Course Outcomes
of
Bachelor of Computer Applications

(BCA)

First Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
UGCA1901	Core Theory	Mathematics	3	1	0	40	60	100	4
UGCA1902	Core Theory	Fundamentals of Computer and IT	3	1	0	40	60	100	4
UGCA1903	Core Theory	Problem Solving using C	3	1	0	40	60	100	4
UGCA1904	Practical/Laboratory	Workshop on Desktop Publishing	0	0	4	60	40	100	2
UGCA1905	Core Practical/Laboratory	Problem Solving using C Laboratory	0	0	4	60	40	100	2
UGCA1906	Core Practical/Laboratory	Fundamentals of Computer and IT Laboratory	0	0	4	60	40	100	2
BTHU103/18	Ability Enhancement Compulsory Course (AECC)-I	English	1	0	0	40	60	100	1
BTHU104/18	Ability Enhancement Compulsory Course (AECC)	English Practical/Laboratory	0	0	2	30	20	50	1
HVPE101-18	Ability Enhancement Compulsory Course (AECC)	Human Values, De-addiction and Traffic Rules	3	0	0	40	60	100	3
HVPE102-18	Ability Enhancement Compulsory Course (AECC)	Human Values, De-addiction and Traffic Rules (Lab/ Seminar)	0	0	1	25	--**	25	1
BMPD102-18		Mentoring and Professional Development	0	0	1	25	--**	25	1
	TOTAL		**13**	**3**	**16**	**460**	**440**	**900**	**25**

**The Human Values, De-addiction and Traffic Rules (Lab/ Seminar) and Mentoring and Professional Development course will have internal evaluation only.

(See guidelines at the lastpage of this file)

Second Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
UGCA1907	Core Theory	Fundamentals of Statistics	3	1	0	40	60	100	4
UGCA1908	Core Theory	Computer System Architecture	3	1	0	40	60	100	4
UGCA1909	Core Theory	Object Oriented Programming using C++	3	1	0	40	60	100	4
UGCA1910	Core Practical/Laboratory	Object Oriented Programming using C++ Laboratory	0	0	4	60	40	100	2
UGCA1911	Core Practical/Laboratory	Fundamentals of Statistics Laboratory	0	0	4	60	40	100	2
UGCA1912	Core Practical/Laboratory	Computer System Architecture Laboratory	0	0	4	60	40	100	2
EVS102-18	Ability Enhancement Compulsory Course (AECC) -III	Environmental Studies	2	0	0	40	60	100	2
BMPD202-18		Mentoring and Professional Development	0	0	1	25	--	25	1
	TOTAL		**11**	**3**	**13**	**365**	**360**	**725**	**21**

Third Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
UGCA1913	Core Theory	Computer Networks	3	1	0	40	60	100	4
UGCA1914	Core Theory	Programming in Python	3	1	0	40	60	100	4
UGCA1915	Core Theory	Data Structures	3	1	0	40	60	100	4
UGCA1916	Core Practical/Laboratory	Computer Networks Laboratory	0	0	4	60	40	100	2
UGCA1917	Core Practical/Laboratory	Programming in Python Laboratory	0	0	4	60	40	100	2
UGCA1918	Core Practical/Laboratory	Data Structures Laboratory	0	0	4	60	40	100	2
UGCA1919	Skill Enhancement Course-I	PC Assembly & Troubleshooting	3	0	0	40	60	100	3
UGCA1920	Skill Enhancement Course- Laboratory	PC Assembly & Troubleshooting Laboratory	0	0	2	30	20	50	1
BMPD302-18		Mentoring and Professional Development	0	0	1	25	--	25	1
	TOTAL		**12**	**3**	**15**	**395**	**380**	**775**	**23**

Fourth Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
UGCA1921	Core Theory	Software Engineering	3	1	0	40	60	100	4
UGCA1922	Core Theory	Database Management Systems	3	1	0	40	60	100	4
UGCA1923	Core Theory	Operating Systems	3	1	0	40	60	100	4
UGCA1924	Core Practical/Laboratory	Software Engineering Laboratory	0	0	4	60	40	100	2
UGCA1925	Core Practical/Laboratory	Database Management Systems Laboratory	0	0	4	60	40	100	2
UGCA1926	Core Practical/Laboratory	Operating Systems Laboratory	0	0	4	60	40	100	2
UGCA1927	Skill Enhancement Course-II	Web Designing	3	0	0	40	60	100	3
UGCA1928	Skill Enhancement Course- Laboratory	Web Designing Laboratory	0	0	2	30	20	50	1
BMPD402-18		Mentoring and Professional Development	0	0	1	25	--	25	1
	TOTAL		**12**	**03**	**15**	**395**	**380**	**775**	**23**

Students will undergo 4 weeks Institutional Summer Training* after 4th semester. Examination will be conducted along with 5th semester practical.

Course Code: UGCA1901

Course Name: Mathematics

Course Outcomes: After studying this course, students will be able to:

CO#	Course Outcomes
CO1	Represent data using various mathematical notions.
CO2	Explain different terms used in basic mathematics.
CO3	Describe various operations and formulas used to solve mathematical problems.

Course Code: UGCA1902

Course Name: Fundamentals of Computer and IT

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.
CO-3	Understand an operating system and its working, and solve common problems related to operating systems
CO4	Learn basic word processing, Spreadsheet and Presentation Graphics Software skills.
CO5	Study to use the Internet safely, legally, and responsibly

Course Code: UGCA1903

Course Name: Problem Solving using C

Course Outcomes:

CO#	Course outcomes
CO1	Student should be able to understand the logic building used in Programming.
CO2	Students should be able to write algorithms for solving various real life problems.
CO3	To convert algorithms into programs using C .

Course Code: UGCA1904
Course Name: Workshop on Desktop Publishing

Course Outcomes: After studying this course, students will be able to:

CO#	Course outcomes
CO1	The students will gain professional skills of *Desk Top Publishing* Tools like designing, Printing & Publishing by using various tools.
CO2	Develop skills in printing jobs through basic understanding of a variety of designing tools.
CO3	Apply these concepts and knowledge in designing field including practice from text formatting to final publishing.
CO4	Workshops are included to enhance professional skills like Brochures, Flexes, Business Cards, Certificates and News Letter layouts etc.

Course Code: UGCA1905
Course Name: Problem Solving using C Laboratory
Course Outcomes:

CO#	Course outcomes
CO1	Student should be able to understand the logic building used in Programming.
CO2	Students should be able to write algorithms for solving various real life problems.
CO3	To convert algorithms into programs using C .

Course Code: UGCA1906
Course Name: Fundamentals of Computer and IT Laboratory

Course Outcomes

CO#	Course outcomes
CO1	Familiarizing with Open Office (Word processing, Spreadsheets and Presentation).
CO2	To acquire knowledge on editor, spread sheet and presentation software.
CO3	The students will be able to perform documentation and accounting operations.
CO4	Students can learn how to perform presentation skills.

AECC (For UGC courses)
BTHU103-18 English:

Course Outcomes:
- The objective of this course is to introduce students to the theory, fundamentals and tools of communication.

- To help the students become the independent users of English language.

- To develop in them vital communication skills which are integral totheir personal, social and professional interactions.

- The syllabus shall address the issues relating to the Language of communication.

- Students will become proficient in professional communication such as interviews, group discussions, office environments, important reading skillsas well as writing skills such as report writing, note taking etc.

  The recommended readings given at the end are only suggestive; the students and teachers have the freedom to consult other materials on various units/topics given below. Similarly, the questions in the examination will be aimed towards assessing the skills learnt by the students rather than the textual content of the recommended books.

AECC
BTHU104/18 English Practical/Laboratory
: 0L 0T 2P 1 Credit

Course Outcomes:
- The objective of this course is to introduce students to the theory, fundamentals and tools of communication.
- To help the students become the independent users of English language.
- To develop in them vital communication skills which are integral to personal, social and professional interactions.
- The syllabus shall address the issues relating to the Language of communication.
- Students will become proficient in professional communication such as interviews, group discussions and business office environments, important reading skills as well as writing skills such as report writing, note taking etc.

The recommended readings given at the end are only suggestive; the students and teachers have the freedom to consult other materials on various units/topics given below. Similarly, the questions in the examination will be aimed towards assessing the skills learnt by the students rather than the textual content of the recommended books.

Course Code: HVPE101-18
Course Name: Human Values, De-addiction and Traffic Rules

Course Outcomes:

CO#	Course outcomes
CO1	To help the students appreciate the essential complementarily between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations of all human beings.
CO2	To facilitate the development of a Holistic perspective among students towards life, profession and happiness, based on a correct understanding of the Human reality and the rest of Existence. Such a holistic perspective forms the basis of Value based living in a natural way.
CO3	To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually satisfying human behavior and mutually enriching interaction with Nature.

Note: This course is intended to provide a much needed orientational input in Value Education to the young enquiring minds.

Course Code: HVPE102-18
Course Name: Human Values, De-addiction and Traffic Rules (Lab/ Seminar)

One each seminar will be organized on Drug De-addiction and Traffic Rules. Eminent scholar and experts of the subject will be called for the Seminar at least once during the semester. It will be binding for all the students to attend the seminar.

Course Code: UGCA1907
Course Name: Fundamentals of Statistics

Course Outcomes: After studying this course, students will be able to

CO#	Course Outcomes
CO1	Understand the science of studying & analyzing numbers.
CO2	Identify and use various visualization tools for representing data.
CO3	Describe various statistical formulas.
CO4	Compute various statistical measures.

Course Code: UGCA1908
Course Name: Computer System Architecture
Course Outcomes:

CO#	Course outcomes
CO1	Know about the basic functioning of various parts of computer system from hardware point of view and interfacing of various peripheral devices used with the system.
CO2	Learn number system and various types of micro-operations of processor.
CO3	Learn the communication of various components through common bus.
CO4	Learn how to design Combinational & Sequential circuits

Course Code: UGCA1909
Course Name: Object Oriented Programming using C++

Course Outcomes:

CO#	Course outcomes
CO1	To learn programming from real world examples.
CO2	To understand Object oriented approach for finding Solutions to various problems with the help of C++ language.
CO3	To create computer based solutions to various real-world problems using C++
CO4	To learn various concepts of object oriented approach towards problem solving

Course Code: UGCA1910
Course Name: Object Oriented Programming using C++ Laboratory
Course Outcomes:

CO#	Course outcomes
CO1	To learn programming from real world examples.
CO2	To understand Object oriented approach for finding Solutions to various problems with the help of C++ language.
CO3	To create computer based solutions to various real-world problems using C++
CO4	To learn various concepts of object oriented approach towards problem solving

Course Code: UGCA1911
Course Name: Fundamentals of Statistics Laboratory

Course Outcomes: After studying this course, students will be able to

CO#	Course Outcomes
CO1	Represent data using various Frequency table and Graphs.
CO2	Apply various operations/ formulas using any software/package to solve statistical problems.

Course Code: UGCA1912
Course Name: Computer System Architecture Laboratory
Course Outcome:

CO#	Course outcomes
CO1	The students will be able to perform number system conversions.
CO2	The students will understand the function of all components of Computer architecture.
CO3	The students will understand various types of basic, combinational & universal logic gates
CO4	The students will learn how to design Combinational circuits like Adder, Subtractor, Decoder, Encoder, Multiplexer, Demultiplexer
CO5	The students will learn how to design Sequential circuits like Flip Flops, Counters

Ability Enhancement Compulsory Course
EVS102-18 Environmental Studies

Course Outcomes:

1. Students will enable to understand environmental problems at local and national level through literature and general awareness.

2. The students will gain practical knowledge by visiting wildlife areas, environmental institutes and various personalities who have done practical work on various environmental Issues.

3. The students will apply interdisciplinary approach to understand key environmental issues and critically analyze them to explore the possibilities to mitigate these problems.

4. Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world

Course Code: UGCA1913
Course Name: Computer Networks

Course Outcomes: Students will be able to

CO#	Course outcomes
CO1	familiar with the different Network Models.
CO2	Understand different network technologies and their application.

CO#	Course outcomes
CO3	update with different advanced network technologies that can be used to connect different networks
CO4	familiar with various hardware and software that can help run a smooth network

Course Code: UGCA1914
Course Name: Programming in Python

Course Outcomes: Students will be able to:

CO#	Course Outcomes
CO1	Familiar with Python environment, data types, operators used in Python.
CO2	Compare and contrast Python with other programming languages.
CO3	Learn the use of control structures and numerous native data types with their methods.
CO4	Design user defined functions, modules, and packages and exception handling methods.
CO5	Create and handle files in Python and learn Object Oriented Programming Concepts.

Course Code: UGCA1915
Course Name: Data Structures
Course Outcomes: Students will be able to

CO#	Course outcomes
CO1	Apply appropriate constructs of Programming language, coding standards for application development
CO2	Use appropriate data structures for problem solving and programming
CO3	Use algorithmic foundations for solving problems and programming
CO4	Apply appropriate searching and/or sorting techniques for application development.

CO5	Develop programming logic and skills.

Course Code: UGCA1916
Course Name: Computer Networks Laboratory

Course Outcomes:

CO#	Course outcomes
CO1	Understand different network technologies and their application.
CO2	Be updated with different advanced network technologies that can be used to connect different networks
CO3	Be familiar with various hardware and software that can help run a smooth network

Course Code: UGCA1917
Course Name: Programming in Python Laboratory

Course Outcomes: Students will be able to :

CO#	Course outcomes
CO1	Solve simple to advanced problems using Python language.
CO2	Develop logic of various programming problems using numerous data types and control structures of Python.
CO3	Implement different data structures.
CO4	Implement modules and functions.
CO5	Design and implement the concept of object oriented programming structures.
CO6	Implement file handling.

Course Code: UGCA1918
Course Name: Data Structures Laboratory

Course Outcomes: Student will be able to

CO#	Course outcomes
CO1	Apply appropriate constructs of Programming language, coding standards for application development
CO2	Develop programming skills for solving problems.
CO3	Apply appropriate searching and/or sorting techniques for application development.

Course Code: UGCA1919
Course Name: PC Assembly & Troubleshooting
Course Outcomes: Students will be able to

CO#	Course outcomes
CO1	Assemble and set up computer systems.
CO2	Configure and install computers
CO3	Install, connect and configure various peripheral devices
CO4	Diagnose and Troubleshoot issues in Computer Systems

Course Code: UGCA1920
Course Name: PC Assembly & Troubleshooting Laboratory

Course Outcomes: Students will be able to

CO#	Course outcomes
CO1	Assemble and set up computer systems.
CO2	Configure and install computers
CO3	Install, connect and configure various peripheral devices
CO4	Diagnose and Troubleshoot issues in Computer Systems

Course Code: UGCA1921
Course Name: Software Engineering
Course Outcomes: Students will be able to

CO#	Course outcomes
CO1	Aware about the engineering approach to analysis, design and built the software
CO2	Understand the phases and activities involved in the conventional software life cycle models
CO3	Analyse problems, and identify and define thecomputing requirements appropriate to its solution.
CO4	Apply design and development principles in the construction of software systems of varying complexity
CO5	Apply current techniques, skills, and tools necessary for computing practice.

Course Code: UGCA1922
Course Name: Database Management Systems

Course Outcomes: Students will be able to

CO#	Course outcomes
CO1	Understand the basic concepts of DBMS.
CO2	Formulate, using SQL, solutions to a broad range of query and data update problems.
CO3	Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database.
CO4	Understand the concept of Transaction and Query processing in DBMS.

Course Code: UGCA1923
Course Name: Operating Systems

CO#	Course outcomes
CO1	Discuss the evaluation of operating systems.
CO2	Explain different resource managements performed by operating system.
CO3	Describe the architecture in terms of functions performed by different types of operating systems.
CO4	Analyze the performance of different algorithms used in design of operating system components.

Course Code: UGCA1924
Course Name: Software Engineering Laboratory

Course Outcomes: Students will be able to

CO#	Course outcomes
CO1	Elicit, analyze and specify software requirements.
CO2	Analyze and translate a specification into a design
CO3	Realize design practically, using an appropriate software engineering methodology.
CO4	Plan a software engineering process life cycle.
CO5	Use modern engineering tools for specification, design, implementation, and testing

Course Code: UGCA1925
Course Name: Database Management Systems Laboratory

Course Outcomes:

CO#	Course outcomes
CO1	Able to understand various queries and their execution
CO2	Populate and query a database using SQL DML/DDL commands.
CO3	Declare and enforce integrity constraints on a database
CO4	Programming PL/SQL including stored procedures, stored functions, cursors, packages
CO5	Able to design new database and modify existing ones for new applications and reason about the efficiency of the result

Course Code: UGCA1926
Course Name: Operating Systems Laboratory

Course Outcomes: After going through the practical, student will be able to:

CO#	Course outcomes
CO1	Install & configure different operating systems.
CO2	Write programs/ scripts for different scheduling algorithms.

Course Code: UGCA1927
Course Name: Web Designing

Course Outcomes: The students will be able to:

CO#	Course Outcomes
CO1	Understand the core concepts of Internet and Web Services.
CO2	Describe and differentiate Programming Language and Markup Language.
CO3	List various web pages and web sites together.
CO4	Capture user input from the remote users.
CO5	Learn connectivity concepts of Front End and Back End process.

Course Code: UGCA1928
Course Name: Web Designing Laboratory
Course Outcomes: After studying this course, students will be able to:

CO#	Course Outcomes
CO1	Implement Static/Dynamic concepts of web designing.
CO2	Develop ability to retrieve data from a database and present it in a web page.
CO3	Design web pages that apply various dynamic effects on the web site.

Guidelines regarding Mentoring and ProfessionalDevelopment

The objective of mentoring will be development of:

- Overall Personality
- Aptitude (Technical and General)
- General Awareness (Current Affairs and GK)
- Communication Skills
- Presentation Skills