution.

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Professional

										Ethics (PE)
1	Introduction to C, Tokens, Keywords, Data Types, Operators and Expressions, Decision and Looping Constructs, Arrays and Strings	15	25%							
2	Pointers, Functions, Structures, Unions, Enumerations, and User-Defined Types, Console I/O, File I/O, The Pre-processor, Command Line Arguments	15	25%							
3	An Overview of C++, Classes and Objects, Arrays, Pointers, References and the Dynamic Allocation Operators	15	25%							
4	Function Overloading, Copy Constructors, and Default Arguments, Operator Overloading, Inheritance, Virtual Functions and Polymorphism, Templates, Exception Handling, C++ I/O System Basics, C++ File I/O	15	25%							

Text Book

1	C++: The Complete Reference, Herb Schildt, Tata McGraw Hill

Reference Books

1	Programming in ANSI C, E Balagurusamy, Tata McGraw Hill
2	The C Programming Language, W. Kernighan and Dennis M. Ritchie, Pearson
3	Let Us C, Yashavant Kanetkar, BPB Publications
4	C++ Primer Plus. Stephen Prata, Pearson
5	Object-Oriented Programming with C++, E Balagurusamy, Tata McGraw Hill
6	The C++ Programming Language, Bjarne Stroustrup, Addison-Wesley

Web Resources

1	https://cplusplus.com/doc/tutorial/

	The Maharaja Sayajirao University of Baroda **Faculty of Science** **Department of Computer Applications**	**Academic Year**		**2023-2024**
	Bachelor of Computer Applications (Honours)			
Year	**I**	**Core** **BCAXXXX: Computer Organization and Architecture**	**Credits / Hours per week**	**3**
Semester	**II**	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**	**100**
Mode of Transaction		Lectures and Tutorials		

Course Outcomes

CO1: Manipulate representations of numbers stored in digital computers
CO2: Understand the basics of instructions sets and their impact on processor design
CO3: Demonstrate an understanding of the design of the functional units of a digital computer system.
CO4: Evaluate cost performance and design trade-offs in designing and constructing a computer processor including memory.
CO5: Design a pipeline for consistent execution of instructions with minimum hazards

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Professional

										Ethics (PE)
1	Evolution of computers, stored program concept and Von Neumann architecture Arithmetic Micro Operations, Logic Micro-Operations, Shift Micro-Operations, Arithmetic logical shift unit, Processors, Arithmetic Algorithms: Addition and subtraction with 2's complement numbers, integer multiplication using shift and Add, Booth's algorithm, Floating point representations and Arithmetic Algorithm.	15	33%							
2	Basic Computer Organization and Design - Instruction codes, Computer registers, Computer instructions, Timing and Control, Instruction cycle, Memory-Reference Instructions, Input-output and interrupt, Design of Basic computer, Design of Accumulator Unit. Central Processing Unit - Introduction, General Register Organization, Stack Organization, Instruction format, Addressing Modes, Data transfer and manipulation ,Program Control, Reduced Instruction Set Computer(RISC).	15	34%							
3	Pipeline And Vector Processing - Flynn's taxonomy, Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction, Pipeline, RISC Pipeline, Vector Processing, Array I/O organization – Polling/ Interrupt driven I/O and I/O processors. Memory organization- Static and dynamic RAM, associative memory, organization of cache memory and virtual memory	15	33%							

Text Book	
1	Computer System Architecture, M. Morris Mano, Pearson Education
2	Computer Organization and Architecture: Designing for Performance, William Stallings, Pearson
Reference Books	
1	Computer Organization and Design: The Hardware/software Interface, David A Patterson and John L. Hennessy, Morgan Kaufmann
2	Computer Architecture: A Quantitative Approach, David A Patterson and John L. Hennessy, Morgan Kaufmann
3	Computer Organization and Architecture, Hamacher, Vranesic, Zaky, Tata McGraw Hill

	The Maharaja Sayajirao University of Baroda Faculty of Science Department of Computer Applications	Academic Year		2023-2024
	Bachelor of Computer Applications (Honours)			

Year	I	**Core / Elective / Foundation BCAXXXX: Database Management Systems**	**Credits / Hours per week**	3
Semester	**II**	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**	100
Mode of Transaction		Lectures and Tutorials		

Course Outcomes

CO1: To Understand the basic concepts and the applications of database systems
CO2: To Master the basics of SQL and construct queries using SQL
CO3: To understand the relational database design principles
CO4: To become familiar with the basic issues of transaction processing and concurrency control
CO5: To become familiar with database storage structures and access techniques

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Professional

										Ethics (PE)
1	**Overview of Database management System:** Data, Information and Knowledge. Data processing versus Data Management. File Oriented Approach versus Database Oriented Approach to Data Management. Data Independence Database Administrative Roles. DBMS Architecture. Different kinds of DBMS Users. Data Dictionary. Types of Database Languages. Data Models Different Types of Databases.	15	33%							
2	**Relation Model** Definition of Relation, Properties of Relational Model (Codd's 12 Rules or Equivalent), Concepts of Keys: Candidate Key, Primary Key, Alternate Key, Foreign Key. Fundamental Integrity Rules: Entity Integrity, Referential Integrity. Relational Algebra operations: Select, Project, Cross – Product, Different Types of Joins (theta join, Equijoin, Natural Join, Outer Join); Set Operations. Functional Dependency Relational algebra: Simple and Complex Queries using Relational Algebra, tuple calculus Entity – Relationship Model as a Tool for Conceptual Design. ER Diagram: Symbols, entities, entity sets, relationship, types, attributes, examples Converting an ER model into Relational Scheme. Normalization Concept:1NF, 2NF, 3NF, BCNF	15	33%							
3	**SQL and PL/SQL**	15	34%							

Basics of SQL, DDL, DML, DCL, structure – creation, alteration defining constraints – Primary key, foreign key, unique, not null, check, IN operator, aggregate functions, Built-in functions –numeric, date, string functions, set operations, sub-queries, correlated sub-queries, joins Transaction control commands. Introduction to PL/SQL, Cursors, Stored Procedures, Stored Function, Database Triggers **Transaction processing and concurrency control:** Concurrency control, ACID property, Serializability of scheduling, Locking and timestamp-based schedulers, multi-version and optimistic Concurrency Control schemes, Database recovery.	

Text Book

1	Database System Concepts, Abraham Silberschatz, Henry F. Korth, K.Sudarshan, McGraw Hill
2	SQL, PL/SQL the Programming Language of Oracle by Ivan Bayross , BPB Publication

Reference Books

1	Database Management Systems, Raghurama Krishnan, Johannes Gehrke, Tata McGraw Hill
2	An Introduction to Database systems, C.J. Date, A.Kannan, S.Swami Nadhan, Pearson,
3	Fundamentals of Database Systems, Elmasri Navathe, Pearson Education.
4	Introduction to Oracle 9i:SQL Volume 1,2 & 3, Nancy Greenberg and Priya Nathan, Oracle Press

	The Maharaja Sayajirao University of Baroda **Faculty of Science** **Department of Computer Applications**	Academic Year	2023-2024

Bachelor of Computer Applications (Honours)

Year	**I**	**Core / Elective / Foundation** **BCAXXXX**: **Discrete Mathematical Structures**	**Credits / Hours per week**	**3**
Semester	**II**	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**	**100**
Mode of Transaction		Lectures and Tutorials		

Course Outcomes

CO1: Construct mathematical arguments using logical connectives and quantifiers and verify the correctness of an argument using propositional and predicate logic and truth tables.

CO2: Solve problems involving recurrence relations and generating functions.

CO3: Perform operations on discrete structures such as sets, functions, relations and sequence

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Professional Ethics

											(PE)
1	**Mathematical Logic:** Propositions, Logical connectivity, Truth tables, Propositional form, Logical equivalence tautology and contradiction, Logical implication and equivalence, Algebra of propositions, Predicate calculus, Rules of inference, methods of proof. **Set, Relations and Functions:** Set Theory, Definition and type of relations, Equivalence relation and equivalence classes, Congruence relation **Ordered Sets and Lattices**	15	33								
2	**Algebraic Structures:** Elementary idea of Algebraic structures such as rings, integral domains, Fields, Vector spaces Definition and examples of semigroups, Monoids, Groups, **Recurrence Relation:** Introduction, Recursion, Recurrence Relation, Solving, Recurrence Relation	15	34								
3	**Graphs:** Introduction, Definition, Multigraphs, Subgraphs, Isomorphic and Homoeomorphic Graphs Paths, Connectivity, Traversable and Eulerian Graphs, Bridges of Königsberg, Labelled and Weighted Graphs, Complete, Regular, and Bipartite Graphs, Tree Graphs, Planar Graphs, Graph Colourings Representing Graphs in Computer Memory, Graph Algorithms	15	33								

Text Book

1	Discrete Mathematics and Its Applications – Kenneth H. Rosen, McGraw-Hill

Reference Books

1	Discrete Mathematical Structures with Application to Computer Science – Jean Paul Trembley and R Manohar, McGraw-Hill Publications
2	Schaum's Outline of Theory and Problems of Discrete Mathematics, S. Lipschutz and M. L. Lipson, Tata McGraw Hill
3	A Textbook of Discrete Mathematics, Swapan Kumar Sarkar , S Chand

	The Maharaja Sayajirao University of Baroda **Faculty of Science** **Department of Computer Applications**	Academic Year	**2023-2024**

	Bachelor of Computer Applications (Honours)

Year	**I**	**Core / Elective / Foundation** **BCAXXXX: Personality Development and Soft Sills Lab**	**Credits / Hours per week**	**2/4**
Semester	**II**	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**	**100**
Mode of Transaction		Lectures and Tutorials		

Course Outcomes

CO1: To get acquainted with the art of public speaking, To know the rhetoric of making a public speech, Exploring rhetorical elements through various videos.

CO2: To learn the skill of presentation, How to prepare the presentation, Knowing the audience and their requirements, Effective ways to deliver the presentation, How to prepare the multi-media presentation.

CO3: To learn the manners during professional meetings over lunch/dinner, Basics of the table manner.

CO4: To know the nature of the team, To understand personal as well as professional goals of the members of the group, To work effectively in a team through building relation and interpersonal communication

CO5: To understand what is negotiation, Ways of negotiating and being successful in it, To understand the power of language and non-verbal communication.

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Develo	Relevance to Local (L)/ National (N)/ Regional(R)/G lobal (G) develop	Relation to Gender (G), Environment and Sustainability (ES), Human

								pment (SD)	mental needs	Values (HV)and Professional Ethics (PE)
1	Team Building, Art of Negotiation, Dress for Success, Table Manners, Organizing Meetings, Stress Management, Telephone etiquettes	30	50%							
2	Time Management, Presentation Skills, Organizational Skills, Group Discussion, Personal Interviews, Public Speaking	30	50%							

Text Book

1	Soft Skills and Professional Communication, Peter, Francis. Tata McGraw Hill.

Reference Books

1	Effective Communication and Soft Skills. Nitin Bhatnagar. Pearson Education
2	The Hard Truth about Soft Skills. Peggy Klaus
3	Developing Soft Skills, Sherfield, R. M. ; Montgomery, R.J. and Moody, P, G. Pearson.
4	The Definitive Book of Body Language, Pease, Allan and Peas, Barbara. Random House

	The Maharaja Sayajirao University of Baroda Faculty of Science Department of Computer Applications	Academic Year	2023-2024
	Bachelor of Computer Applications (Honours)		

Year	I	**Value-Added Courses** **BCAXXXX: Introduction to Financial Accounting**	**Credits / Hours per week**	**3**
Semester	II	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**	**100**
Mode of Transaction		Lectures and Tutorials		

Course Outcomes

CO1: To help for preparing financial statements in accordance with appropriate standards.

CO2: To interpret the business implications of financial statement information.

CO3: To Employ critical thinking skills to analyze financial data as well as the effects of differing financial accounting methods on the financial statements.

CO4: To make the student to understand Cash Flows, Ratio Analysis

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Professional

										Ethics (PE)
1	Introduction to accounting: Definition, Meaning, Need, Advantages, Disadvantages, Branches of Accounting, Accounts- Types of Accounts Accounting Concepts & Conventios. Preparation of Journal: Rules of Debit and Credit, Transactions, Types of Transaction, Journalizing the transaction-passing the entry Preparation of Subsidiary books Preparation of Ledger, Trial balance. Balance Sheet etc	15	34%								
2	Final accounts of Sole proprietorship concern: Preparation of Trading Account, Profits and loss account and Balance sheet Introduction to partnership Accounts: Definition of Partnership, Partners, Types of Partners, Partnership deed-written/oral, Preparation of Final accounts of Partnership firm (Trading Account- Profit and loss account- Profit and loss appropriation account and Balance sheet)	15	33%								
3	Financial Statement Analysis – Calculation of Profitability, Liquidity ratios and solvency ratios Accounting in Computerized Environment, Introduction to Tally, Using Tally for Financial Accounting. Cost Concepts, Meaning of Cost, Costing, Cost Accounting, Types of Cost, Preparation of Cost sheet Marginal costing and Decision making	15	33%								

	Cash Flows, Ratio Analysis								

Text Book

1	None

Reference Books

1	Financial Accounting, S.N. Maheshwari, Vikas Publishing House
2	Advanced Accounting Vol- I and Vol-II, R. L. Gupta & M. Radhaswamy, S. Chand Publication
3	Financial Accounting, P. C. Tulsian, Pearson
4	Cost Accounting, M. N. Arora, Vikas Publishing House
5	Cost Accounting, S. P. Jain and K. L. Narang, Kalyani Publishers

The Maharaja Sayajirao University of Baroda **Faculty of Science** **Department of Computer Applications**			**Academic Year**		**2023-2024**

(logo at left: "THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA", "सत्यं शिवं सुन्दरम्")

Bachelor of Computer Applications (Honours)					
Year	**I**	**Value-Added Courses** **BCAXXXX: Disaster Management**	**Credits / Hours per week**		**3**
Semester	**II**	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**		**100**
Mode of Transaction		Lectures and Tutorials			

Course Outcomes

CO1: Learn to demonstrate a critical understanding of key concepts in disaster risk reduction and humanitarian response

CO2: Critically evaluate disaster risk reduction and humanitarian response policy and practice from multiple perspectives.

CO3: Develop an understanding of standards of humanitarian response and practical relevance in specific types of disasters and conflict situations

CO4: Critically understand the strengths and weaknesses of disaster management approaches, planning and programming in different countries

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Professional Ethics (PE)

1	**Introduction** Disaster: Definition, Factors And Significance; Difference Between Hazard And Disaster; Natural And Manmade Disasters: Difference, Nature, Types And Magnitude. **Repercussions Of Disasters And Hazards:** Economic Damage, Loss Of Human And Animal Life, Destruction Of Ecosystem. Natural Disasters: Earthquakes, Volcanisms, Cyclones, Tsunamis, Floods, Droughts And Famines, Landslides And Avalanches, Man-made disaster: Nuclear Reactor Meltdown, Industrial Accidents, Oil Slicks And Spills, Outbreaks Of Disease And Epidemics, War And Conflicts	15	34%						
2	**Disaster Prone Areas In India** Study Of Seismic Zones; Areas Prone To Floods And Droughts, Landslides And Avalanches; Areas Prone To Cyclonic And Coastal Hazards With Special Reference To Tsunami; Post-Disaster Diseases And Epidemics **Disaster Preparedness And Management** Preparedness: Monitoring Of Phenomena Triggering A Disaster Or Hazard; Evaluation Of Risk: Application Of Remote Sensing, Data From Meteorological And Other Agencies, Media Reports: Governmental And Community Preparedness	15	33%						
3	**Risk Assessment** Disaster Risk: Concept And Elements, Disaster Risk Reduction, Global And National Disaster Risk Situation. Techniques Of Risk Assessment, Global Co-Operation In Risk Assessment And Warning, People's Participation In Risk Assessment. Strategies for Survival. **Disaster Mitigation** Meaning, Concept And Strategies Of Disaster Mitigation,	15	33%						

	Emerging Trends In Mitigation. Structural Mitigation And Non-Structural Mitigation, Programs Of Disaster Mitigation In India.								

Text Book

1	None

Reference Books

1	Disaster Management, Dr. Mrinalini Pandey, Wiley India Pvt. Ltd.
2	Disaster Science and Management, Tushar Bhattacharya, McGraw Hill Education (India) Pvt. Ltd.
3	Disaster Management: Future Challenges and Opportunities, Jagbir Singh, K W Publishers Pvt. Ltd.
4	Disaster Management. P. Singhal , Laxmi Publications.

	The Maharaja Sayajirao University of Baroda Faculty of Science Department of Computer Applications	Academic Year	2023-2024

Bachelor of Computer Applications (Honours)			
Year	I	Value-Added Courses BCAXXXX: Introduction to Psychology	Credits / Hours per week	3
Semester	II	Year of Introduction: 2023 Year of Syllabus Revision:	Maximum Marks / Grade	100
Mode of Transaction		Lectures and Tutorials		

Course Outcomes

CO1: To provide an information into the field of psychology methods and applications.
CO2: To make the student understand the psychological processes involved in attention and perception.
CO3: To make the student to explore the human motivation
CO4: To make the student to understand human emotion, human intelligence.

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Professional Ethics

											(PE)
1	**INTRODUCTION & METHODS OF PSYCHOLOGY** Definition and goals of Psychology, Psychology as a Science; Historical roots of Psychology Branches of Psychology : Clinical, Counselling, Organizational and Industrial Psychology, Educational and School Psychology, Social Psychology, Cognitive Psychology, Experimental Psychology, Physiological Psychology, Developmental Psychology, Psychometrics, Community Psychology, Positive Psychology, Health Psychology Methods in Psychology : Observation Method, Experimental method, Survey method Psychological tests, Case study method, Correlation method	15	34%								
2	**EMOTION AND MOTIVATION** Emotion: Definition of Emotion, Basic Emotions; Happiness, Fear, Anxiety, Aggression Three elements of emotions: Physiology, Behavioural and Subjective experience Theories of Emotion, Facial feedback hypothesis, Lazarus theory of emotion Motivation: Nature and definition; Motivational cycle; Maslow's Theory of Need Hierarchy; Measurement of Motivation; Frustration of motives and conflict: Basic approaches to Motivation; Primary and Social Motives	15	33%								
3	**ATTENTION AND PERCEPTION** Attention: Nature and definition of attention, Kinds of attention, Selective and sustained attention Perception: Organization Principles: Figure-Ground Grouping; perceptual constancies Shape, Size, Colour and Brightness; Depth perception: Monocular and binocular cues Illusions; Camouflage;	15	33%								

	Apparent Movement – Types of Apparent Movement; Factors affecting perception **INTELLIGENCE** Nature and definition of Intelligence, Theories of Intelligence, Assessment of Intelligence Uses of Intelligence Test Determinants of Intelligence, Individual difference in Intelligence: Giftedness and Mental Retardation Social Intelligence, Emotional Intelligence								

Text Book

1	None

Reference Books

1	Psychology, Baron, R .A., Pearson Education Pvt. Ltd.
2	Introduction to Psychology, Morgan, C.T., King, R. A., Weisz, J. R., Schopler, J, Tata McGraw Hill
3	A Brief Introduction to Psychology, Morgan, C. T., Tata McGraw Hill
4	Psychology: The study of Human Behaviour, Mishra B. K, PHI learning
5	Psychology, Ciccarelli, S. K. & Meyer, G. E, Pearson Education

The Maharaja Sayajirao University of Baroda **Faculty of Science** **Department of Computer Applications**	**Academic Year**		**2023-2024**
Bachelor of Computer Applications (Honours)			

Year	**I**	**Value-Added Courses** **BCAXXXX: Cyber Law and Ethics**	**Credits / Hours per week**		**3**
Semester	**II**	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**		**100**
Mode of Transaction		Lectures and Tutorials			

Course Outcomes
CO 1: To provide an exposure to various types of crimes in cyber world.
CO 2: Demonstrate a critical understanding of the Cyber law with respect to Indian IT/Act 2008
CO 3: To develop good ideas of the legal and practical aspects of their profession

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Professional Ethics (PE)
1	Introduction Computers and its Impact in Society, Overview	15	34%						

	of Computer and Web Technology, Cyber World, Need for Cyber Law, Cyber Jurisprudence at International and Indian Level Distinction between Cyber Crime and Conventional Crime Cyber Criminals and their Objectives Kinds of Cyber Crime- Hacking, Digital Forgery, Cyber Stalking / Harassment; cyber pornography; Identity Theft , forgery and fraud; Cyber Defamation. Overview of General Laws and Procedures in India Introduction to Indian Cyber Law								
2	Digital Signatures - technical issues Digital Signatures - legal issues Electronic Contracts Overview of Intellectual Property related Legislation Computer Software and related IPR Issues Copyright law & Cyberspace Trademark law & Cyberspace Law relating to Semiconductor Layout & Design Penalties & Offences under the IT Act, 2000 Offences under the Indian Penal Code, 1860 Investigation and adjudication of cyber crimes Digital evidence Pornography Act and Evidence Act etc.	15	33%						
3	**Ethics** Definition of Ethics, Professional Ethics, Business Ethics, Corporate Ethics, Engineering Ethics, Personal Ethics; Code of Ethics as defined in the website of Institution of Engineers (India); Profession, Professionalism, Professional Responsibility, Professional Ethics; Conflict of Interest, Gift Vs Bribery, Environmental breaches, Negligence, Deficiencies in state-of-the-art; Vigil	15	33%						

	Mechanism, Whistleblowing, protected disclosures.								

Text Book

1	Cyber law –The Indian perspective, Pavan Duggal

Reference Books

1	Chris Reed & John Angel, Computer Law, OUP, New York.
2	Justice Yatindra Singh, Cyber Laws, Universal Law Publishing Co, New Delhi.
3	Verma S, K, Mittal Raman, Legal Dimensions of Cyber Space, Indian Law Institute.
4	Jonthan Rosenoer, Cyber Law, Springer, New York.
5	Sudhir Naib, The Information Technology Act, 2005: A Handbook, OUP, New York.
6	S. R. Bhansali, Information Technology Act, 2000, University Book House Pvt. Ltd.

The Maharaja Sayajirao University of Baroda Faculty of Science Department of Computer Applications	Academic Year	2023-2024

Bachelor of Computer Applications (Honours)				
Year	**I**	**Value-Added Courses** **BCAXXXX: Managerial Economics**	**Credits / Hours per week**	**3**
Semester	**II**	Year of Introduction: 2023 Year of Syllabus Revision:	**Maximum Marks / Grade**	**100**
Mode of Transaction	Lectures and Tutorials			

Course Outcomes

CO1: To apply the mixture of the various economic concepts in solving business problems for business efficiency to make the best use of the resources in hand.

CO2: To analyze and evaluate the effect of demand and supply on market dynamics and to apply concepts of price, cross, and income elasticity in business to take correct decisions and create new ideas for the future growth of the company

CO3: To analyze, demonstrate and take decisions with the help of various tools and concepts to maximize the production at limited or minimum cost and resources available with the company.

CO4: To analyze evaluate create different pricing policies and apply those pricing decisions in dynamic and different types of market conditions. To judge and improve the management approach as a top-level manager for the optimum growth of the organization.

Unit No.	Topic/Unit	Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/ Entrepreneurship (Ent)/ Skill Development (SD)	Relevance to Local (L)/ National (N)/ Regional(R)/Global (G) developmental needs	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and

										Professional Ethics (PE)
1	Introduction: The Fundamentals of Managerial Economics Market Forces: Demand and Supply Demand and Elasticities	15	34%							
2	Production and Costs Firms vs Markets Managing in Competitive and Monopolistic Markets Managing in Oligopolistic Markets	15	33%							
3	Strategic Interactions and Game Theory Pricing with Market Power Incentives, Information and Market Structure Regulation and Public Policy.	15	33%							

Text Book

1	Managerial Economics, Ivan Png, Routledge

Reference Books

1	Managerial Economics: Theory, Applications, and Cases, W. Bruce Allen, Neil A. Doherty, Keith Weigelt and Edwin Masfield, W.W. Norton & Company, Ltd
2	Managerial Economics and Business Strategy, Michael R. Baye, McGraw-Hill
3	Managerial Economics, H. L. Ahuja, S Chand Publishing