PHP and SQL		Semester	IV
Course Code	BBCA401	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:0:2	SEE Marks	50
Total Hours of Pedagogy	28 Hours of Theory + 20 Hours of Practical	Total Marks	100
Credits	04	Exam Hours	03
Type of the Corse	Theory + Practical		

Course objectives:

- Understand the fundamentals of PHP programming, including variables, operators, constants, and data types.
- Develop program logic using conditional statements, loops, and string manipulation techniques.
- Implement array handling and date/time functions for efficient data processing in PHP.
- Design reusable code components using functions and object-oriented programming principles, and perform file/directory operations.
- Integrate PHP with databases (MySQL, SQLite) to store, retrieve, and manipulate data securely using SQL and PHP database extensions.

Module-1

Introducing PHP: Basic development Concepts, Creating first PHP Scripts, Using Variable and Operators, Storing Data in variable, Understanding Data type, Setting and Checking variables, Data types, Using Constant, Manipulating Variables with Operators, Handling Form Input.

Module-2

Controlling Program Flow: Writing Simple Conditional Statements, Writing More Complex Conditional Statements, Repeating Action with Loops, Working with String and Numeric Functions.

Module-3

Working with Arrays: Storing Data in Arrays, Processing Arrays with Loops and Iterations, Using Arrays with Forms, Working with Array Functions, Working with Dates and Times.

Module-4

Functions and Classes: Creating User-Defined Functions, Creating Classes, Using Advanced OOP Concepts.
Working with Files and Directories: Reading Files, Reading Local Files, Reading Remote Files, Reading Specific Segments of a File, Writing Files, Reading and Writing Configuration Files, Processing Directories, Performing Other File and Directory Operations, Creating a Photo Gallery

Module-5

Working with Databases and SQL: Introducing Databases and SQL, Understanding Databases, Records, and Primary Keys, Understanding Relationships and Foreign Keys, Understanding SQL Statements, Using PHP's MySQLi Extension, Retrieving Data, Adding or Modifying Data, Handling Errors, Using PHP's SQLite Extension, Introducing SQLite, Retrieving Data, Adding or Modifying Data, Handling Errors, Using PHP's PDO Extension, Retrieving Data, Adding and Modifying Data, Handling Errors, Using a MySQL Database.

Teaching Methodology: Chalk and talk method / PowerPoint Presentation.

Course outcome (Course Skill Set)

At the end of the course, the student will be able to :

- **CO 1.** Write and execute PHP scripts that demonstrate variable handling, operators, and constants effectively.
- **CO 2.** Apply control structures such as loops and conditional statements to solve programming problems.
- **CO 3.** Manipulate arrays and process date/time data using built-in PHP functions.
- **CO 4.** Create user-defined functions, classes, and perform advanced OOP and file-handling operations for real-world applications.
- **CO 5.** Build dynamic database-driven applications by integrating PHP with SQL using MySQLi, PDO, or SQLite extensions.

Suggested Learning Resources:

Textbooks:

1. PHP A Beginner‟s Guide, VIKRAM VASWANI,Tata McGraw-Hill, 2008.

Reference Books

1. The PHP Complete Reference, Steven Holzner –Tata McGraw-HillEdition,2010
2. Spring into PHP5, Steven Holzer, Tata McCraw HillEdition,2005

Web links and Video Lectures (e-Resources):
• https://www.phptutorial.net/ • https://spoken-tutorial.org/ (PHP and MySQL)
Practical content for IPCC
The following programs are in-line with the theory syllabus and prescribed textbook shall be referred: 1. Develop a PHP program to convert Dollar into Rupee. 2. Develop a PHP program to test odd and even number. 3. Develop a PHP program to assign the the scouts to tents based on their age. 4. Develop a PHP program to calculate factorial of a number. 5. Develop a PHP program to display count of distinction and failed students in a subject. 6. Develop a PHP program to enter your date of birth and calculate how old you are today, in years and months. 7. Develop a PHP program to calculate GCF and LCM. 8. Develop a PHP program to demonstrate constructors and destructors. 9. Develop a PHP program to copy a file without using built-in function. 10. Develop a PHP code to read the values entered into the form using the MySQL database.

Design and Analysis of Algorithms		Semester	IV
Course Code	BBCA402	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0	SEE Marks	50
Total Hours of Pedagogy	40 Hrs	Total Marks	100
Credits	03	Exam Hours	03

Course objectives:

- To introduce students to the fundamental concepts of algorithms and their performance analysis.
- To teach students how to solve problems using the Divide and Conquer strategy.
- To develop students' ability to apply the Greedy Method for optimization problems.
- To enable students to use Dynamic Programming techniques for problem-solving.
- To teach basic traversal techniques and problem-solving using Backtracking.

Module-1

INTRODUCTION: Algorithm, Pseudo code for expressing algorithms, Performance Analysis-Space complexity, Timecomplexity, Asymptotic Notation, Big oh notation, Omega notation, Theta notation.

Module-2

DIVIDE AND CONQUER: General method, applications-Binary search, Quick sort, Strassen‟s Matrix multiplication,Finding Max Min, Selection sort

Module-3

GREEDY METHOD: General method, applications-Job sequencing with deadlines, Knapsack problem, Single sourceshortest path, Minimum cost spanning trees, Optimal storage on tapes.

Module-4

DYNAMIC PROGRAMMING: General method, applications- Multistage graph, All pairs shortest path problem, Travelling sales person problem.

Module-5

Basic Traversal and Search Techniques: Binary search tree, techniques for binary trees, techniques for graphs, connected components and spanning trees

BACKTRACKING: General method, applications- N-queen problem, sum of subsets problem, Hamiltonian cycles.

Course outcome (Course Skill Set)

At the end of the course, the student will be able to :

CO 1. Understand and analyze the performance of algorithms using asymptotic notations.
CO 2. Apply the divide and conquer method to solve computational problems efficiently.
CO 3. Design and apply greedy algorithms for optimization problems.
CO 4. Develop dynamic programming solutions for complex multi-stage problems.
CO 5. Implement traversal techniques and solve constraint satisfaction problems using backtracking.

Teaching Methodology: Chalk and talk method / PowerPoint Presentation.

Suggested Learning Resources:

Books

1. Ellis Horowitz, SatrajSahni and Rajasekharan, Fundamentals of Computer Algorithms,2nd Edition, University Press,2008
2. M. T. Goodrich and R. Tomassia, Algorithm Design Foundations, Analysis and Internet examples, 1st Edition,John wiley and Sons,2006.

Web links and Video Lectures (e-Resources):

- https://www.youtube.com/watch?v=gY0MwGLq9W8&list=PLyqSpQzTE6M9DKhN7z2fOpKTJWu-639_P

Introduction to Data Analytics using Python		Semester	IV
Course Code	BBCA403	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0	SEE Marks	50
Total Hours of Pedagogy	40 Hrs	Total Marks	100
Credits	03	Exam Hours	03

Course objectives:

- To introduce the **data analytics lifecycle** and equip students with a foundational understanding of Python as a tool for data analysis.
- To develop proficiency in using **Python data structures** such as strings, lists, sets, tuples, and dictionaries for managing and processing data.
- To enable students to apply **NumPy** and **pandas** libraries for numerical computation, data manipulation, statistical analysis, and handling missing data.
- To teach techniques for **loading, storing, and transforming data** from various sources, including files, databases, and web APIs, along with string manipulation and data wrangling.
- To equip students with the ability to **visualize and summarize data** through charts, plots, and grouped operations using libraries like **matplotlib** and **pandas.**

Module-1

Introduction to Data Analytics: Life Cycle, Discovery, Data Preparation, Model Planning, Model Building, Communicate Results, Operationalize.
Data Analytics using Python: Python for Data Analysis, Python as Glue, Solving the "Two-Language" Problem, Essential Python Libraries, Installation and Setup, Integrated Development Environments (IDEs).

Module-2

Python Data Structures: Strings- Creating and Storing Strings, Basic String Operations, Accessing Characters in String by Index Number, String Slicing and Joining, String Methods, Formatting Strings, Lists-Creating Lists, Basic List Operations, Indexing and Slicing in Lists, Built-In Functions Used on Lists, List Methods. Sets, Tuples and Dictionaries.

Module-3

NumPy Basics: The NumPyndarray, Universal Functions, Data Processing Using Arrays, File Input and Output with Arrays, Linear Algebra, Random Number Generation.
Pandas: Introduction to pandas Data Structures, Essential Functionality, Summarizing and Computing Descriptive Statistics, Handling Missing Data, Hierarchical Indexing

Module-4

Data Loading, Storage, and File Formats: Reading and Writing Data in Text Format, Binary Data Formats, Interacting with HTML and Web APIs, Interacting with Databases,
Data Wrangling: Combining and Merging Data Sets, Reshaping and Pivoting, Data Transformation, String Manipulation

Module-5

Plotting and Visualization: A Brief matplotlib API Primer, Figures and Subplots, Plotting Functions in pandas, Plotting Maps
Data Aggregation and Group Operations: GroupBy Mechanics, Data Aggregation, Group-wise Operations and Transformations, Pivot Tables and Cross-Tabulation

Teaching Methodology: Chalk and talk method / PowerPoint Presentation.

Course outcome (Course Skill Set)

At the end of the course, the student will be able to :

- **CO 1.** Explain the data analytics lifecycle and use Python programming as a tool for data analysis
- **CO 2.** Apply basic Python data structures such as strings, lists, sets, tuples, and dictionaries for efficient data handling and manipulation.
- **CO 3.** Implement data analysis techniques using NumPy and pandas libraries for data processing, array operations, descriptive statistics, and handling missing data.
- **CO 4.** Perform data loading, storage, file handling, web API interaction, and apply data wrangling techniques such as combining, reshaping, and transforming datasets.
- **CO 5.** Create effective data visualizations using matplotlib and pandas, and perform data aggregation and group operations like pivot tables and cross-tabulation.

Suggested Learning Resources:

Books

1. Python for Data Analytics, Wes McKinney, O'Reilly, ISBN: 978-1-449-31979-3

Web links and Video Lectures (e-Resources):

- https://www.youtube.com/watch?v=4SJ7bEILPJk&list=PLLy_2iUCG87CNafffzNZPVa9rW-QmOmEv

Software Engineering		Semester	IV
Course Code	BBCA404	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0	SEE Marks	50
Total Hours of Pedagogy	40 Hrs	Total Marks	100
Credits	03	Exam Hours	03

Course objectives:

- To provide a comprehensive understanding of software engineering fundamentals and software processes.
- To equip students with the ability to design software systems using modeling techniques and object-oriented principles.
- To impart knowledge of software testing methodologies and the software evolution process.
- To develop skills in project planning, scheduling, estimation, and quality management in software development.
- To introduce students to Agile software development practices and how to manage Agile projects.

Module-1

Introduction: Software Crisis, Need for Software Engineering. Professional Software Development, Software Engineering Ethics.
Software Processes: Models: Waterfall Model, Incremental Model and Spiral Model
Requirements Engineering: Requirements Engineering Processes. Requirements Elicitation and Analysis. Functional and non-functional requirements. The software Requirements Document. Requirements Specification.

Module-2

System Models: Context models. Interaction models. Structural models. Behavioral models.
Design Principles: Object-oriented design using the UML, Design patterns, Implementation issues, Open source development

Module-3

Software Testing: Development testing, Test-driven development, Release testing, User testing.
Software Evolution: Evolution processes. Program evolution dynamics, Software maintenance. Legacy system management.

Module-4

Project Planning: Software pricing, Plan-driven development, Project scheduling, Estimation technique. Quality management: Software quality, Reviews and inspections, Software measurement and metrics.

Module-5

Agile Software Development: Coping with Change, The Agile Manifesto: Values and Principles. Agile methods: SCRUM and Extreme Programming. Plan-driven and agile development, Agile project management, Scaling agile methods

Teaching Methodology: Chalk and talk method / PowerPoint Presentation.

Course outcome (Course Skill Set)

At the end of the course, the student will be able to :

CO 1. Understand the Software Engineering Landscape and Software Development Models
CO 2. Apply System Modeling and Object-Oriented Design Principles
CO 3. Conduct Software Testing and Understand Software Evolution
CO 4. Plan, Schedule, and Ensure Software Quality
CO 5. Apply Agile Software Development Practices and Project Management

Suggested Learning Resources:

Books

1. Ian Sommerville: Software Engineering, 9th Edition, Pearson Education, 2012.
2. The SCRUM Primer, Ver 2.0, http://www.goodagile.com/scrumprimer/scrumprimer20.pdf

Web links and Video Lectures (e-Resources):

- http://agilemanifesto.org/
- http://www.jamesshore.com/Agile-Book/
- https://www.youtube.com/watch?v=Ln_LP7c23WM&list=PLbRMhDVUMngf8oZR3DpKMvYhZKga90JVt

DIGITAL ENTREPRENEURSHIP		Semester	IV
Course Code	BBCA405	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0	SEE Marks	50
Total Hours of Pedagogy	40 Hours of Theory	Total Marks	100
Credits	03	Exam Hours	03
Type of the Corse	Theory		

Course objectives:

- To introduce students to the core concepts of digital entrepreneurship, including its types, characteristics, and its evolution in India.
- To develop an understanding of various e-commerce and e-business models and identify emerging digital opportunities across sectors.
- To familiarize students with key internet technologies, e-marketing techniques, online branding, and strategies for successful digital presence.
- To educate students on the importance of e-security, online payment systems, and customer relationship management in the digital landscape.
- To equip students with knowledge on strategic planning for digital ventures, efficient supply chain management, mobile commerce, and institutional support systems for entrepreneurs.

Module-1

Digital Entrepreneurship: meaning, characteristics, functions, and decision process;

Types of Entrepreneurship: innovative, women, rural, social, family business; Concept and growth of Digital entrepreneurship in India; Types and charecterstics of entrepreneurs: Innovative Entrepreneurs, Imitative (Adoptive) Entrepreneurs, Social Entrepreneurs, Serial Entrepreneurs, Lifestyle Entrepreneurs, Technopreneurs, Hustler Entrepreneurs, Opportunistic Entrepreneurs, Buyer Entrepreneurs.

Types and charecterstics of Entrepreneurship: – Innovative Entrepreneurship, Women Entrepreneurship, Rural Entrepreneurship, Social Entrepreneurship, Family Business Entrepreneurship

Module-2

Introduction to E-commerce: history, evolution, advantages and disadvantages, E-commerce Opportunities in different sectors;

E-business Models Based on the Relationship of Transaction Parties: Business-to-Consumer (B2C), Business-to-Business (B2B), Consumer-to-Consumer (C2C), Consumer-to-Business (C2B);E-business Models Based on the Relationship of Transaction Types: Brokerage Model Aggregator Model, advertising, subscription, affiliate. Opportunity identification and selection in Digital entrepreneurship.

Module-3

Internet Client-Server Applications: Telnet, File Transfer Protocol (FTP), Chat on the Web, Identifying Data Types with Multipurpose Internet Mail Extensions (MIME), Transmission Control Protocol (TCP), Search Engines;

E – Marketing: Meaning, Scope and Procedure. E-marketing Value Chain, Site Adhesion: Content, Format, and Access. Maintaining a Website, Metrics Defining Internet Units of Measurement; Online Marketing: How Should Buyers Pay Online, Advantages of Online Marketing; E-advertising: Various Means of Advertising;

E-branding: Elements of Branding, Spiral Branding; Marketing Strategies: Permission-marketing Strategies, Brand-leveraging Strategies, Affiliate-marketing Strategies, Viral-marketing Strategies, Website Naming Issues, Advertising-supported Model, Marketing Strategy on the Web

Module-4

E-Security: Information System Security; Security on the Internet: Network and Website Security Risks, How Are Sites Hacked?, Security and E-mail, Network and Website Security; E-business Risk Management Issues: The Firewall Concept, Firewall Components;

E-payment Systems:Digital Payment Requirements, Online Payment Categories; Digital Token-based E-payment Systems, Benefits to Buyers, Benefits to Sellers, Convenience, Credit Cards as E-payment Systems, Encryption and Credit Cards 266 The Mobile Payments; Classification of New Payment Systems: Smart Card Cash Payment System, Micropayment Systems, Properties of

Electronic Cash (E-cash), E-cash in Action, Using the Digital Currency, Operational Risk and E-cash, Legal Issues and E-cash;
Customer Relationship Management: Converting Clicks to Customers, Managing Customer Value Orientation and Life Cycle, The Customer Retention Goal.

Module-5

Strategy: Information and Strategy; The Virtual Value Chain; Seven Dimensions of E-commerce Strategy: The 7S Framework; Value Chain and E-strategy: Value Activities, Assessment of Information, Components of the Commerce Value Chain;
Supply Chain: Seven Ways to Reduce Inventory; E-SCM Provides "Real-time" Benefits; E-SCM-The Strategic Advantage; Benefits, E-Supply Chain Components, E-Supply Chain Architecture; Mobile Commerce (M-Commerce): Concept and evolution of M-commerce, Applications of M-commerce (banking, retail, ticketing, mobile payments, etc.), Technologies supporting M-commerce (wireless networks, mobile apps, mobile payment gateways, QR codes, NFC, etc.)
Institutional Support for Entrepreneurs: Role of institutions in entrepreneurship development, National Small Industries Corporation (NSIC), Small Industries Development Organization (SIDO), District Industries Centres (DICs), State Industrial Development Corporations (SIDCs) Financing of Enterprises: Sources of finance for startups and SMEs, Role of banks and financial institutions, Venture capital financing: concept, process, and major players, Government incentives, subsidies, and schemes

Teaching Methodology: Chalk and talk method / PowerPoint Presentation.

Course outcome (Course Skill Set)
At the end of the course, the student will be able to :

- **CO 1.** Explain the fundamentals of digital entrepreneurship, distinguish among different types of entrepreneurs, and analyze their roles in the Indian digital ecosystem.
- **CO 2.** Describe various e-business models and recognize viable digital entrepreneurship opportunities based on transaction relationships and types.
- **CO 3.** Apply internet tools and e-marketing strategies to enhance web presence, customer engagement, and digital branding.
- **CO 4.** Assess security threats, understand e-payment systems, and apply principles of customer relationship management to sustain digital businesses.
- **CO 5.** Interpret strategic frameworks using digital value chains, integrate supply chain technologies, and leverage institutional and financial support for enterprise development.

Suggested Learning Resources:

Reference Books

1. Khanka, S.S., Entrepreneurial Development, S. Chand & Company Ltd., New Delhi.
2. P.T. Joseph, E-Commerce: An Indian Perspective, PHI.
3. Kalakota & Whinston, Electronic Commerce: A Manager's Guide, Pearson.
4. Laudon & Traver, E-Commerce: Business, Technology, Society, Pearson.

Web links and Video Lectures (e-Resources):

- NPTEL: Entrepreneurship
- Ministry of Skill Development & Entrepreneurship: https://www.msde.gov.in
- Reserve Bank of India (E-payments guidelines): https://www.rbi.org.in

Design and Analysis of Algorithms Laboratory		Semester	IV
Course Code	BBCAL406	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:0:2	SEE Marks	50
Total Hours of Pedagogy	14 sessions	Total Marks	100
Credits	02	Exam Hours	03
Type of the Course	Practical		

Course objectives:

- To introduce students to the fundamental concepts of algorithms and their performance analysis.
- To teach students how to solve problems using the Divide and Conquer strategy.
- To develop students' ability to apply the Greedy Method for optimization problems.
- To enable students to use Dynamic Programming techniques for problem-solving.
- To teach basic traversal techniques and problem-solving using Backtracking.

1. Write a Python program that demonstrates Big-O notation by analyzing the time complexity of a simple loop.
2. Write a Python program to implement binary search using the divide and conquer strategy.
3. Write a Python program to find the maximum and minimum elements in an array using divide and conquer approach.
4. Write a Python program to solve the fractional knapsack problem using a greedy strategy.
5. Write a Python program to find the Minimum Cost Spanning Tree of a graph using Prim's algorithm.
6. Write a Python program to solve the Traveling Salesperson Problem (TSP) using dynamic programming.
7. Write a Python program to find the all-pairs shortest path using Floyd-Warshall algorithm.
8. Write a Python program to perform depth-first search on a graph.
9. Write a Python program to solve the N-Queens problem using backtracking.
10. Write a Python program to find all subsets that sum to a given target using backtracking (Sum of Subsets problem).

Course outcome (Course Skill Set)

At the end of the course, the student will be able to :

CO 1. Understand and analyze the performance of algorithms using asymptotic notations.
CO 2. Apply the divide and conquer method to solve computational problems efficiently.
CO 3. Design and apply greedy algorithms for optimization problems.
CO 4. Develop dynamic programming solutions for complex multi-stage problems.
CO 5. Implement traversal techniques and solve constraint satisfaction problems using backtracking.

Data Analytics using Python Laboratory		Semester	IV
Course Code	BBCAL407	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:0:2	SEE Marks	50
Total Hours of Pedagogy	14 sessions	Total Marks	100
Credits	02	Exam Hours	03
Type of the Course	Practical		

Course objectives:

- To develop the ability to apply NumPy for performing mathematical operations, universal functions, and basic linear algebra tasks.
- To enable students to create, manipulate, and analyze data structures like pandas DataFrames for efficient data handling and preprocessing.
- To build skills in detecting, managing, and cleaning missing or inconsistent data using pandas techniques.
- To equip students with the knowledge to perform data reshaping, summarization, aggregation, and pivot operations for better data organization and insights.
- To introduce techniques for data acquisition and storage by reading/writing files, interacting with web APIs, and connecting to relational databases using Python libraries.

1. Write a Python program to demonstrate universal NumPy functions like sqrt(), exp(), sin(), and log().
2. Write a Python program to perform basic linear algebra operations (matrix multiplication, transpose, inverse) using NumPy.
3. Write a Python program using pandas to create a DataFrame and perform basic operations like column selection, renaming, and adding new columns.
4. Write a Python program using pandas to summarize a DataFrame with mean, median, count, and standard deviation.
5. Write a Python program to identify and handle missing values in a DataFrame using fillna() and dropna().
6. Write a Python program to reshape data using pivot tables and perform group-level aggregations.
7. Write a Python program to read data from a CSV file and write it back to a new file using pandas.
8. Write a Python program to clean a dataset by applying string transformations (e.g., trimming, case conversion).
9. Write a Python program to connect to a SQLite database, read a table into a pandas DataFrame, and filter results.
10. Write a Python program to retrieve and parse data from a web API using requests and store it in a DataFrame.

Course outcome (Course Skill Set)

At the end of the course, the student will be able to :

CO 1. Apply NumPy libraries to perform mathematical computations and basic linear algebra operations for scientific and engineering problems.

CO 2. Construct and manipulate pandas DataFrames to organize, manage, and analyze large datasets effectively.

CO 3. Detect, handle, and clean missing or inconsistent data using pandas functions to prepare datasets for analysis.

CO 4. Implement data aggregation, reshaping, and pivot operations to generate meaningful summaries and structured views of data.

CO 5. Demonstrate the ability to acquire data from files, web APIs, and databases, and integrate this data into analysis workflows using Python.

Yoga for a Healthy Life		Semester	IV
Course Code	BBCA458	CIE Marks	100
Teaching Hours/Week (L:T:P: S)	0:0:2	SEE Marks	000
Total Hours of Pedagogy	20 - 24 hours (Theory + Practical)	Total Marks	100
Examination nature (CIE)	Objective type / Practical / Viva-Voce		

Course objectives:

- To enable the student to have good health.
- To practice mental hygiene.
- To possess emotional stability.
- To integrate moral values.
- To attain higher level of consciousness.

The Health Benefits of Yoga

The benefits of various yoga techniques have been supposed to improve

- body flexibility, * performance,
- stress reduction, * attainment of inner peace, and
- self-realization.

The system has been advocated as a complementary treatment to aid the healing of several ailments such as

- coronary heart disease, * depression,
- anxiety disorders, * asthma and
- extensive rehabilitation for disorders including musculoskeletal problems and traumatic brain injury.

The system has also been suggested as behavioral therapy for smoking cessation and substance abuse (including alcohol abuse).

If you practice yoga, you may receive these physical, mental, and spiritual benefits:

- Physical
    1. Improved body flexibility and balance
    2. Improved cardiovascular endurance (stronger heart)
    3. Improved digestion
    4. Improved abdominal strength
    5. Enhanced overall muscular strength
    6. Relaxation of muscular strains
    7. Weight control
    8. Increased energy levels
    9. Enhanced immune system
- Mental
    1. Relief of stress resulting from the control of emotions
    2. Prevention and relief from stress-related disorders
    3. Intellectual enhancement, leading to improved decision-making skills
- Spiritual
    1. Life with meaning, purpose, and direction
    2. Inner peace and tranquility
    3. Contentment

Yoga Syllabus for BCA course

Yoga, its origin, history and development. Yoga, its meaning, definitions.
Different schools of yoga, Aim and Objectives of yoga, importance of prayer
Yogic practices for common man to promote positive health
Rules to be followed during yogic practices by practitioner
Yoga its misconceptions, Difference between yogic and non yogic practices
Suryanamaskar prayer and its meaning, Need, importance and benefits of Suryanamaskar12 count, 2 rounds
Patanjali's Ashtanga Yoga, its need and importance.

Asana, Need, importance of Asana. Different types of asana. Asana its meaning by name, technique, precautionary measures and benefits of each asana

Different types of Asanas

a. Sitting
    1. Padmasana
    2. Vajrasana
    3. Paschimottanasana
    4. Ushtrasana
b. Standing
    1. Vrikshana
    2. Trikonasana
c. Prone line
    1. Bhujangasana
    2. Shalabhasana
    3. Chakrasana
d. Supine line
    1. Utthita dvipadasana
    2. Halasana
    3. Sarvangasana

Meaning, importance and benefits of Kapalabhati. 40 strokes/min 3 rounds

Meaning, Need, importance of Pranayama. Different types. Meaning by name, technique, precautionary measures and benefits of each Pranayama

Pranayama

1. Suryanuloma –Viloma
2. Chandranuloma-Viloma
3. Suryabhedana
4. Chandra Bhedana
5. Nadishodhana
6. Bhramari

Course outcome (Course Skill Set)

At the end of the course, the student will be able to :

CO 1. Understand the meaning, aim and objectives of Yoga.
CO 2. Perform Suryanamaskar and able to Teach its benefits.
CO 3. Understand and teach different Asanas by name, its importance, methods and benefits.
CO 4. Instruct Kapalabhati and its need and importance.
CO 5. Teach different types of Pranayama by its name, precautions, procedure and uses
CO 6. Coach different types of Kriyas , method to follow and usefulness.

Assessment Details (CIE)

- Students will be assessed with internal test by Multiple choice questions
- Two **Assignements** with total 50 Marks (25 marks/assigments).
- **Final test** shall be conducted for whole syllabus for 50 marks.
  (MCQ Test – 25 Marks, Practical – 20 Marks and Viva-Voce – 10 Marks)
- **Continuous Internal Evaluation** shall be for 100 Marks (including **Assignments** and **Final test**)

Suggested Learning Resources:

Textbooks:

1. Yogapravesha in Kannada by Ajitkumar
2. Light on Yoga by BKS Iyengar
3. Teaching Methods for Yogic practices by Dr. M L Gharote & Dr. S K Ganguly
4. Yoga Instructor Course hand book published by SVYASA University, Bengaluru
5. Yoga for Children

Web links and Video Lectures (e-Resources):

- https://www.phptutorial.net/
- https://spoken-tutorial.org/ (PHP and MySQL)