GANDHI INSTITUTE OF TECHNOLOGY AND MANAGEMENT (GITAM)
(Deemed to be University, Estd. u/s 3 of UGC Act 1956)
VISAKHAPATNAM *HYDERABAD *BENGALURU
Accredited by NAAC with 'A+' Grade

Curriculum and syllabus

of

Bachelor of Computer Applications (BCA)

(w.e.f. 2021-22 Admitted batch)

Website: www.gitam.edu

Bachelor of Computer Applications (BCA)
Scheme of Instruction

							Credits	
Course	**Sem1**	**L**	**T**	**P**	**S**	**J**	**Letter**	**P/F**
LANG1001	Communication Skills in English – Beginners	0	0	4	0	0		2
CSEN1001	IT Productivity Tools	0	0	2	0	0		1
LANG1011	Communication Skills in English	0	0	4	0	0	2	
CSCI1061	Introduction to Information technology	4	0	0	0	0	4	
CSCI1051	Problem Solving and Programming with Python	4	0	0	0	0	4	
CSCI1131	Fundamentals of Digital Logic Circuits	4	0	0	0	0	4	
MATH1131	Mathematics – I	4	0	0	0	0	4	
CSCI1041	Python Programming Lab	0	0	2	0	0	1	
CSCI1071	Data Analysis Lab	0	0	2	0	0	1	
CLAD1001	Emotional Intelligence & Reasoning skills	0	0	2	0	0	1	
	TOTAL	16	0	16	0	2	21	3
	Sem2	**L**	**T**	**P**	**S**	**J**	**Letter**	**P/F**
LANG1021	Advanced Communication Skills in English	0	0	4	0	0	2	
CLAD1011	Leadership Skills & Quantitative Aptitude	0	0	2	0	0	1	
CSCI1091	Web Technologies	4	0	0	0	0	4	
CSCI1111	Introduction to Object Oriented Programming with C++	4	0	0	0	0	4	
CSCI1081	Introduction to Operating Systems	4	0	0	0	0	4	
MATH1141	Mathematics-II	4	0	0	0	0	4	
CSCI1101	Web Technologies Lab	0	0	2	0	0	1	
CSCI1121	Programming with C++ Lab	0	0	2	0	0	1	
VEDC1001	Venture Development	0	0	0	2	0	2	
DOSL1011	Community Service	0	0	0	0	2		2
DOSP1001	Sports 1	0	0	0	0	2		2
	TOTAL	16	0	10	2	0	23	4
	Sem3	**L**	**T**	**P**	**S**	**J**	**Letter**	**P/F**
UC	Environmental Studies	3	0	0	0	0		3
UC	Soft Skills 3	0	0	2	0	0	1	
	Elementary Data Structures Using C++	4	0	0	0	0	4	
	Introduction to Unix Programming	4	0	0	0	0	4	
	Principles of Software Engineering	4	0	0	0	0	4	
	Introduction to Data Communication and Networks	4	0	0	0	0	4	
	Data Structures using C++ Lab	0	0	2	0	0	1	
	Unix Programming Lab	0	0	2	0	0	1	
UC	Club Activity	0	0	0	2	0		2

	Total	19	0	6	2	0	19	5
	Sem4	**L**	**T**	**P**	**S**	**J**	**Letter**	**P/F**
UC	Soft Skills 4	0	0	2	0	0	1	
UC	Indian Constituition and History	2	0	0	0	0		2
	Introduction to Database Management Systems	4	0	0	0	0	4	
	Introduction to Java Programming	4	0	0	0	0	4	
	Generic Elective-I Introduction to Cryptography Fundamentals of Artificial Intelligence	4	0	0	0	0	4	
	DBMS Lab	0	0	2	0	0	1	
	Java Programming Lab	0	0	2	0	0	1	
	Advanced Python Programming Lab	0	0	2	0	0	1	
UC	Health and Wellbeing	0	0	2	0	0		1
	Total	18	0	10	2	0	16	3
	Sem5	**L**	**T**	**P**	**S**	**J**	**Letter**	**P/F**
UC	Gandhian Values/ Ethics	2	0	0	0	0		2
UC	Soft Skills 5	0	0	2	0	0	1	
	Object Oriented Analysis and Design	4	0	0	0	0	4	
	Elementary Statistics	4	0	0	0	0	4	
	Generic Elective-I Data Mining Foundations of Data Science	4	0	0	0	0	4	
	PHP Programming	4	0	0	0	0	4	
	PHP Programming Lab	0	0	2	0	0	1	
	R Programming Lab	0	0	2	0	0	1	
	Data Visualization using Tableau	0	0	2	0	0	1	
	Total	18	0	8	0	0	20	2
	Sem6	**L**	**T**	**P**	**S**	**J**	**Letter**	**P/F**
UC	Soft Skills 6	0	0	2	0	0	1	
	Introduction to Cloud Computing	4	0	0	0	0	4	
	Introduction to Block Chain Technologies	4	0	0	0	0	4	
	Project work	0	0	12	0	0	12	
	Total	8	0	14	0	0	21	

BCA – I SEMESTER
LANG1001 - COMMUNICATION SKILLS IN ENGLISH – BEGINNERS

Hours per week: 4P Credits:2

UNIT-I

Listen actively, understand and extract the essential information from short talks/conversations/discussions that are delivered in clear, standard speech. (Bloom's Taxonomy Level/s: 2 & 3)

UNIT-II

Read, understand, and extract specific information from straightforward factual and simple argumentative texts on general topics and subjects of interest. (Bloom's Taxonomy Level/s: 2)

UNIT-III

Speak clearly with some confidence on matters related to his/her interests and academic work, and make short structured oral presentations on topics of personal interest. (Bloom's Taxonomy Level/s: 3)

UNIT-IV

Write short straightforward connected texts on a range of familiar/general topics using appropriate linking devices to achieve a clear sequence of ideas. (Bloom's Taxonomy Level/s: 3)

UNIT-V

Acquire sufficient language competency to express oneself in speech and writing with some confidence, using appropriate vocabulary and simple grammatical structures though lexical limitations and/or difficulty with formulation might be evident at times. (Bloom's Taxonomy Level/s: 2 & 4)

BCA – I SEMESTER
CSEN 1001: IT PRODUCTIVITY TOOLS

Hours per week: 2P **Credits: 1**

UNIT-I

Create / alter documents / Technical Paper / Project report with text, pictures, graphs of different styles.

UNIT-II

Create / modify power point presentations with text, multimedia and to add animation using / creating templates.

UNIT-III

Perform basic calculations/ retrieve data / create pivot tables / chart using a spreadsheet application.

UNIT-IV

Create simple diagrams / charts using online tools like: www.draw.io.

UNIT-V

Manage documents, presentations, spreadsheets and websites in collaborative mode.

BCA – I SEMESTER
LANG 1011: COMMUNICATION SKILLS IN ENGLISH

Hours per week: 4P **Credits: 2**

UNIT-I

Understand the speaker's point of view in fairly extended talks on general or discipline-specific topics, and follow simple lines of argument in discussions on familiar contemporary issues. (Bloom's Taxonomy Level/s: 3)

UNIT-II

Make short presentations on a limited range of general topics using slides, and engage in small group discussions sharing experiences/views on familiar contemporary issues and give reasons for choices/opinions/plans. (Bloom's Taxonomy Level/s: 3 & 4)

UNIT-III

Read and demonstrate understanding of articles and reports on limited range of contemporary issues in which the writers adopt particular stances. Also provide samples of written communication containing fairly complex information and reasons for choices/opinions/stances. (Bloom's Taxonomy Level/s: 2 & 3)

UNIT-IV

Write clear, fairly detailed text (a short essay) on a limited range of general topics, and subjects of interest, and communicate clearly through email/letter to seek/pass on information or give reasons for choices/opinions/plans/actions. (Bloom's Taxonomy Level/s: 3)

UNIT-V

Identifying unfamiliar words from text and exploring their meaning to deduce sentence through contextual clues.

BCA – I SEMESTER
CSCI 1061: INTRODUCTION TO INFORMATION TECHNOLOGY

Hours per week: 4L Credits:4

UNIT – I

Data and Information: Introduction, Types of data, Simple model of a computer, Data processing using a computer, Desktop computer.

Acquisition of Numbers and Textual Data: Introduction, input units, internal representation of numeric data, Representation of characters in computers, Error Detecting codes.

Processing and Displaying Textual Data: Word processor, Desktop Publishing, Page Description language, Mark-up Languages. (10)

UNIT – II

Data storage: Introduction, Storage cell, Physical devices used as storage cells, Random access memory, Read only memory, Secondary storage, Compact disk read only memory (CDROM), Archival store.

Central Processing Unit: Introduction, Structure of a central processing unit, Specifications of a CPU, Interconnection of CPU with memory and I/O units, Embedded processors.

Output Devices: Video Display Devices, Touch Screen, Printers, AudioOutput. (10)

UNIT – III

Computer Networks: Introduction, Local Area Network (LAN), Applications of LAN, Wide Area Network (WAN), Internet, Naming computers connected to Internet, Future of Internet Technology.

Computer Software: Introduction, Operating system, Programming languages, Classification of programming languages, Classification of Programming Languages based on applications.

Processing Multimedia Data: Graphics Processing, Audio Signal Processing.**Acquiring Audio Data -** Basics of Audio Signals, Acquiring and storing Audio Signals, Compression of Audio Signals.

Acquisition of Video: Computing a moving Scene with a video camera, Compression of Video Data, MPEG Compression standard. (12)

UNIT – IV

Data organization: Introduction, Organizing a database, Structure of a database, Database Management System, Example of database design, Non-text databases, Archiving databases.

Processing Numerical Data: Introduction, Use of spreadsheets, Numerical computation examples.

Business Information Systems: Introduction, Types of Information Needed by Organization. (10)

UNIT-V

Some Internet Applications: Introduction, Email, World Wide Web, Information Retrieval from the WWW - Browsers.

E-Commerce: Introduction, Business to customer E-commerce, Business to business E-commerce, Customer to customer E-commerce, Advantages and disadvantages of E-commerce, E-commerce system architecture, Digital signature, Payment schemes in E-commerce, Electronic clearing service in E-commerce, Cash transactions in E-commerce, Payment in C2C E-commerce, Electronic data interchange, Intellectual property rights and E-commerce, Information technology act.

Social Impacts of Information Technology: Introduction, Social uses of www, Privacy, Security and integrity of information, Disaster recovery, Intellectual property rights, Careers in Information technology. (10)

Text Books:

1.Introduction to Information Technology by V. Rajaraman, PHI Learning Pvt.Ltd. 2013.

Reference Books:

1. Computing Fundamentals by Peter Norton, Tata Mc. Graw Hill, 6th edition,2006.
2. Fundamentals of Computers by E.Balagurusamy, Tata McGraw Hill,2009.

BCA – I SEMESTER

CSCI 1051: PROBLEM SOLVING AND PROGRAMMING WITH PYTHON

Hours per week: 4L Credits:4

UNIT – I

Introduction to Computers and Programming: Introduction, Hardware and Software, How Computers Store Data, Introduction to computational thinking, Introduction to the idea of an algorithm, Pseudo code and Flow charts.

Core Python: What is Python, History, features, Installing, Running, Getting Started, Syntax and Style, Python Objects, Numbers, Keywords, Operators, Syntax, Compilers and Interpreters, The Python Interpreter. (10)

UNIT – II

Input, Processing, and Output: Designing a Program, Input, Processing, and Output, Displaying Output with the print Statement, Comments, Variables, Reading Input from the Keyboard, Performing Calculations, More about Data Output.

Decision Structures and Boolean Logic: The if Statement, The if -else Statement, Comparing Strings, Nested Decision Structures and the if -elseif -else Statement, Logical Operators, Boolean Variables. (12)

UNIT – III

Repetition Structures: Introduction to Repetition Structures, The while Loop: a Condition-Controlled Loop, The for Loop: a Count-Controlled Loop, Calculating a Running Total, Sentinels, Input Validation Loops,NestedLoops. (10)

UNIT - IV

Data Structures: Lists, Quick Introduction to Objects and Classes, Tuple, Dictionary, Sequence, Set, WorkingwithStrings. (10)

UNIT - V

Functions: Introduction to Functions, Defining and Calling a Function, Designing a Program to Use Functions, Local Variables, Passing Arguments to Functions, Global Variables and Global Constants.

Files and Exceptions: Introduction to File Input and Output, Using Loops to Process Files, ProcessingRecords, Exceptions. (10)

Textbooks:

1. Starting Out with Python, Tony Gaddis, Haywood Community College, Pearson,2018.
2. Core Python Programming, Wesley J. Chun, Prentice Hall PTR, First Edition,2000.

Reference Book:

1. How to Think Like a Computer Scientist: Learning with Python by Jeffrey Elkner, Allen B. Downey and Chris Meyers, Samurai Media Limited,2016.

BCA – I SEMESTER

CSCI 1131: FUNDAMENTALS OF DIGITAL LOGIC CIRCUITS

Hours per week: 4L Credits:4

UNIT – I

Binary Systems: Digital Systems, Binary numbers, Number base conversion, Octal &Hexa-Decimal Numbers, Complements, Signed Binary numbers, Binary codes, Binary storage and registers, Binary Logic. (9)

UNIT – II

Boolean Algebra and Logic Gates: Basic Definition, Axiomatic definition of Boolean Algebra, Theorems and properties, Canonical form & Standard Form, Other Logic Operations, Digital Logic Gates, ICs. (10)

UNIT – III

Gate Level Minimization: Introduction, Map Method, Four and Five variable maps, POS Simplification, Don't care conditions, NAND and NOR Implementation, Other two Level Implementation, Ex-OR function. (10)

UNIT – IV

Combinational Circuits: Introduction, Combinational Circuits, Analysis Procedure, Design Procedure, Binary Adder - Subtraction, Decimal Adder, Binary Multiplier, Magnitude Comparator, Decoder, Encoder, Multiplexer. (9)

UNIT - V

Synchronous Sequential Circuits: Sequential Circuits, Latches, Flip-Flops, Analysis of Clocked Sequential Circuits, State reduction and Assignment, Design procedure.

Registers and Counters: Registers, Shift registers, Ripple Counters. (10)

Text Books:

1. Digital Design by M. Morris Mano, Michael D.Ciletti, Pearson edition, 4th edition. 2012.

Reference Books:

1. Fundamentals of Digital Logic Design by Stephen Brown and ZvonkoVranesic, McGraw Hill Education, 3rd edition, 2009.

BCA – I SEMESTER
MATH 1131: MATHEMATICS – I

Hours per week: 4L Credits:4

UNIT - I

Matrices -I : Determinants, properties of determinants, matrices, matrices operations, transpose of a matrix, adjoint of a square matrix, inverse of a matrix, rank ofamatrix. (10)

UNIT - II

Matrices -II : Solution of linear system of equations : Cramer's rule, matrix inversion method, Consistency of linear system of equations, eigen values and eigen vectors, Cayley-Hamilton theorem (withoutproof). (10)

UNIT - III

Interpolation: Operators, Forward and Backward Difference Operations and Their Interrelation. Interpolation Formulae: Newton's Forward, Backward and Divided Difference Formulae, Lagrange'sFormula. (10)

UNIT - IV

NumericalDifferentiation&Integration: NumericalDifferentiation:Formulaeforderivatives, **NumericalIntegration**:Trapezoidalrule,Simpson's1/3rule,Simpson's3/8rule,Weddle'srule. (10)

UNIT - V

Solution of Algebraic and Transcendental Equations: Bisection Method, False Position Method, Gauss elimination method, Jacobi's iteration method, Gauss-Siedaliterationmethod. (10)

Text Book :

1. Higher Engineering Mathematics by B.S.Grewal, Khanna Publishers, 43rd edition,2015.

ReferenceBook:

1. Introductory methods of numerical analysis by S.S.Sastry, PHI, 5th edition,2012.
2. Engineering Mathematics by B.V. Ramana, Tata Mc.Graw Hill, 1stedition,2006.

BCA – I SEMESTER
CSCI 1041: PYTHON PROGRAMMING LAB

Hours per week: 2P Credits: 1

1. Start the Python interpreter in interactivemode.
2. Demonstrate to write, test, and debug simple Pythonprograms.
3. Demonstrate Python syntax – identifiers, variables, keywords, Lines & Indentation, Quotation, andComments.
4. Demonstrate the use operators- Arithmetic, Comparison, Assignment, Logical, Bitwise, Membership,Identity, and Operator Precedence.
5. Demonstrate assigning values to variable, Multiple Assignments, Standard Data Types-Numbers, Strings, Lists, Tuples, Dictionary, Data TypeConversion.
6. Demonstrate Decision Making &Loops-
    a. Check if a given number is divisible by5
    b. Sum of N different numbers
    c. Sum and average of N different numbers
    d. Sum of numbers between 1 and 50 which are divisible by 3 and not by5
    e. First N evennumbers
    f. First N numbers divisible by4
7. Demonstrate Built-in functions.
8. Demonstrate the use ofLists.
    a. Create a list and perform the following operations on thelist:
    b. Display content oflist
    c. Display length oflist
    d. Display element in given position in thelist
    e. Add elements to thelist
    f. Remove elements from thelist:
    g. Slice
    h. Sort
    i. Reverse
    j. Replaceelements
    k. Join twolists
    l. Membershiptest
    m. Nestedlists
9. Demonstrate the use ofDictionaries.
    a. Creating a Dictionary and perform the followingoperations:
    b. Get the values in aDictionary
    c. Looping overdictionary
    d. Add elements to adictionary
    e. combine twodictionariesDelete elements of adictionary
    f. Test the presence of akey
10. Demonstrate the use ofTuples
    a. Creating aTuple
    b. Accessing values inTuple
    c. UpdatingTuples
    d. Delete Tupleelements
    e. Basic Tuple Operations
    f. Indexing, Slicing,Matrix
11. Demonstrate the use ofFunctions

a. Smallest number from a set of numbers
b. Largest number from a set of numbers
c. Sum of even and odd numbers from a set ofnumbers
d. Sort the elements of amatrix
e. Read an N x N matrix. Check if the last element of each row is the sum of the all other elements in thatrow

12. Demonstrate Files
    a. Read a file and display all words containing all 5 vowels atleast once.
    b. Write a program to read student details (Name, roll number and CGPA) and write to file. Also display the filecontent.

Reference Books:

1. Head First Python by Barry, Paul, O Rielly Publications, 2nd Edition,2010.
2. Core Python Programming by Wesley J. Chun, Prentice Hall, First Edition,2000.
3. Learning Python by Lutz, Mark, O Rielly Publications, 4th Edition,2009.

BCA – I SEMESTER
CSCI 1071: DATA ANALYSIS LAB

Hours per week: 2P Credits: 1

Data Analysis usingExcel

1. **About Excel & Microsoft** - Uses of Excel, Excel software, Spreadsheet window pane, Title Bar, Menu Bar, Standard Toolbar, Formatting Toolbar, the Ribbon, File Tab and Backstage View, Formula Bar, Workbook Window, Status Bar, Task Pane, Workbook &sheets

2. **Work with Columns & Rows -** Selecting Columns & Rows , Changing Column Width & Row Height, Auto fitting Columns & Rows, Hiding/Unhiding Columns & Rows, Inserting & Deleting Columns & Rows, Cell, Address of a cell, Components of a cell – Format, value, formula, Use of paste and paste special.

3. **Demonstrate Functionality Using Ranges** - Using Ranges, Selecting Ranges, Entering Information Into a Range, Using AutoFill Creating Formulas. (4 hours) Using Formulas, Formula Functions – Sum, Average, if, Count, max, min, Proper, Upper, Lower, Using AutoSum.

4. **Use Advance Formulas -** Concatenate, Vlookup, Hlookup, Match, Countif, Text,Trim

5. **Demonstrate Spreadsheet Charts** - Creating Charts, Different types of chart, Formatting Chart Objects, Changing the Chart Type, Showing and Hiding the Legend, Showing and Hiding the DataTable.

6. **Perform Data Analysis project**

Reference Book:

1. Data Analysis With Microsoft Excel , Kenneth N. Berk , Patrick Carey, CengageLearning.

BCA – I SEMESTER
CLAD 1001: EMOTIONAL INTELLIGENCE AND REASONING SKILLS

Hours per week: 2 P Credits: 1

1. **Self-Awareness & Self-Regulation:** Introduction to Emotional Intelligence, Self-Awareness: Self-Motivation, Accurate Self-Assessment (SWOT Analysis), Self-Regulation: Self Control, Trustworthiness & Adaptability

2. **Social Awareness & Relationship Management:** Social Awareness: Importance, Practising Social Awareness, Building Relationships, Healthy and Unhealthy Relationships, Relationship Management Competencies-Influence, Empathy, Communication, Types of Conflicts, Causes, Conflict Management

3. **Social Media:** Creating a blog, use of messaging applications, creating a website to showcase individual talent, creation of a LinkedIn Profile

4. **Goal Setting & Time Management**: Setting SMART Goals, Time Wasters, Prioritization, Urgent Vs Important, Q2 Organization

5. **Teamwork:** Team Spirit, Difference Between Effective and Ineffective Teams, Characteristics of High Performance Teams, Team Bonding, Persuasion, Team Culture, Building Trust, Emotional Bank Account

6. **Verbal Reasoning:** Introduction, Coding-decoding, Blood relations, Ranking, Directions, Group Reasoning

7. **Analytical Reasoning:** Cubes and Dices, Counting of Geometrical figures

8. **Logical Deduction:** Venn diagrams, Syllogisms, Data Sufficiency, Binary logic

9. **Spatial Reasoning:** Shapes, Paper Cutting/Folding, Mirror images, Water images and Rotation of figures

BCA – II SEMESTER

LANG 1021: ADVANVED COMMUNICATION SKILLS IN ENGLISH

Hours per week: 4 P **Credits:2**

UNIT-I

Listen to extended lectures, presentations, and discussions on a wide range of contemporary issues and demonstrate understanding of relatively complex lines of argument. (Bloom's Taxonomy Level/s: 2)

UNIT-II

Make presentations using suitable AV aids and engage in formal group discussions on a wide range of topics of contemporary interest, demonstrating awareness of standard/widely accepted conventions. (Bloom's Taxonomy Level/s: 3)

UNIT-III

Read and demonstrate understanding of the writer's stance/viewpoint in articles and reports on a wide range of contemporary issues and discipline-specific subjects. (Bloom's Taxonomy Level/s: 2 & 4)

UNIT-IV

Write analytical essays on a wide range of general topics/subjects of interest, and engage in written communication (emails/concise reports) to exchange relatively complex information, giving reasons in support of or against a particular stance/point of view. (Bloom's Taxonomy Level/s: 3 & 4)

UNIT-V

Complete a mini project that necessitates the use of fairly advanced communication skills to accomplish a variety of tasks and submit a report in the given format. (Bloom's Taxonomy Level/s: 4 & 5)

BCA – II SEMESTER

CLAD 1011: LEADERSHIP SKILLS & QUANTITATIVE APTITUDE

Hours per week: 2P Credits:1

1. **Communication Skills:** The Communication Process, Elements of Interpersonal Communication, Non-Verbal Communication: Body Language, Posture, Eye Contact, Smile, Tone of Voice, Barriers to Communication. Effective Listening Skills: Active Listening, Passive Listening, Asking Questions, Empathizing, Being Non Judgemental, Being Open Minded, Mass Communication: Design of Posters, Advertisements, notices, writing formal and informal invitations.

2. **Presentation Skills:** Seven Basic Rules for Effective Presentation: Be Passionate, Focus on Audience Needs, Focus on the Core Message, Use Body Language and Voice, Start Strongly, Organizing Ideas & Using Visual Aids: SPAM Model, Effective Opening and Closing Techniques, Guy Kawasaki's Rule (10-20-30 Rule), Overcoming Stage Fear, Story Telling.

3. **Problem Solving & Decision Making:** Difference Between the Two, steps in Rational Approach to Problem Solving: Defining the Problem, Identifying the Root Causes, Generating Alternative Solutions, Evaluating and Selecting Solutions, Implementing and Following-Up, Case Studies.

4. **Group Discussion:** Understanding GD, Evaluation Criteria, Nine Essential Qualities for Success, Positive and Negative Roles, Mind Mapping, Structuring a Response, Methods of Generating Fresh Ideas.

5. **Number Theory:** Number System, Divisibility rules, Remainders and LCM & HCF.

6. **Numerical Computation and Estimation-I:** Chain Rule, Ratio Proportions, Partnerships & Averages, Percentages, Profit-Loss & Discounts, Mixtures, Problems on Numbers & ages.

7. **Data Interpretation**: Interpretation and analysis of data in Tables, Caselets, Line-graphs, Pie-graphs, Box-plots, Scatter-plots and Data Sufficiency.

8. **Mental Ability:** Series (Number, Letter and Alphanumeric), Analogy (Number, Letter and Alphanumeric) and Classifications

BCA – II SEMESTER
CSCI 1091: WEB TECHNOLOGIES

Hours per week: 4L Credits:4

UNIT-I

Internet Basics: Basic Concepts, Communicating on the Internet, Internet Domains, Internet Server Identities, Establishing Connectivity on the Internet, Client IP address, Transmission Control Protocols.

Introduction to HTML: Information files creation, Web Server, Web Client/Browser, Hyper Text Markup Language, Commonly used HTML Commands.

LISTS: Typesoflists. (12)

UNIT - II

Adding Graphics to HTML Documents: Using the Attributes- Border, Width, and Height, Align and Alt Attributes.

Tables: Introduction, The Caption Tag, Using the width and boarder, Cell padding, Cell spacing, Using Background-Color property, Using the Colspan and Rowspan Attributes.

Linking Documents: Links, Images as Hyperlinks. FRAMES: IntroductiontoFrames. (10)

UNIT – III

CSS2 - Introduction, Syntax, Selectors, Color Background Cursor, Text Fonts, Lists Tables, Box Model, Display Positioning, Floats.

Dynamic HTML: Cascading Style Sheets, Class, Using the TAG, External Style Sheets, Using the TAG. (12)

UNIT – IV

Introduction To JavaScript: JavaScript in web pages, The Advantages of JavaScript, Writing JavaScript into HTML, Basic Programming Techniques, Operators and Expressions in JavaScript, JavaScript Programming Constructs, Conditional Checking, Super controlled-endless loop
Functions in JavaScript, User defined functions, Placing text in a Browser, Dialog Boxes. (12)

UNIT – V

The JavaScript Document Object Model: Introduction, the JavaScript assisted style sheets DOM (JSSS DOM).

Understanding Objects in HTML: Browser Objects, Handling (Web page) Events Using JavaScript. Forms used by A Web Site: The form Object, Other Built -In objects in JavaScript, UserDefinedObjects. (10)

Text Book:

1. Web Enable Commercial Application Development Using HTML, Javascript, DHTML and PHP by Ivan Bayross, BPB Publications, 4th revised edition, 2010 .

Reference Books:

1. Complete Reference HTML by T. A. Powell, 3rd edition, TMH,2003.
2. The Complete Reference - PHP by Steven Holzner, Tata McGraw Hill,2008.
3. Web Technology and Design by Xavier, C, New Age International,2013.

BCA – II SEMESTER

CSCI 1111: INTRODUCTION TO OBJECT ORIENTED PROGRAMMING WITH C++

Hours per week: 4L Credits:4

UNIT – I

Principles of Object Oriented Programming: Software Evolution, Procedure oriented Vs Object Oriented Programming Paradigm, Basic Concepts of OOPs, Benefits of OOP, Features and Applications of OOP, Structure of C++ program. Tokens, Expressions and control structures: Introduction, Tokens, Keywords, Identifiers and Constants, Basic Data types, User-Defined Data types, Derived Data Types and Sizes, Dynamic Initialization of variables, Reference Variables, Scope Resolution Operator, TypeCast Operator, Expressions andtheirtypes. (10)

UNIT – II

Functions in C++: Function Prototype, call by reference, Inline functions, Default Arguments, Const arguments Function Overloading, Library Functions. Classes and Objects: Introduction, Specifying a class, making an outside function inline, Arrays within a class, Defining Member functions, Memory Allocation for Objects, array of Objects, Static Data Members, Static Member Functions,FriendlyFunctions. (10)

UNIT – III

Constructor: Constructor Parameterized Constructor, Multiple Constructors in a Class, Copy Constructor, Dynamic Constructors, Destructors. Operator Overloading: Definition, Overloading Unary, Binary operators, Overloading Binary Operators using Friends, Manipulation of Strings usingoperators. (10)

UNIT – IV

Inheritance: Introduction, Defining Derived Classes, Single Inheritance, Multiple Inheritance, Multi Level Inheritance, Hierarchical Inheritance, Hybrid Inheritance, Virtual Base Classes. Constructors inDerivedClasses. (10)

UNIT – V

Exception Handling: Introduction, Basics of Exception Handling, Exception Handling Mechanism, Throwing Mechanism, Catching Mechanism, Re-throwing exception, Specifying Exceptions. (10)

Text Book:

1.Object Oriented Programming in C++ by E. Balagurusamy, 7th Edition, Tata McGraw Hill Publication, 2017.

ReferenceBooks:

1.Object Oriented Programming with C++ by M.T. Somashekara, D.S. Guru, H.S.Nagendraswamy, K.S. Manjunatha, PHI Learning, 1st edition, 2012.

2. Mastering C++ by K.R Venugopal, T. Ravishankar, RajKumar, Tata McGraw Hill Publishing Company Limited, 2nd edition,2006.

BCA – II SEMESTER

CSCI 1081: INTRODUCTION TO OPERATING SYSTEMS

Hours per week: 4 L Credits:4

UNIT –I

Introduction: What operating system does? Computer – System Architecture, Operating System structure, Operating System Operations, Distributed Systems, Special-purpose Systems, Computing Environments.

System Structures: Operating System Services, User Operating System Interface, System Calls, Types of System Calls, System Programs, OS DesignandImplementation. (10)

UNIT – II

Process Management: Process Concept, Process Scheduling, Operations On Processes, Inter Process Communication.

Process Scheduling: Basic concepts, Scheduling criteria,Schedulingalgorithms. (10)

UNIT – III

Process Synchronization: Background, Critical Section Problem, Peterson's Solution, Classic Problems of Synchronization.

Deadlock: System Model, Deadlock Characterization, Methods for Handling Deadlock, Deadlock Prevention, Avoidance and Detection, RecoveryfromDeadlock. (10)

UNIT - IV

Memory Management: Memory Management Strategies, Background, Swapping, Contiguous, Memory allocation, Paging, Structure of the page table, Segmentation.

Virtual memory: Background, Demand paging, Page replacement, Allocation of frames, Thrashing,Other considerations. (10)

UNIT – V

File System: File concept, Access Methods, Directory and Disk Structure, File-System Mounting, FileSharing. (10)

Text Book:

1. Operating System Concepts by Abraham Silberschatz, Peter B. Galvin and Greg Gagne, Wiley India Publication, 8th edition, Reprint 2012.

Reference Books:

1. Operating Systems: Internals and Design Principles by Stalling William, Prentice Hall,7th edition, 2011.
2. Operating System by Dietel, Pearson Education, 3rd edition,2004.
3. Modern Operating Systems by A.S. Tanenbaum, Prentice Hall, 3rd edition,2007.

BCA – II SEMESTER
MATH 1141: MATHEMATICS - II

Hours per week: 4L Credits:4

UNIT - I

Set Theory and Relations: Sets, Set Operations, Algebra of Sets, Classes of Sets, Power Sets, Partitions, Relations, Representations of Relations, Composition of Relations, Types of Relations, Partial Ordering Relations,n-aryRelations. (10)

UNIT - II

Functions and Counting : Functions, One-to-One, onto and Invertible Functions, Mathematical, Exponential and Logarithmic Functions, Basic Counting Principles, Permutations, Combinations, The Pigeonhole Principle, The Inclusion –ExclusionPrinciple. (10)

UNIT - III

Logic and Propositional Calculus: Propositions and Truth Tables, Tautologies, Logical Equivalence, Algebra of Propositions, Arguments, Logical Implication, Propositional Functions, Quantifiers. (10)

UNIT – IV

Lattices and Boolean algebra: Ordered, Sets, Hasse Diagrams, Lattices, Distributed Lattices & Complimented Lattices, Boolean algebra, Sum of Products form forBooleanalgebra. (10)

UNIT - V

Graph Theory: Graphs, Multi graphs, Directed graphs, Isomorphic Graphs, Paths, Connectivity Complete, Regular and Bipartite Graphs, Planar Graphs, Tree Graphs, Spanning Trees, Kruskal Algorithm, Warshall Algorithm for Path Matrix and Shortest –PathMatrix. (10)

Text Books:

1. Discrete Mathematics (Schaum's Outline Series) by Seymour Lipschutz, Marc Lipson, Tata Mc-Graw Hill, 2nd edition.
2. Discrete Mathematics and its applications by Kenneth H. Rosen, Tata Mc-GrawHill.

Reference Book:

1. Discrete Mathematical Structures with applications to Computer Science by Tremblay and R.Manohar, Tata McGrawhill education.

BCA – II SEMESTER

CSCI 1101: WEB TECHNOLOGIES LAB

Hours per week: 2P Credits: 1

1. Write a HTML document to demonstrate Formattingtags.
2. HTML document to demonstrate Ordered lists, unordered Lists, definitionLists.
3. Write an HTML document to create table header rows, data rows, caption and attributesof the tabletag.
4. Write an HTML document to cell padding and cell spacing, Bgcolor, Colspan and Rowspan attribute.
5. Write an HTML document using frameset and the targeting namedframes.
6. Create Style Sheet and implement thefollowing:
    - CSS Styling(Background, Text Format, Controlling Fonts),Working with block elements and objects, Working with Lists and Tables , CSS Id and , Box Model(Introduction, Border properties, Padding Properties, Marginproperties)
    - CSS Advanced(Grouping, Dimension, Display, Positioning, Floating, Align, Pseudo class, Navigation Bar, Image Sprites, Attributesector)
    - CSS Color, Creating page Layout and SiteDesigns.
7. Write a JavaScript to demonstrate different datatypes.
8. Write a JavaScript to demonstrate differentoperators.
9. Write a JavaScript to demonstrate for loop and whileloop.
10. Write a JavaScript to demonstratearrays.
11. Write a JavaScript to demonstrate dialogboxes.
12. Write a JavaScript to demonstrate user definedfunctions.
13. Write a JavaScript to demonstrate built-infunctions.
14. Write a JavaScript to create login application using formelements.

Reference Books:

1. Complete Reference HTML by T. A. Powell, 3rd edition, TMH,2003.
2. HTML, XHTML, and CSS Bible by Steven M. Schafer, Wiley India, 5th Edition.
3. Beginning CSS: Cascading Style Sheets for Web Design by Ian Pouncey, Richard York, Wiley India.
4. Web Technology and Design by Xavier, C, New Age International,2013.

BCA – II SEMESTER

CSCI 1121: PROGRAMMING WITH C++ LAB

Hours per week: 2P Credits: 1

1. Write a program that contains a function to exchange (swap) values of two arguments by using pointers and Referencesparameters.
2. Write a program to check the given string is palindrome or not using a private memberfunction.
3. Write a program to Demonstrate InlineFunction.
4. Write a program to add corresponding elements of two 2-D matrices using friend function. Create two classes each capable of storing one 2-D matrix. Declare the matrices under private access specifier and access them outside theclass.
5. Write a program for finding area of different geometric shapes (Circle, Rectangle and Cube) using functionoverloading.
6. Write a Program to generate Fibonacci Series by using Constructor to initialize the Data Members.
7. Write a program to demonstrate a copyconstructor.
8. Write a Program to demonstrate Constructors in derived class using friendfunction.
9. Write a program to demonstrate single inheritance distinguishing public and privatederivation.
10. Write a program to illustrate the implementation of both Multilevel and Multiple (Hybrid) inheritance.
11. Write a program to reverse of a string usingoperators.
12. Write a program to find transpose of a given matrix of mxn size using unary operator overloading.
13. Write a program to add two matrices of mxn size using binary operatoroverloading.
14. Write a program to demonstrate the usage of virtualfunctions.
15. Write a program to find average marks of the subjects of a student. Throw multiple exceptions and define multiple catch statements to handle division by zero as well as array index out of bounds exceptions.

ReferenceBook:

1. Object Oriented Programming in C++ by E. Balagurusamy, 4rd Edition, Tata McGraw HillPublication.

2. Let Us C++ by YashavantP.Kanetkar,2nd Edition,BPB Publications.

BCA – II SEMESTER
VEDC 1001: VENTURE DEVELOPMENT

Hours per week: 2 L Continuous Assessment : 100Marks
Credits: 2

Course Description

In this course, you will discover your deeper self in terms of how you might contribute to society by creating exciting new products and services that can become the basis of a real business. Your efforts, creativity, passion, and dedication to solving challenging problems are the future of our society, both in your country and worldwide.
The course is divided into four sections:

1. Personal discovery of your core values and natural skills
2. Ideation and improving the impact
3. Business model design for the innovation
4. Presenting your idea in a professional manner suitable for a new venture pitch

Each section has key frameworks and templates for you to complete, improving your idea step by step until the final presentation.

First, you will discover your personal values and emerging areas of knowledge that are the foundations of any successful company. Next, you will learn how to develop insight into the problems and desires of different types of target customers and identify the design drivers for a specific innovation. Then, you will learn specific design methods for new products and services. And as important as the product or service itself, it is a strategy for monetizing the innovation – generating revenue, structuring the operating costs, and creating the operating profit needed to support the business, hire new employees, and expand forward.

This project is intended to be for teams of students. Innovation and entrepreneurship are inherently team-based. This course will give you that entrepreneurial experience.

This is the beginning of what might be the most important journey of personal and career discovery so far in your life, one with lasting impact. This is not just a course but potentially an important milestone in your life that you remember warmly in the years to come.

Course Objectives

Students will have the opportunity to:

- Discovery who you are – Values, Skills, and Contribution to Society
- Understand how creativity works and permeates the innovation process
- Learn the basic processes and frameworks for successful innovation.
- Gain experience in actually going through the innovation process.
- Conduct field research to test or validate innovation concepts with target customers.
- Understand innovation outcomes: issues around business models, financing for start-ups, intellectual property, technology licensing, corporate ventures, and product line or service extensions.

Course Materials

- Meyer and Lee (2020), Personal Discovery through Entrepreneurship, The Institute for Enterprise Growth, LLC. Boston, MA., USA
- Additional readings
- Additional videos, including case studies and customer interviewing methods.

BCA – II SEMESTER

DOSL1001			**Club Activity (participant)**									
Version	1		School	DoSL	Date of Approval			10-Nov-21				
								L	T	P	C	
								0	1	2	2	
Total Number of Contact Hours						L	0	T	2	P	56	
Pre-requisites												
Alternate Exposure												
Co-requisites												
Course Outcomes	1	Identify personal interest areas										
	2	Learn from diverse perspectives and experiences										
	3	Gain exposure to various activities and opportunities for extra-curicular activities										
	4	Learn to manage time effectively										
	5	gain confidence										
Specific Instructional Objectives	1	Create opportunities for students to participate in a variety of non-academic experiences										
	2	Interact with and learn from peers in a setting without an external performance pressure										
	3	Allow exploration of interesting activities and reflection about these experiences										
	4	Learn to manage time effectively										
Catalog Description	This course recognizes student participation in multiple activities organized by various student organizations that pursue specific co-curricular and extra-curricular interests. These activities allow students to engage in and identify and pursue their personal interests and hobbies.											
Text Books	1	Small move: big Change (Caroline Arnold)										
	2	How to Win at College: Surprising Secrets for Success from the Country's Top Students (Cal Newport)										
	3											
	4											
Reference	1	Making the most of college: Students speak their minds (author - Richard Light)										

	2	Failing Forward: Turning Mistakes into Stepping Stones for Success (John C Maxwell)		
	3	The Last Lecture (Randy Pausch)		
	4	Lean in (Sheryl Sandberg)		
Online resources	1	List of clubs and activities		
	2	Youtube- Introduction to various club activities		
	3			

List of student club Activities	
1	Music (vocals, instruments, technical, recording, mixing, production, management)
2	Dance (Indian classical, western, jazz, latin, contemporary, folk, production, event management)
3	Theatre (classical, experimental, one-act, street, production, direction, casting, etc.)
4	Arts (fine arts, painting, calligraphy, sketching, caricaturing, etc)
5	Craft (origami, model making, sculpture, pottery, etc)
6	Cooking (home-style, baking, confectionery, Indian, intercontinental, etc.)
7	Graffiti (street, mural, collage, multi media, etc)
8	Workshops, quizzes, debates, elocution, etc
9	Filmmaking (adventure, drama, film appreciation, documentary, etc)
10	Photography (conventional, immersive (360), landscape, portrait, technical, editing, etc.)
11	College Fests
12	Designing (graphic design, landscape, interior, etc)
13	Competitive coding
14	Recreational sports activities
15	Other club activities organized by student clubs

Pedagogy tools	Experiential learning	Journaling and Reflection Paper	Multimedia Portfolio			

	Components	Term End Learning reflection paper			Internal Examination						
			RP	PF	RP	PF	RP	PF	RP	PF	
	Marks		10	10	10	10	10	10	10	10	
	Total Marks	20	80								

	DOSL1001 #REF!	1	2	3	4	5	6	7	8
1	Identify personal interest areas								
2	Learn from diverse perspectives and experiences								
3	Gain exposure to various activities and opportunities for extra-curicular activities								
4	Learn to manage time effectively								
5	gain confidence								

Instructional Plan

	Activities	Readings	Activities	CO
1	Participation in various club based activities			
2	Weekly reflection paper			
3	Portfolio (on social media using an instagram account)			
4	Two learning papers (one per semester)			

DOSL1011		**Club Activity (Member of club)**							
Version	1	School	DoSL	Date of Approval		10-Nov-21			
						L	T	P	C
						0	1	2	2
Total Number of Contact Hours					L	0	T	2	P	56
Pre-requisites									
Alternate Exposure									
Co-requisites									

Course Outcomes	1	Be a member of a club and organize activities in that particular interest area
	2	Learn from diverse perspectives and experiences
	3	Learn to design and execute extra-curicular activities
	4	Develop management skills through hands on experience
	5	Explore different managerial roles and develop competencies
Specific Instructional Objectives	1	Create opportunities for students to learn from organizing club activities
	2	Learn teamwork, leadership, planning and management of events and activities
	3	Learn to appreciate multiple perspectives, cultures, and individual capabilities
	4	Learn to manage time effectively
Catalog Description	This course encourages and acknowledges student members' work in organizing events and activities organized by various student organizations that pursue specific co-curricular and extra-curricular interests. These activities allow students to actively learn from the process of conceptualizing and organizing such activities as part of a team.	
Text Books	1	Small move: big Change (Caroline Arnold)
	2	How to Win at College: Surprising Secrets for Success from the Country's Top Students (Cal Newport)
	3	
	4	
Reference	1	Making the most of college: Students speak their minds (author - Richard Light)
	2	Failing Forward: Turning Mistakes into Stepping Stones for Success (John C Maxwell)
	3	The Last Lecture (Randy Pausch)
	4	Lean in (Sheryl Sandberg)
Online resources	1	List of clubs and activities
	2	Youtube- Introduction to various club activities
	3	
List of student Club Activities		
1	Music (vocals, instruments, technical, recording, mixing, production, management)	
2	Dance (Indian classical, western, jazz, latin, contemporary, folk, production, event management)	
3	Theatre (classical, experimental, one-act, street, production, direction, casting, etc.)	

4	Arts (fine arts, painting, calligraphy, sketching, caricaturing, etc)									
5	Craft (origami, model making, sculpture, pottery, etc)									
6	Cooking (home-style, baking, confectionery, Indian, intercontinental, etc.)									
7	Graffiti (street, mural, collage, multi media, etc)									
8	Workshops, quizzes, debates, elocution, etc									
9	Filmmaking (adventure, drama, film appreciation, documentary, etc)									
10	Photography (conventional, immersive (360), landscape, portrait, technical, editing, etc.)									
11	College Fests									
12	Designing (graphic design, landscape, interior, etc)									
13	Competitive coding									
14	Recreational sports activities									
15	Other club activities organized by student clubs									
Pedagogy tools	Experiential learning	Journaling and Reflection Paper	Multimedia Portfolio							
	Components	Term End Learning reflection paper		Internal Examination						
				RP	PF	RP	PF	RP	PF	RP	PF
	Marks			10	10	10	10	10	10	10	10
	Total Marks	20		80						
	DOSL1011	Club Activity (Member of club)		1	2	3	4	5	6	7	8
1	Be a member of a club and organize activities in that particular interest area									
2	Learn from diverse perspectives and experiences									
3	Learn to design and execute extra-curicular activities									
4	Develop management skills through hands on									

	experience									
5	Explore different managerial roles and develop competencies									

Instructional Plan

	Activities	Readings	Activities	CO
1	Organization of the activities as a member of the club			
2	fortnightly reflection paper			
3	Portfolio (on social media using an instagram account)			
4	Two learning papers (one per semester)			

DOSL1021		**Club Activity (Leader of CLub)**									
Version	1	School	DoSL	Date of Approval				10-Nov-21			
								L	T	P	C
								0	1	2	2
Total Number of Contact Hours						L	0	T	2	P	56
Pre-requisites											
Alternate Exposure											
Co-requisites											

Course Outcomes	1	Be the leader of the club and implement the charter, vision and mission of the club
	2	Learn from diverse perspectives and experiences
	3	Learn to lead the team, design and execute extra-curicular activities
	4	Develop management skills through hands on experience
	5	Explore different managerial roles and develop competencies
Specific Instructional Objectives	1	Create opportunities for students to learn from organizing club activities
	2	Learn teamwork, leadership, planning and management of events and activities
	3	Learn to appreciate multiple perspectives, cultures, and individual capabilities
	4	Learn to manage time effectively
Catalog	This course encourages and recognizes student members' work in leading the student	

Description	organizations through various leadership roles. As leaders they work not just to organize events and activities in specific co-curricular and extra-curricular interests, but also lead the teams that form the core members of the clubs. These activities allow students to learn and practice leadership and management skills through real world experience.	
Text Books	1	Small move: big Change (Caroline Arnold)
	2	How to Win at College: Surprising Secrets for Success from the Country's Top Students (Cal Newport)
	3	
	4	
Reference	1	Making the most of college: Students speak their minds (author - Richard Light)
	2	Failing Forward: Turning Mistakes into Stepping Stones for Success (John C Maxwell)
	3	The Last Lecture (Randy Pausch)
	4	Lean in (Sheryl Sandberg)
Online resources	1	List of clubs and activities
	2	Youtube- Introduction to various club activities
	3	

List of Student club Activities	
1	Music (vocals, instruments, technical, recording, mixing, production, management)
2	Dance (Indian classical, western, jazz, latin, contemporary, folk, production, event management)
3	Theatre (classical, experimental, one-act, street, production, direction, casting, etc.)
4	Arts (fine arts, painting, calligraphy, sketching, caricaturing, etc)
5	Craft (origami, model making, sculpture, pottery, etc)
6	Cooking (home-style, baking, confectionery, Indian, intercontinental, etc.)
7	Graffiti (street, mural, collage, multi media, etc)
8	Workshops, quizzes, debates, elocution, etc
9	Filmmaking (adventure, drama, film appreciation, documentary, etc)
10	Photography (conventional, immersive (360), landscape, portrait, technical, editing, etc.)
11	College Fests
12	Designing (graphic design, landscape, interior, etc)
13	Competitive coding

14	Recreational sports activities													
15	Other club activities organized by student clubs													
Pedagogy tools	Experiential learning	Journaling and Reflection Paper	Multimedia Portfolio											
	Components	Term End Learning reflection paper			Internal Examination									
					RP	PF	RP	PF	RP	PF	RP	PF		
	Marks				10	10	10	10	10	10	10	10		
	Total Marks	20			80									
	DOSL1021	Club Activity (Leader of CLub)			1	2	3	4	5	6	7	8		
1	Be the leader of the club and implement the charter, vision and mission of the club													
2	Learn from diverse perspectives and experiences													
3	Learn to lead the team, design and execute extra-curicular activities													
4	Develop management skills through hands on experience													
5	Explore different managerial roles and develop competencies													
Instructional Plan														
	Activities			Readings	Activities								CO	
1	Playing a leadership role in a student club													
2	Fortnightly reflection paper													
3	Portfolio (on social media using an instagram account)													

4	Two learning papers (one per semester)			

DOSL1031		Club Activity (Competitor)									
Version	1	School	DoSL	Date of Approval			10-Nov-21				
							L	T	P	C	
							0	1	2	2	
Total Number of Contact Hours					L	0	T	2	P	56	
Pre-requisites											
Alternate Exposure											
Co-requisites											

Course Outcomes	1	Be the leader of the club and implement the charter, vision and mission of the club
	2	Learn from diverse perspectives and experiences
	3	Learn to lead the team, design and execute extra-curicular activities
	4	Develop management skills through hands on experience
	5	Explore different managerial roles and develop competencies
Specific Instructional Objectives	1	Create opportunities for students to learn from organizing club activities
	2	Learn teamwork, leadership, planning and management of events and activities
	3	Learn to appreciate multiple perspectives, cultures, and individual capabilities
	4	Learn to manage time effectively
Catalog Description	This course encourages and recognizes individual student effort in participating in various inter-college cultural competitions within and outside the University. As representatives of the University, they help bring laurels and positive pulicity to the University. This course recognizes their effort and time invested in practicing and participating in such competitions.	
Text Books	1	Small move: big Change (Caroline Arnold)
	2	How to Win at College: Surprising Secrets for Success from the Country's Top Students (Cal Newport)
	3	
	4	
Reference	1	Making the most of college: Students speak their minds (author - Richard Light)
	2	Failing Forward: Turning Mistakes into Stepping Stones for Success (John C Maxwell)
	3	The Last Lecture (Randy Pausch)
	4	Lean in (Sheryl Sandberg)
Online resources	1	List of clubs and activities
	2	Youtube- Introduction to various club activities

	3	

List of Student club Activities	
1	Music (vocals, instruments, technical, recording, mixing, production, management)
2	Dance (Indian classical, western, jazz, latin, contemporary, folk, production, event management)
3	Theatre (classical, experimental, one-act, street, production, direction, casting, etc.)
4	Arts (fine arts, painting, calligraphy, sketching, caricaturing, etc)
5	Craft (origami, model making, sculpture, pottery, etc)
6	Cooking (home-style, baking, confectionery, Indian, intercontinental, etc.)
7	Graffiti (street, mural, collage, multi media, etc)
8	Workshops, quizzes, debates, elocution, etc
9	Filmmaking (adventure, drama, film appreciation, documentary, etc)
10	Photography (conventional, immersive (360), landscape, portrait, technical, editing, etc.)
11	College Fests
12	Designing (graphic design, landscape, interior, etc)
13	Competitive coding
14	Recreational sports activities
15	Other club activities organized by student clubs

Pedagogy tools	Experiential learning		Journaling and Reflection Paper		Multimedia Portfolio										
	Components		Term End Learning reflection paper				Internal Examination								
							RP	PF	RP	PF	RP	PF	RP	PF	
	Marks						10	10	10	10	10	10	10	10	
	Total Marks		20				80								
	DOSL1031	Club Activity (Competitor)					1	2	3	4	5	6	7	8	
1	Be the leader of the club and implement the charter, vision and mission of the club														
2	Learn from diverse perspectives and experiences														
3	Learn to lead the team, design and execute extra-curicular activities														
4	Develop management skills through hands on experience														
5	Explore different managerial roles and develop														

	competencies								
Instructional Plan									
	Activities	Readings	Activities						CO
1	Practicing for, participating in and representing University in Inter college fests								
2	Fortnightly reflection paper								
3	Portfolio (on social media using an instagram account)								
4	Two learning papers (one per semester)								

BCA – II SEMESTER

DOSL1041		Community Services - Volunteer									
Version	1	School	DoSL	Date of Approval			9-Nov-21				
							L	T	P	C	
							0	1	2	2	
Total Number of Contact Hours						L	0	T	2	P	56
Pre-requisites											
Alternate Exposure											
Co-requisites											
Course Outcomes	1	Experience of volunteering in a variety of Community service activities									
	2	Gaining empathy for lesser privileged sections of society by experience									
	3	Understanding the process of generating community awareness									
	4	Understanding Disaster management and relief through training and experience									
	5	Developing environmental and sustainability awareness									
Specific Instructional Objectives	1	To help students develop empathy and citizenship behavior									
	2	Enable students to develop an altruistic attitude and community development sensibility									
	3	Allow exploration of community service activities and reflect about these experiences									
	4	Learn to work in small and large teams for achieving community objectives									
Catalog Description	This course recognizes student participation in Community service activities organized by various student organizations and other Government and non-government organizations that exist for providing service to communities. These activities allow students to develop empathy, citizenship behavior and community values.										

Text Books	1	Soul of a citizen: living with conviction in Challenging times (author: Paul Rogat Loeb)
	2	Community Services intervention: Vera Lloyd
	3	
	4	
Reference	1	A path appears: Transforming lives, creating opportunities(Nicholas Kristof and Sheryl WuDunn)
	2	The story of My Experiments with Truth (author: M. K. Gandhi)
	3	
	4	
Online resources	1	List of student run and and other Government and non-government community service organizationsorganizations
	2	
	3	

List of Community Service Activities	
1	Community Health Services
2	Swachh Bharat Abhiyan and other Cleanliness drives
3	Tree Plantation and similar environmental conservation initiatives
4	Rain water harvesting awareness and implementation
5	Fundraising and visits to Orphanages, Old-age homes, etc.
6	Health and disease awareness programs
7	Working with NGOs
8	Disaster mitigation and management training and relief work
9	Rural Upliftment projects
10	Campus awareness and action projects (cleanliness, anti-ragging, blood donation, etc)
11	Community investigations and surveys for development research
12	Educational support for underprivileged (remedial classes, coaching, training, etc)
13	Service camps
14	Advocacy and information literacy initiatives
15	Other activities serving local communities

Pedagogy tools	Experiential learning	Journaling and Reflection Paper	Multimedia Portfolio			

	Components	Term End Learning reflection paper		Internal Examination						
				RP	PF	RP	PF	RP	PF	RP	PF
	Marks			10	10	10	10	10	10	10	10
	Total Marks	20		80						

	DOSL1041	**Community Services - Volunteer**	1	2	3	4	5	6	7	8
1	Experience of volunteering in a variety of Community service activities									
2	Gaining empathy for lesser privileged sections of society by experience									
3	Understanding the process of generating community awareness									
4	Understanding Disaster management and relief through training and experience									
5	Developing environmental and sustainability awareness									

Instructional Plan

	Activities	**Readings**	**Activities**	CO
1	Participation in various community service activities			
2	Weekly reflection paper			
3	Portfolio (on social media using an instagram account)			
4	Two learning papers (one per semester)			

DOSL1051		**Community Services - Mobilizer**			
Version	1	School	DoSL	Date of Approval	9-Nov-21

L	T	P	C
0	1	2	2

Total Number of Contact Hours	L	0	T	2	P	56

Pre-requisites							
Alternate Exposure							
Co-requisites							

Course Outcomes	1	Experience of mobilizing and executing Community service activities
	2	Providing opportunities for community service volunteering for other fellow students
	3	Understanding the process of mobilizing cash, kind and volunteer support

	4	Building leadership and management skills
	5	Building empathy and citizenship behavior
Specific Instructional Objectives	1	To help students understand leadership in a community environment
	2	Enable students to develop an altruistic attitude and community development sensibility
	3	Allow deep understanding of community service through practical experience
	4	Learn to lead small and large teams for achieving community objectives
Catalog Description	This course recognizes student leadership in mobilizing community service activities as members of various student organizations or other Government and non-government organizations that exist for providing service to communities. These activities allow students to develop leadership, management skills, empathy, citizenship behavior and community values.	
Text Books	1	Soul of a citizen: living with conviction in Challenging times (author: Paul Rogat Loeb)
	2	Community Services intervention: Vera Lloyd
	3	
	4	
Reference	1	A path appears: Transforming lives, creating opportunities(Nicholas Kristof and Sheryl WuDunn)
	2	The story of My Experiments with Truth (author: M. K. Gandhi)
	3	
	4	
Online resources	1	List of student run and and other Government and non-government community service organizationsorganizations
	2	
	3	

List of Community Service Activities	
1	Community Health Services
2	Swachh Bharat Abhiyan and other Cleanliness drives
3	Tree Plantation and similar environmental conservation initiatives
4	Rain water harvesting awareness and implementation
5	Fundraising and visits to Orphanages, Old-age homes, etc.
6	Health and disease awareness programs
7	Working with NGOs
8	Disaster mitigation and management training and relief work
9	Rural Upliftment projects
10	Campus awareness and action projects (cleanliness, anti-ragging, blood donation, etc)

11	Community investigations and surveys for development research											
12	Educational support for underprivileged (remedial classes, coaching, training, etc)											
13	Service camps											
14	Advocacy and information literacy initiatives											
15	Other activities serving local communities											
Pedagogy tools	Experiential learning	Journaling and Reflection Paper	Multimedia Portfolio									
	Components	Term End Learning reflection paper			Internal Examination							
					RP	PF	RP	PF	RP	PF	RP	PF
	Marks				10	10	10	10	10	10	10	10
	Total Marks	20			80							
	DOSL1051	**Community Services - Mobilizer**			1	2	3	4	5	6	7	8
1	Experience of mobilizing and executing Community service activities											
2	Providing opportunities for community service volunteering for other fellow students											
3	Understanding the process of mobilizing cash, kind and volunteer support											
4	Building leadership and management skills											
5	Building empathy and citizenship behavior											

Instructional Plan

	Activities	**Readings**	**Activities**	CO
1	Organizing and leading teams in various community service activities			
2	Fortnightly reflection paper			
3	Portfolio (on social media using an instagram account)			
4	Two learning papers (one per semester)			

BCA – II SEMESTER

DOSP1001: RACQUET SPORTS (Badminton + TT)

L	T	P	C
0	2	15	2

This course provides instruction and the opportunity for participation in sports and physical fitness activities. Skills, strategies, rules, and personal wellness goals are included as appropriate. This course will provide students with an understanding of the fundamental concepts of the physiological functions and training principles associated with the chosen sport.

Course Objectives

- Understand training principles used in the sport
- Demonstrate knowledge of the game in a recreational /competitive play setting
- Organize an event around the sport
- Demonstrate concepts of warm up, game conditioning, training plans

List of Topics

1. Introduction to Badminton - History and development
2. Rules of the Game, Play Area & dimensions
3. Fundamental Skills - Badminton: Grips - Racket, shuttle
4. Sports Specific fitness and warmup drills
5. Stances and footwork
6. Badminton Gameplay: Service, Forehand, Backhand
7. Preparatory Drills and Fun Games
8. Game Variations: Singles/ Doubles/ Mixed
9. Introduction to Table Tennis - History and development
10. Rules of the Game, Play Area & dimensions
11. Fundamental Skills - TT: Grips - Racket, ball
12. Stances and footwork
13. TT Gameplay- Forehand, Backhand, Side Spin, High Toss. Strokes-Push, Chop, Drive, Half Volley, Smash, Drop-shot, Balloon, Flick, Loop Drive.
14. Preparatory Drills and Fun Games
15. Game Variations: Singles/ Doubles/ Mixed

List of Activities

1. Watch a sport documentary / training video / game history
2. On field coaching and demonstration session
3. Guided practise and play
4. Event management & game officiating
5. Friendly competitions and structured matches

References

1. Handbook of the Badminton World Federation (BWF)
2. Handbook of the International Table Tennis Federation (ITTF)

Course Outcomes

- Learn to play two (2) sports - Badminton + Table Tennis

- Understanding of the fundamental concepts such as rules of play, game variations
- Understanding of the governing structure and administration of the sport
- Understand the event management of the sport
- Apply sport concepts into an active physical lifestyle

DOSP1011: RACQUET SPORTS (BADMINTON + TENNIS)

L	T	P	C
0	2	15	2

This course provides instruction and the opportunity for participation in sports and physical fitness activities. Skills, strategies, rules, and personal wellness goals are included as appropriate. This course will provide students with an understanding of the fundamental concepts of the physiological functions and training principles associated with the chosen sport.

Course Objectives

- Understand training principles used in the sport
- Demonstrate knowledge of the game in a recreational /competitive play setting
- Organize an event around the sport
- Demonstrate concepts of warm up, game conditioning, training plans

List of Topics

1. Introduction to Badminton - History and development
2. Rules of the Game, Play Area & dimensions
3. Fundamental Skills - Badminton: Grips - Racket, shuttle
4. Sports Specific fitness and warmup drills
5. Stances and footwork
6. Badminton Gameplay: Service, Forehand, Backhand
7. Preparatory Drills and Fun Games
8. Game Variations: Singles/ Doubles/ Mixed
9. Introduction to Tennis - History and development
10. Rules of the Game, Play Area & dimensions
11. Fundamental Skills - Tennis: Grips - Racket, ball
12. Stances and footwork
13. Gameplay- Forehand, Backhand, Service, volley, chops,
14. Preparatory Drills and Fun Games
15. Game Variations: Singles/ Doubles/ Mixed

List of Activities

1. Watch a sport documentary / training video / game history
2. On field coaching and demonstration session
3. Guided Practise and play
4. Event management & game officiating
5. Friendly competitions and structured matches

References

1. Handbook of the Badminton World Federation (BWF)
2. Handbook of the International Table Tennis Federation (ITTF)

Course Outcomes

- Learn to play two (2) sports - Badminton + Tennis
- Understanding of the fundamental concepts such as rules of play, game variations
- Understanding of the governing structure and administration of the sport
- Understand the event management of the sport
- Apply sport concepts into an active physical lifestyle
- Apply sport concepts into an active physical lifestyle

DOSP1021: BOARD GAMES (CHESS + CARROM)

L	T	P	C
0	2	15	2

This course provides instruction and the opportunity for participation in sports and physical fitness activities. Skills, strategies, rules, and personal wellness goals are included as appropriate. This course will provide students with an understanding of the fundamental concepts of the physiological functions and training principles associated with the chosen sport.

Course Objectives

- Understand training principles used in the sport
- Demonstrate knowledge of the game in a recreational /competitive play setting
- Organize an event around the sport
- Demonstrate concepts of warm up, game conditioning, training plans

List of Topics

1. Introduction to Chess - History and development
2. Rules of the Game, Board Area & dimensions
3. Fundamental Skills - Chess: Pieces & functions, basic play
4. Chess board moves & terminology
5. Chess Gameplay: Openings, castling, strategies & tactics
6. Preparatory Drills and Fun Games
7. Game Variations & Officiating
8. Warmup drills (mental, preparatory gamework)
9. Introduction to Carrom - History and development
10. Rules of the Game, Board components & dimensions
11. Fundamental Skills - Carrom: - Striking
12. Gameplay - General
13. Preparatory Drills and Fun Games
14. Game Variations: Singles/ Doubles/ Mixed
15. Game Variations: Singles/ Doubles/ Mixed

List of Activities

1. Watch a sport documentary / training video / game history
2. On field coaching and demonstration session
3. Guided practise and play
4. Event management & game officiating
5. Friendly competitions and structured matches

References

1. International Chess Federation (FIDE) Handbook
2. Indian Carrom Federation Handbook - Laws

Course Outcomes

- Learn to play two (2) board games - Chess + Carrom
- Understanding of the fundamental concepts such as rules of play, game variations
- Understanding of the governing structure and administration of the sport
- Understand the event management of the sport
- Apply sport concepts into an active lifestyle

DOSP1031: TACTICAL SPORTS (HANDBALL + FOOTBALL)

L	T	P	C
0	2	15	2

This course provides instruction and the opportunity for participation in sports and physical fitness activities. Skills, strategies, rules, and personal wellness goals are included as appropriate. This course will provide students with an understanding of the fundamental concepts of the physiological functions and training principles associated with the chosen sport.

Course Objectives

- Understand training principles used in the sport
- Demonstrate knowledge of the game in a recreational /competitive play setting
- Organize an event around the sport
- Demonstrate concepts of warm up, game conditioning, training plans

List of Topics

1. Introduction to Handball - History and development
2. Rules of the Game, Play Area & dimensions
3. Fundamental Skills - Handball: Throwing, Ball control, Movement
4. Sports Specific fitness and warmup drills
5. Stances and footwork: Jumps, dribbles, catching, throws
6. Gameplay: Shots, throws, movements, attack, defense
7. Preparatory Drills and Fun Games
8. Introduction to Football - History and development
9. Rules of the Game, Play Area & dimensions
10. Fundamental Skills: Kicking, heading, ball control, Keeping
11. Movement, throwins, tackling, defense, scoring, defense
12. Gameplay- Formations, passing, FKs, CKs, PK, tactics
13. Preparatory Drills and Fun Games
14. Game Variations: Small sided games, 7v7, 11v11

List of Activities

1. Watch a sport documentary / training video / game history
2. On field coaching and demonstration session
3. Guided practise and play
4. Event management & game officiating
5. Friendly competitions and structured matches

References

1. International Handball Federation - Rules of the Game & Regulations
2. FIFA Laws of the Game

Course Outcomes

- Learn to play two (2) sports - Handball + Football
- Understanding of the fundamental concepts such as rules of play, game variations
- Understanding of the governing structure and administration of the sport
- Understand the event management of the sport
- Apply sport concepts into an active physical lifestyle

DOSP1041: TACTICAL SPORTS (BASKETBALL + FOOTBALL)

L	T	P	C
0	2	15	2

This course provides instruction and the opportunity for participation in sports and physical fitness activities. Skills, strategies, rules, and personal wellness goals are included as appropriate. This course will provide students with an understanding of the fundamental concepts of the physiological functions and training principles associated with the chosen sport.

Course Objectives

- Understand training principles used in the sport
- Demonstrate knowledge of the game in a recreational /competitive play setting
- Organize an event around the sport
- Demonstrate concepts of warm up, game conditioning, training plans

List of Topics

1. Introduction to Basketball - History and development
2. Rules of the Game, Play Area & dimensions
3. Fundamental Skills: Passing, Receiving, Dribbling
4. Sports Specific fitness and warmup drills
5. Stances and footwork: Jumps, dribbles, catching, throws
6. Gameplay: Shots, throws, movements, attack, defense
7. Preparatory Drills and Fun Games
8. Introduction to Football - History and development
9. Rules of the Game, Play Area & dimensions
10. Fundamental Skills: Kicking, heading, ball control, Keeping
11. Movement, throwins, tackling, defense, scoring, defense
12. Gameplay- Formations, passing, FKs, CKs, PK, tactics
13. Preparatory Drills and Fun Games
14. Game Variations: Small sided games, 7v7, 11v11

List of Activities

1. Watch a sport documentary / training video / game history
2. On field coaching and demonstration session
3. Guided practise and play
4. Event management & game officiating
5. Friendly competitions and structured matches

References

1. International Handball Federation - Rules of the Game & Regulations
2. FIFA Laws of the Game

Course Outcomes

- Learn to play two (2) sports - Basketball + Football
- Understanding of the fundamental concepts such as rules of play, game variations
- Understanding of the governing structure and administration of the sport
- Understand the event management of the sport
- Apply sport concepts into an active physical lifestyle

DOSP1051: TACTICAL SPORTS (HANDBALL + BASKETBALL)

L	T	P	C
0	2	15	2

This course provides instruction and the opportunity for participation in sports and physical fitness activities. Skills, strategies, rules, and personal wellness goals are included as appropriate. This course will provide students with an understanding of the fundamental concepts of the physiological functions and training principles associated with the chosen sport.

Course Objectives

- Understand training principles used in the sport
- Demonstrate knowledge of the game in a recreational /competitive play setting
- Organize an event around the sport
- Demonstrate concepts of warm up, game conditioning, training plans

List of Topics

1. Introduction to Handball - History and development
2. Rules of the Game, Play Area & dimensions
3. Fundamental Skills - HB: Throwing, Ball control, Scoring, Movement
4. Sports Specific fitness and warmup drills
5. Stances and footwork: Jumps, dribbles, catching, throws
6. Gameplay: Shots, throws, movements, attack, defense
7. Preparatory Drills and Fun Games
8. Introduction to Basketball - History and development
9. Rules of the Game, Play Area & dimensions
10. Fundamental Skills: Passing, Receiving, Dribbling
11. Sports Specific fitness and warmup drills
12. Stances and footwork: Jumps, dribbles, catching, throws
13. Gameplay: Shots, throws, movements, attack, defense
14. Preparatory Drills and Fun Games

List of Activities

1. Watch a sport documentary / training video / game history
2. On field coaching and demonstration session
3. Guided practise and play
4. Event management & game officiating
5. Friendly competitions and structured matches

References

1. International Handball Federation - Rules of the Game & Regulations
2. FIBA Basketball Official Rules

Course Outcomes

- Learn to play two (2) sports - Handball + Basketball
- Understanding of the fundamental concepts such as rules of play, game variations
- Understanding of the governing structure and administration of the sport
- Understand the event management of the sport
- Apply sport concepts into an active physical lifestyle

DOSP1061: SPORTS (VOLLEYBALL + THROWBALL)

L	T	P	C
0	2	15	2

This course provides instruction and the opportunity for participation in sports and physical fitness activities. Skills, strategies, rules, and personal wellness goals are included as appropriate. This course will provide students with an understanding of the fundamental concepts of the physiological functions and training principles associated with the chosen sport.

Course Objectives

- Understand training principles used in the sport
- Demonstrate knowledge of the game in a recreational /competitive play setting
- Organize an event around the sport
- Demonstrate concepts of warm up, game conditioning, training plans

List of Topics

1. Introduction to Volleyball - History and development
2. Rules of the Game, Play Area & dimensions
3. Fundamental Skills: Striking, Ball control, Lifting
4. Sports Specific fitness and warmup drills
5. Stances and footwork
6. Gameplay: Jumps, strikes, layoffs, attack, defense
7. Preparatory Drills and Fun Games
8. Introduction to Throwball - History and development
9. Rules of the Game, Play Area & dimensions
10. Fundamental Skills: Throwing, Receiving
11. Sports Specific fitness and warmup drills
12. Stances and footwork
13. Gameplay: Shots, throws, movements, control
14. Preparatory Drills and Fun Games

List of Activities

1. Watch a sport documentary / training video / game history
2. On field coaching and demonstration session
3. Guided practise and play
4. Event management & game officiating
5. Friendly competitions and structured matches

References

1. FIVB - Official Volleyball Rules
2. World Throwball Federation - Rules of the Game

Course Outcomes

- Learn to play two (2) sports - Volleyball + Throwball
- Understanding of the fundamental concepts such as rules of play, game variations
- Understanding of the governing structure and administration of the sport
- Understand the event management of the sport
- Apply sport concepts into an active physical lifestyle

DOSP1071: TRADITIONAL SPORTS (KABADDI + KHOKHO)

L T P C0 2

This course provides instruction and the opportunity for participation in sports and physical fitness activities. Skills, strategies, rules, and personal wellness goals are included as appropriate. This course will provide students with an understanding of the fundamental concepts of the physiological functions and training principles associated with the chosen sport.

Course Objectives

- Understand training principles used in the sport
- Demonstrate knowledge of the game in a recreational /competitive play setting
- Organize an event around the sport
- Demonstrate concepts of warm up, game conditioning, training plans

List of Topics

1. Introduction to Kabaddi - History and development
2. Rules of the Game, Play Area & dimensions
3. Fundamental Skills: Raiding, catching,
4. Sports Specific fitness and warmup drills
5. Stances and footwork
6. Gameplay: Chain system movement
7. Preparatory Drills and Fun Games
8. Introduction to Kho Kho - History and development
9. Rules of the Game, Play Area & dimensions
10. Fundamental Skills: Siting, giving Kho, Pole dive
11. Sports Specific fitness and warmup drills
12. Stances and footwork: Running, sitting
13. Gameplay: Running strategies, ring method, chain method
14. Preparatory Drills and Fun Games

List of Activities

1. Watch a sport documentary / training video / game history
2. On field coaching and demonstration session
3. Guided practise and play
4. Event management & game officiating
5. Friendly competitions and structured matches

References

1. Amateur Kabaddi Federation of India (AKFI) - Official Rules
2. Rules of Kabadddi - International Kabaddi Federation
3. Khelo India Official Rulebook of Kho Kho

Course Outcomes

- Learn to play two (2) sports - Kabaddi + KhoKho
- Understanding of the fundamental concepts such as rules of play, game variations
- Understanding of the governing structure and administration of the sport
- Understand the event management of the sport
- Apply sport concepts into an active physical lifestyle