JIIT NOIDA
B. Sc. (Honours/ Honours with Research/Academic Projects/Entrepreneurship)
Computing and Programming

Course Description (B. Sc. Courses)

Introduction to Programming Using C (22B21MA111)

Introduction to Programming Using C will cover Introduction, Data types, Operators, and Control Flow, Array, Functions, Structures and Union, Pointers and File Handling.

Course Description

Course Code	**22B21MA111**	**Semester: Odd**	**Semester I Session 2022-23 Month from Jul 2022 to Dec 2022**	
Course Name	**Introduction to Programming Using C**			
Credits	**3**	**Contact Hours**	3-0-0	
	Coordinator(s)	MS. DEEPTI SINGH		
	Teacher(s) (Alphabetically)			

COURSE OUTCOMES		**COGNITIVE LEVELS**
After pursuing the above-mentioned course, the students will be able to:		
CO1	Explain various data types, memory allocation schemes, precedence of arithmetical and logical operations, and need of array, and structures	Understanding Level (C2)
CO2	Draw the flow chart and write the high-level code for different problems	Understanding Level (C2)
CO3	Apply and implement functions with or without pointers for different problems	Applying Level (C3)
CO4	Demonstrate and implement various operations like traverse, insertion, deletion, etc. on files	Applying Level (C3)

Module No.	**Title of the Module**	**Topics in the Module**	**No. of Lectures**
1.	Introduction	Introduction to Logic building, Step by step solution to simple problems, developing logic/flow- chart/pseudo code to solve problems like simple/logical games, puzzles.	9
2.	Data types, Operators, and Control Flow	Data, variables and constants, data types, operators – binary, unary, ternary, operator precedence, operations using different operators, if, if-else, while, do-while, for, switch-case in C Programming	9
3.	Array	Fundamentals of Array, Implementation of 1D/2D Array and related operations like insertion, traversal, updation, etc. in C programming using different problems	6
4.	Functions	Introduction to Functions and its implementation in C programming language, Functions using Pass by value, recursive functions	4
5.	Structures and Union	Introduction and implementation of Structures and Union in C programming, Array of Structures and related operations like insertion, traversal, updation, etc. in C programming using different problems, Function using structures	4

6.	Pointers	Pointers in C, Dynamic memory allocation for 1D/2D array and structures, Arithmetical operations on pointers, functions using pass by reference	6
7.	File Handling	Introduction to File, creation of files in C programming language, Modes of File Handling like read, write, update; different types of files like binary file and text file and respective operations like, opening, closing, reading, writing, end of file.	4
		Total Number of Lectures	**42**

Evaluation Criteria

Components	**Maximum Marks**
T1	20
T2	20
End Semester Examination	35
TA	25 (Quiz, Assignments)
Total	**100**

Project based learning: Each student in a group of 4-5 will apply the concepts of C programming to solve practical problems.

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc)

Text Books	
1	Herbert Schildt. "The Complete Reference C", 4th Edition, TMH, 2000
2	Ashok N. Kamthane, "Programming with ANSI and Turbo C", Pearson Education, Delhi, 2006
3	H. Cooper and H. Mullish, "Spirit of C", 4th Edition, Jaico Publishing House, 2006
4	Greg Perry, Dean Miller, "C Programming Absolute Beginner's Guide Paperback", QUE; 3 edition, 2013
Reference Books	
1	Griffiths, David, and Dawn Griffiths, "Head First C: A Brain-Friendly Guide", O'Reilly Media, Inc., 2012.
2	Brian W. Kernighan and Dennis M. Ritchie, "The C Programming Language", 2nd Edition, Prentice-Hall India, New Delhi, 2002
3	B. A. Forouzan, R. F. Gilberg "Computer Science: A Structured Programming Approach Using C", 2nd Edition, Thomson Press, New Delhi, 2006

CO-PO-PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO-CS	PSO-IT	PSO-CP
CO1	3	2	1	1	1		2	1	2	3	3	3
CO2	3	2	2	3	1		3	1	2	3	3	3
CO3	3	2	2	2	1		2	1	2	2	2	2
CO4	3	2	2	2	1		3	1	2	3	3	3
Avg	3	2	2	2	1		3	1	2	3	3	3

Introduction to Programming Using C LAB (22B25MA111)

Introduction to Programming Using C Lab will cover Introduction, Data types, Operators, and Control Flow, Array, Functions, Structures and Union, Pointers and File Handling

Course Description

Course Code	**22B25MA111**	**Semester: Odd**	**Semester I Session 2022-23** **Month from Jul 2022 to Dec 2022**
Course Name	**Introduction to Programming Using C LAB**		
Credits	**1**	**Contact Hours**	0-0-2
Faculty (Names)	**Coordinator(s)**	MS. DEEPTI SINGH	
	Teacher(s) (Alphabetically)		

COURSE OUTCOMES		**COGNITIVE LEVELS**
CO1	Develop programs/logic for data types, expressions and conditional structure.	Applying Level (C3)
CO2	Perform programs for array and functions.	Applying Level (C3)
CO3	Implement programs for structure and union.	Applying Level (C3)
CO4	Perform programs of pointers and recursive functions.	Applying Level (C3)
CO5	Implement menu driven programs to perform basic file operations.	Applying Level (C3)

Module No.	**Subtitle of the Module**	**List of Experiments**	**No of Labs**
1.	Introduction	Introduction to Logic building, Step by step solution to simple problems, developing logic/flow- chart/pseudocode to solve problems like simple/logical games, puzzles. Introduction to Code block (Editor for C)	2
2.	Data types, Operators, and Control Flow	Data, variables and constants, data types, operators – binary, unary, ternary, operator precedence, operations using different operators, if, if-else, while, do-while, for, switch-case in C Programming	2
3.	Array	Fundamentals of Array, Implementation of 1D/2D Array and related operations like insertion, traversal, updation, etc. in C programming using different problems	2
4.	Functions	Introduction to Functions and its implementation in C programming language, Functions using Pass by value, recursive functions	2
5.	Structures and Union	Introduction and implementation of Structures and Union in C programming, Array of Structures and related operations like insertion, traversal, updation, etc. in C programming using different problems, Structures using function	2

6.	Pointers	Pointers in C, Dynamic memory allocation for 1D/2D array and structures, Arithmetical operations on pointers, functions using pass by reference	2
7.	File Handling	Introduction to File, creation of files in C programming language, Modes of File Handling like read, write, update; different types of files like binary file and text file and respective operations like, opening, closing, reading, writing, end of file.	2
		Total No. of Labs	**14**

Evaluation Criteria

Components	**Maximum Marks**
Lab Test -1	20
Lab Test -2	20
Day to Day	60
(Evaluation 1- 15, Evaluation 2- 15, Mini Project- 15, Attendance- 15)	
Total	**100**

Project based learning: Each student in a group of 3-4 will develop a mini project with the help of various concepts of C programming. In a team they will learn how to apply the concepts for problem solving in a meaningful way.

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc)

Text Books	
1	Herbert Schildt. "The Complete Reference C", 4th Edition, TMH, 2000
2	Ashok N. Kamthane, "Programming with ANSI and Turbo C", Pearson Education, Delhi, 2006
3	H. Cooper and H. Mullish, "Spirit of C", 4th Edition, Jaico Publishing House, 2006
4	Greg Perry, Dean Miller, "C Programming Absolute Beginner's Guide Paperback", QUE; 3 edition, 2013
Reference Books	
1	Griffiths, David, and Dawn Griffiths, "Head First C: A Brain-Friendly Guide", O'Reilly Media, Inc., 2012.
2	Brian W. Kernighan and Dennis M. Ritchie, "The C Programming Language", 2nd Edition, Prentice-Hall India, New Delhi, 2002
3	B. A. Forouzan, R. F. Gilberg "Computer Science: A Structured Programming Approach Using C", 2nd Edition, Thomson Press, New Delhi, 2006

CO-PO-PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO-CS	PSO-IT	PSO-CP
CO1	3	2	1	1	1		2	1	2	3	3	3
CO2	3	2	1	1	1		2	1	2	3	3	3
CO3	3	2	2	2	1		2	1	2	3	3	3
CO4	3	2	2	2	1		3	1	2	3	3	3

CO5	3	2	3	2	1		3	1	2	3	3	3
Avg	3	2	2	2	1		3	1	2	3	3	3

Computer System Architecture (22B21MA112)

Computer system architecture will cover introduction, data representation and basic computer arithmetic, basic computer organization and design, central processing unit, memory organization and input output organization.

Course Description

Course Code	**22B21MA112**	**Semester: Odd**	**Semester I Session 2022-23 Month from Jul 2022 to Dec 2022**
Course Name	**Computer System Architecture**		
Credits	**4**	**Contact Hours**	3-1-0
Faculty (Names)	**Coordinator(s)**	DR. KAPIL MADAN	
	Teacher(s) (Alphabetically)		

COURSE OUTCOMES		**COGNITIVE LEVELS**
CO1	Summarize and compare the different computer systems based on RISC and CISC Architecture.	Analyzing Level (C4)
CO2	Categorize different types of computers based on Instruction set Architecture.	Analyzing Level (C4)
CO3	Apply the knowledge of performance metrics to find the performance of systems.	Applying Level (C3)
CO4	Design RISC and CISC based Computer using Hardwired / Microprogrammed Controller.	Evaluating Level (C5)
CO5	Create and analyze an assembly language program of RISC and CISC based systems.	Evaluating Level (C5)
CO6	Apply the knowledge of pipeline, IO and cache to understand these systems. Further, analyze the performance of such systems.	Analyzing Level (C4)

Module No.	**Title of the Module**	**Topics in the Module**	**No. of Lectures**
1.	Introduction	Logic gates, Boolean algebra, combinational circuits, circuit simplification, flip-flops and sequential circuits, decoders, multiplexers, registers, counters and memory units.	04
2.	Data Representation and Basic Computer Arithmetic	Number systems, complements, fixed and floating-point representation, character representation, addition, subtraction, magnitude comparison, multiplication and division algorithms for integers	06
3.	Basic Computer Organization and Design	Computer registers, bus system, instruction set, timing and control, instruction cycle, memory reference, input-output and interrupt, Interconnection Structures, Bus Interconnection design of basic computer.	08
4.	Central Processing Unit	Register organization, arithmetic and logical micro-operations, stack organization, micro programmed control.	07

		Instruction formats, addressing modes, instruction codes, machine language, assembly language, input output programming, RISC, CISC architectures, pipelining and parallel architecture with examples.	
5.	Memory Organization	Different Levels of Memory organization, Cache memory, Associative memory, mapping and its algorithm	10
6.	Input-Output Organization	Input / Output: External Devices, I/O Modules, Programmed I/O, Interrupt-Driven I/O, Direct Memory Access, I/O Channels.	07
		Total number of Lectures	**42**

Evaluation Criteria

Components	**Maximum Marks**
T1	20
T2	20
End Semester Examination	35
TA	25 (Attendance 10, Quiz 10, Tutorial 5 Marks)
Total	**100**

Project based learning: Project is an integral part of the Subject. Student form group size 3-4, and discuss the project idea with their faculty before finalizing. All projects are based on hardware and hardware components. Programming language is used as per processor/controller. Students develop projects/prototypes to interact with physical environment, control physical object with software. Students learn various processor architecture as well as their programming languages.

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1.	M. Morris Mano, Computer System Architecture, Prentice Hall of India Pvt Ltd, Fourth Edition, 2008.
2.	William Stallings, Computer Organization and Architecture–Designing for Performance, Ninth Edition, Pearson Education, 2013.
3.	John L. Hennessy and David A Patterson, Computer Architecture A Quantitative Approach, Morgan Kaufmann / Elsevier, Sixth Edition, 2019
4.	Carl Hamacher, Computer Organization, Fifth edition, McGraw-Hill, 2012.
5.	M.M. Mano, Digital Design, Pearson Education Asia,2018
6.	Nicholas Carter, Schaum's outline of Computer Architecture, Tata McGraw Hill, Special Edition, 2006.
7.	Ramesh Gaonkar, Microprocessor Architecture Programming and Applications with the 8085, Prentice Hall, Sixth Edition, 2013.
8.	Barry B. Brey, The Intel Microprocessors: 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, Pentium Pro Processor, Pentium II, Pentium III, Pentium 4, and Core2 with 64-bit Extensions: Architecture, Programming, and Interfacing. Pearson Education India, Eighth Edition, 2009.

CO-PO-PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO-CS	PSO-IT	PSO-CP
CO1	3	3	2	2	1	2	2	1	2	3	2	3
CO2	3	2	2	2	1	2	2	1	2	3	2	3
CO3	3	3	2	1		1	3	1	3	3	3	3
CO4	3	3	2	3	1	2	3	1	2	3	3	3
CO5	3	2	3	1			2	1	1	3	3	3
CO6	3	3	3	2		1	1	1	1	3	2	3
Avg	3	3	2	2	1	2	3	3	3	3	3	3

Discrete Mathematical Structures (22B21MA113)

Set theory, basic operations on sets, Venn diagram, relations, Hasse diagram, lattices, boolean algebra, numeric functions, generating functions, recursive functions, solution of recurrence relations of constant coefficients, predicate and propositional calculus, graphs, subgraphs, isomorphism of graphs, Eulerian and Hamiltonian graph, graph coloring, minimum spanning tree, digraphs, adjacency matrix, incidence matrix, path matrix, groups, rings, fields.

Course Description

Course Code	**22B21MA113**	**Semester Odd**	**Semester I Session 2022-23 Month from Jul 2022 to Dec 2022**
Course Name	**Discrete Mathematical Structures**		
Credits	4	**Contact Hours**	3-1-0
Faculty (Names)	**Coordinator(s)**	DR. ANUJ BHARDWAJ	
	Teacher(s) (Alphabetically)		

COURSE OUTCOMES: After the successful completion of this course, the student will be able to		**COGNITIVE LEVELS**
CO1	explain partial order relations and Hasse diagram	Understanding Level (C2)
CO2	explain lattices and Boolean algebra and solve the problem of recurrence relations of constant coefficients.	Applying Level (C3)
CO3	explain the propositional and predicate calculus to check the validity of arguments.	Understanding Level (C2)
CO4	demonstrate graphs, digraphs, trees and use it to solve the different problems of graph theory.	Applying Level (C3)
CO5	illustrate various algebraic structures and their properties.	Understanding Level (C2)

Module No.	**Title of the Module**	**Topics in the Module**	**No. of Lectures for the module**
1.	Set theory and Relations	Basic concept of set theory, operations on sets, Venn diagram, relations and their composition, pictorial representation, matrix and graphical representations, equivalence relations and partitions, closure of relation, Warshall's algorithm for transitive closure, partial ordered relations and POSET, Hasse diagram, Isomorphism of partial order relation	10
2.	Lattices, Boolean Algebra and Numeric Functions	Different types of lattices, isomorphic lattices, Boolean algebra, discrete numeric functions, asymptotic behavior of numeric functions, generating functions, solution of recurrence relations by generating function, recursive functions, homogenous and particular solution of recurrence relations of constant coefficients.	12
3.	Predicate and Propositional	Propositions- simple and compound, basic logical operators and their truth tables, tautologies and	7

	Calculus	contradictions, validity of arguments. Normal forms: disjunctive and conjunctive normal forms, Predicates and quantifiers, logical equivalence.	
4.	Graphs	Graphs and related definitions, subgraphs, isomorphism, paths and connectivity, Eulerian graph and Konigsberg problem, Hamiltonian graph, minimum spanning tree (Prim's algorithm), graph colorings, digraphs, adjacency matrix, incidence matrix, path matrix	9
5.	Algebraic Structures	Groups- definitions and examples, order of elements, subgroup, cyclic group, rings and fields.	4
Total number of Lectures			**42**

Evaluation Criteria

Components	**Maximum Marks**
T1	20
T2	20
End Semester Examination	35
TA	25 (Quiz, Assignments, Tutorials)
Total	**100**

Project based learning: A group of 4 to 5 students will be formed. Each group will have a group leader to develop coordination among the group members. Each group will be assigned a problem related to the diversified applications of graph theory and theory of automata. The group leader of each group will submit a report of 6-7 pages and then finally each member of the group will be evaluated through a viva voce.

Recommended Reading material:

1.	Lipschutz, S., Lipson, M.L, and Patil, V.H., Discrete Mathematics, Revised 3rd Edition, McGraw-Hill Education, 2017.
2.	Rosen, K. H., Discrete Mathematics and its Application, 7th Edition, Tata McGraw-Hill, 2011.
3.	Liu, C. L., Mahapatra, D., Elements of Discrete Mathematics: A Computer Oriented Approach, 4th Edition, McGraw-Hill, 2017.
4.	Kolman, B., Busby, R. C. and Ross, S., Discrete Mathematical Structures, 6th Edition, Pearson Education India, 2015.
5.	Deo, N., Graph Theory, Prentice Hall of India, 1980.
6.	Grimaldi, R.P., Discrete and Combinatorial Mathematics, 4th Edition, Pearson Education, 2005.

CO-PO-PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO-CS	PSO-IT	PSO-CP
CO1	2	2	2	1	1		1	2	2	1	1	1
CO2	2	2	2	1	1		1	1	2	2	1	2
CO3	1	2	1	1	1		1	1	1	1	1	1
CO4	3	2	2	2	1		2	1	2	2	2	2

CO5	2	1	2	2	1		2	1	2	2	2	2
Avg	2	2	2	2	1		2	2	2	2	2	2

Physics-1 (15B11PH111)

Course Description

Course Code	**15B11PH111**	**Semester: Odd**	**Semester: 1 Session: 2022-2023 Month from: Jul 2022 to Dec 2022**		
Course Name	**Physics-1**				
Credits	4	**Contact Hours**	3-1-0		
Faculty (Names)	**Coordinator(s)**	DR. BHUBESH CHANDER JOSHI			
	Teacher(s) (Alphabetically)				

COURSE OUTCOMES		**COGNITIV E LEVELS**
CO1	Recall the basic principles of physics related to optics, relativity, quantum mechanics, atomic physics.	Remembering (C1)
CO2	Illustrate the various physical phenomena with interpretation based on the mathematical expressions involved.	Understanding (C2)
CO3	Apply the concepts/principles to solve the problems related to wave nature of light, relativity, quantum mechanics and atomic physics.	Applying (C3)
CO4	Analyze and examine the solution of the problems using physical and mathematical concepts involved.	Analyzing (C4)

Module No.	**Title of the Module**	**Topics in the Module**	**No. of Lectures for the module**
1.	Physical Optics	Analytical treatment of interference, Intensity distribution of fringe system, Fresnel's Bi-prism, Newton's rings, Michelson interferometer, Diffraction(limited to Fraunhofer class) from Single slit, double slit and Diffraction grating, Polarization, Phenomenological understanding of Birefringence, Principles of use of uni-axial crystals in practical polarizers, compensators and wave plates, Production and analysis of completely polarized light. Retardation Plate, Optical activity, Polarimeter. Resolving Power of Microscope.	17
2.	Relativity	Frame of references, Galilean Transformations, Michelson-Morley experiment, Lorentz transformations, Addition of velocities, Mass variation with velocity, Mass-energy relation.	5
3.	Atomic Structure	Origin of spectral lines, spin and orbital angular momentum, Quantum numbers, Designation of States, Atoms in magnetic field, Zeeman effect.	5

4.	Radiation	Black body radiation, Wein's law, Rayleigh Jeans law, Implications of Bose-Einstein statistics,Planck's law of radiation, Wein's Displacement Law.	5
5.	Quantum Mechanics	Wave-particle duality, Compton scattering, Matter waves, Heisenberg's uncertainty principle, Schrödinger wave equation and its applications to the free particle in a box (1D+3D), potential barrier and tunnel diode as its application	10
		Total number of Lectures	**42**

Project Based Learning (PBL): The students will be given small projects (in groups) on various topics like Interference, diffraction, polarization, relativity, radiations, Quantum mechanics, to explore their applications in engineering, and technology to understand the role of physics. This will help the students to connect the concept studied in the class with their application in engineering and technology and will enhance their analytical skills.

Evaluation Criteria

Components	**Maximum Marks**
T1	20
T2	20
End Semester Examination	35
TA	25 [Attendance, Class Test, Quizzes, Assignments, PBL]
Total	**100**

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1.	Ajoy K. Ghatak, Optics, Edition 5, Tata McGraw-Hill Publishing Company Limited 2015.
2.	E. Hecht, *Optics*, Edition 5, Pearson Education 2017
3.	F. A. Jenkins and H. E. White, *Fundamentals of optics*, Edition 3, Tata McGraw Hill 1955
4.	R. S. Sirohi, *Wave Optics and Its Applications*, Orient and Longman 1993
5.	Robert Resnick, *Introduction to Special Relativity*, Wiley1968

CO-PO-PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO-CS	PSO-IT	PSO-CP
CO1					1	1			2			
CO2			2						2			
CO3			2		1				2			
CO4			2						2			
Avg			2		1	1			2			

ENGLISH (22B28HS111)

English as a Communication Tool: Basic aspects of English: LSRW: Listening, Speaking, Reading, Writing. Non-Verbal Communication, Presentation Techniques, Gambits, Phonetics, Grammar, Vocabulary Enrichment techniques, Error Analysis. Literary & Rhetorical Devices, Textual Organization: Letter Writing, Email Etiquettes, Feedbacks and Review Writing· Notice, Agenda and Minutes· Format of Report Writing· CV and Resume.

Course Description

Course Code	**22B28HS111**	**Semester: Odd**	**Semester I Session 2022-23 Month from Jul 2022 to Dec 2022**
Course Name	**English**		
Credits	**2**	**Contact Hours**	1-0-2
Faculty (Names)	**Coordinator(s)**	DR. EKTA SINGH	
	Teacher(s) (Alphabetically)		

COURSE OUTCOMES		**COGNITIVE LEVELS**
CO1	Develop an understanding and appreciate the basic aspects of English as a communication tool.	Understand (C2)
CO2	Apply grammar concepts and vocabulary skills in presentation and in spoken and written communication.	Apply (C3)
CO3	Identify and explain different literary and rhetorical devices used in discourse.	Analyse (C4)
CO4	Compose different forms of professional writing.	Create (C6)
CO5	Apply Phonetics through theory and practice for better pronunciation.	Apply (C3)

Module No.	**Title of the Module**	**Topics in the Module**	**No. of Lectures**
1.	English as a Communication Tool	Communication, Basic aspects of English: LSRW: Listening/ Speaking, Reading/ Writing, Non-Verbal Communication, Presentation Techniques and Gambits for Interviews	6
2.	Language and Literary devices	Phonetics: Pronunciation, Stress, Rhythm, Intonation, Literary and Rhetorical Devices	2
3.	Professional Application/Writing	Letter Writing, Email Etiquettes, Review Writing, Notice, Agenda and Minutes, Format of Report Writing, CV and Resume	3

4.	Grammar & Vocabulary	Parts of Speech and Agreement of Noun-Verb, Tense, Aspect, Mood and Voice, Vocabulary Enrichment techniques, Synonyms, Antonyms, Homonyms, Homophones, Collocation	3
		Total number of Lectures	**14**

English LAB

S.No.	Title of the Module	List of Experiments	No. of Labs
1	Interpersonal Oral Communication through self-Introduction	Interpersonal Communication; Learning the Impact of Perception on Interpersonal Communication	2
2	Confident Non- Verbal Behaviour	To be able to impart good body language and learn aspects of non-verbal behaviour	2
3	Basics of Formal Presentations	PPT Presentation; Reading Newspapers, comprehending and presenting in own words with confidence & assertiveness	2
4	Listening through Language Lab Software (SKY IELTS)	Active Listening; Academic Listening; Listening to Debates and Presentations; Note-taking Techniques; comprehending through lab software	2
5	Phonetics and Pronunciation through lab (SKY Pronounce)	Phonetics; Speaking	2
6	Reading Practice & Comprehension through SKY Read Up Speed Up Software	Purpose, Process, Methodologies; Skimming and Scanning; Levels of Reading; Reading Comprehension; Academic Reading Tips	2
7	Grammar for Professional Writing Requirements: Parts of Speech; Tense, Voice, Types of Sentences; Vocabulary Enhancement	Passage Comprehension; Jumbled Paragraphs for grammar learning; Summary/Inference of short paragraph; Picking the Out of Context sentence in a Jumbled Paragraph; Email Writing etiquettes; Nature and Style of sensible Writing: Describing, Defining, Classifying, providing examples or evidence,Writing introduction and conclusion	2
		Total No. of Labs	**14**

Evaluation Criteria

Components	**Maximum Marks**
Mid Term	30 (Lab Exam)
End Semester Examination	40
TA	30 (Quiz, Assignments, Tutorials)
Total	**100**

PBL Component: The creative writing project is to be done in a group of 3-4 students. Students will be asked to choose one specific word that impacts all six dimensions of their life-mental, physical, emotional, relational, spiritual and financial and create a project based on that.

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1.	**C.L.Bovee, J.V.Thill, M.Chaturvedi**, *Business Communication Today*,9th Ed, Pearson Education, copyright@ Dorling Kinderslay (India) Pvt Ltd,2009

2.	**Kelly M. Quintanilla and S.T.Wahl**, *Business and Professional Communication*, Sage Publications Pvt India Ltd,2011
3.	**S. Kumar and Pushp Lata,** *Communication Skills*, Oxford University Press,1st, Ed. 2011
4.	**R.K Bansal, and J.B Harrison**, *Spoken English for India*, Orient Longman, 2018
5.	**M A Yadugiri,** The Pronunciation of English: Principles and Practice, Viva Books Pvt. Ltd, India, 2015
6.	**A. R. Rizvi,** Effective Technical Communication, 2nd edition, McGraw Hill Education Private Limited, Chennai, 2018.
7.	**Raymond Murphy,** English Grammar in Use, 4th edition, Cambridge University Press, 2012.
8.	**Hewings, M**. *English Pronunciation in Use*. Advanced. Cambridge: CUP, 2009
9.	**Krishna Mohan and N. P. Singh**, *Speaking English Effectively* 2nd Edition. Macmillan Publishers India Ltd. Delhi. 2011
10.	**Suresh Kumar, E. & Sreehari, P**. *A Handbook for English Language Laboratories*. New Delhi: Foundation, 2009.

CO-PO-PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO-CS	PSO-IT	PSO-CP
CO1								3	2			
CO2							1	3	2			
CO3								3	2			
CO4							1	3	2			
CO5								3				
Avg							1	3	2			

Life Skills and Effective Communication (22B12HS111)

Overview of Life Skills, Life Skills for Self, Family, Society and lifelong success. Advanced Reading and Comprehension Skills, inferring lexical and contextual meaning, employing discourse analysis, Advanced Speaking Skills, Advanced Writing skills. Team- work skills, Empathy, Emotional Intelligence, VUCA Leadership, Resilience, Tolerance, Self-Belief and Time Management. Presentation and Interaction Skills: Speech Delivery, Group Discussion, Presentation Skills, Public Speaking, Audience Analysis, Interviews, Assessment of Personality. Creativity: Definition; Characteristics of Creative Person: Fluency; Originality; Curiosity; Critical Thinking, Problem Solving Techniques. Harmony in personal and social life, Concept of personal and group Ethics; Balance between - rights and duties-welfare of self and welfare of all. Understanding Nine universal values in relationships. Character, Righteousness and Virtues for A Meaningful Life: Self-Realization Through Spiritual texts.

Course Description

Subject Code	**22B12HS111**	**Semester: Odd**	**Semester: I Session: 2022-2023 Month from July to December 2022**
Subject Name	**LIFE SKILLS AND EFFECTIVE COMMUNICATION**		
Credits	**2**	**Contact Hours**	1-0-2
Faculty (Names)	**Coordinator(s)**	DR. ANKITA DAS	
	Teacher(s) (Alphabetically)		

COURSE OUTCOMES: The students will be able to:		**COGNITIVE LEVELS**
CO1	Understand different life skills required for Self, Family, Society and lifelong success.	Understand (C2)
CO2	Apply listening, speaking, reading and writing skills in professional environment.	Apply (C3)
CO3	Develop Work-place skills for personal and professional excellence.	Analyze (C4)
CO4	Evaluate and make decisions for empowerment of self and others.	Evaluate (C5)

Module No.	**Subtitle of the Module**	**Topics in the module**	**No of Lectures**
1.	Introduction	Overview of Life Skills: Meaning and significance of life skills, Life skills identified by various organizations, Life Skills for Self, Family, Society and lifelong success.	2
2.	Advanced LSRW Skills	Advanced Reading and Comprehension Skills, inferring lexical and contextual meaning, employing discourse analysis, Advanced Speaking Skills: Conversations, Dialogues and Debates, Persuasion, Negotiation Skills, Expressing Opinions, Agreement and Disagreement, Advanced Listening Skills, Advanced Writing skills: The art of Condensation, Note making, Essay Writing.	2
3.	Work-Place Skills	Interpersonal Skills: Team- work skills, Empathy, Emotional Intelligence, VUCA Leadership, Resilience, Tolerance, Self-Belief and Time Management	3
		Presentation and Interaction Skills: Speech Delivery, Group Discussion, Presentation Skills (Focused and targeted information seeking and presentation), Public Speaking, Audience Analysis, Interviews, Assessment of Personality - Projective& Self Report Techniques - Building Self-Confidence – Enhancing Personality Skills.	2

		Creativity and Critical Thinking: Creativity: Definition; Characteristics of Creative Person: Fluency; Originality; Curiosity; Critical Thinking, Problem Solving Techniques: Six Thinking Hats, Mind Mapping etc.	2
4.	Ethics and Holistic Life	Harmony in personal and social life: Professional Integrity, Respect & Equality, Building Trusting Relationships. Concept of personal and group Ethics; Balance between - rights and duties-welfare of self and welfare of all. Understanding Nine universal values in relationships. Understanding harmony in the Family. Harmony in the Family; Trust (Vishwas) and Respect (Samman) as the foundational values of relationship. Understanding the harmony in the society (society being an extension of family): Undivided Society (AkhandSamaj), Universal Order (Sarvabhaum Vyawastha)- from family to world family. Gender Harmony & equity.	2
		Character, Righteousness and Virtues for A Meaningful Life: Self-Realization Through Spiritual texts: Egoless, Humility, Righteousness, Purity, Truthfulness, Integrity, Self-restraint, Self-control, Sense of responsibility, Empathy, Love, Compassion, Maitri / Comradeship, Cooperation, Tolerance and Gratitude.	1
		Total number of Lectures	**14**

LIFE SKILLS AND EFFECTIVE COMMUNICATION LAB

Experiment No.	Title of the Module	List of Experiments	CO
1.	Introduction	Tell Me About Yourself & Elevator Pitch	CO1
2.		Personal Effectiveness and Who Am I activity	CO1
3.	Advanced LSRW Skills	Academic Listening	CO2
4.		Reading	CO2
5.		Essay Writing	CO2
6.	Work-Place Skills	Group Discussions-1	CO3
7.		Group Discussions-2	CO3
8.		Technical Presentations-1	CO3
9.		Technical Presentations-2	CO3
10.		Critical Thinking and Creativity	CO3
11.		Handling Interviews	CO3
12.	Ethics and Holistic Life	TED Talk analysis of Social, Health and Cultural analysis	CO4
13.		TED Talk analysis of Social, Health and Cultural analysis	CO4
14.		Self-Realization Through Spiritual texts	CO4

Evaluation Criteria

Components	**Maximum Marks**
Mid Term	30 (Lab Exam)
End Semester Examination	40
TA	30 (Quiz, Assignments, Tutorials)
Total	**100**

Project Based Learning:
Students, in groups of 4-5, are required to visit Old Age Home/ Underprivileged Children/ NGO/ Cancer Hospital / etc. Spend time with them for 3-4 hours. Apply Life Skills learned in understanding their feeling and help them by providing solution to ease their stress. Document your visit and present in the class.

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)	
Text Book(s):	
1.	Wadkar Alka, Life Skills for Success, Sage Publication Pvt Ltd, 2019
2.	Human Values, A.N. Tripathi, New Age International Pvt Ltd. Publishers New Delhi ,2005
Reference Book(s):	
3.	Carnegie Dale, Become an Effective Leader, New Delhi: Amaryllis, 2012
4.	Harold R. Wallace et. al, Personality Development, Cengage Learning India Pvt. Ltd; New Delhi, 2006
5.	Barun K. Mitra, Personality Development & Soft Skills, Oxford University Press, New Delhi, 2012.
6.	Mark G. Frank, David Matsumoto, Hyi Sung Hwang, Nonverbal Communication: Science and Applications, 2012, 1st Edition, Sage Publications, New York.
7.	William S. Pfeiffer, Public Speaking, Pearson, Delhi, 2012.
8.	Shiv Khera, You Can Win, Macmillan Books, New York, 2003.
9.	S. Kumar and Pushp Lata, Communication Skills, Oxford University Press,1st, Ed. 2011
10.	Raman M. and S. Sharma, Technical Communication: Principles & Practices, 29th Impression, Oxford University Press, New Delhi, 2009

CO-PO-PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO-CS	PSO-IT	PSO-CP
CO1					3		1		3			
CO2								3	3			
CO3							3	3	3			
CO4					3		2		3			
Avg					3		2	3	3			

Multimedia and Animation Workshop (22B28MA111)

Microsoft Word, Microsoft Excel, Microsoft Power Point, Introduction to Image tools, Basic Photo Corrections, Working with Selections, Layer Basics, Masks and Channels, Typographic Design and Video tools.

Course Description

Course Code	**22B28MA111**	**Semester: Odd**	**Semester I Session 2022-23** **Month from** July 2022 –Dec 2022
Course Name	**Multimedia and Animation Workshop**		
Credits	**2**	**Contact Hours**	1-0-2
	Coordinator(s)	DR. NIYTI AGGARWAL	
	Teacher(s) (Alphabetically)		

COURSE OUTCOMES		**COGNITIVE LEVELS**
After pursuing the above-mentioned course, the students will be able to:		
CO1	Explain the concepts of Microsoft office tools such as word, PowerPoint and excel	Understanding Level (C2)
CO2	Demonstrate basic text editing, text formatting. page formatting, methods and reasons for using templates,	Applying Level (C3)
CO3	Demonstrate basic Excel spreadsheet operations, data entry, and functions and basic Microsoft PowerPoint operations	Applying Level (C3)
CO4	Explain the concept of image tools and functions	Understanding Level (C2)
CO5	Demonstrate working with photo correction, Straightening and cropping	Applying Level (C3)
CO6	Demonstrate working with selections, layers, masks and channel.	Applying Level (C3)

Module No.	**Title of the Module**	**Topics in the Module**	**No. of Lectures**
1.	Microsoft Word	Microsoft Word: Creating, editing, saving and printing text documents, Font and paragraph formatting, Simple character formatting, Inserting tables, smart art, page breaks, Using lists and styles, Working with images, Using Spelling and Grammar check, Understanding document properties, Mail Merge	1
2.	Microsoft Excel	Spreadsheet basics, Creating, editing, saving and printing spreadsheets, working with functions & formulas, modifying worksheets with color & auto formats, graphically representing data: Charts & Graphs, speeding data entry: Using Data Forms, analyzing data: Data Menu, Subtotal, Filtering Data, formatting worksheets, Securing & Protecting spreadsheets	2
3.	Microsoft Power Point	Opening, viewing, creating, and printing slides, applying auto layouts, adding custom animation, using slide transitions, graphically representing data: Charts & Graphs, Creating Professional Slide for Presentation	1
4.	Introduction to Image tools	Raster vs. Vector, creating new images, saving files for print, saving files for web/screen, Working with Adobe Bridge, Using the tools, Using the options bar and other panels,	2

		Undoing actions in Photoshop, Customizing the workspace, Tools panel overview	
5.	Basic Photo Corrections	Strategy for retouching, Resolution and image size, Adjusting the color in Camera Raw, Straightening and cropping the image in Photoshop, replacing colors in an image, adjusting saturation with the Sponge tool, repairing areas with the Clone Stamp tool, Using the Spot Healing Brush tool, using content-aware fill, Applying the Unsharp Mask filter	2
6.	Working with Selections	About selecting and selection tools, Using the Quick Selection tool, moving a selected area, manipulating selections, Using the Magic Wand tool, selecting with the lasso tools, rotating a selection, selecting with the Magnetic Lasso tool, cropping an image and erasing within a selection, Refining the edge of a selection,	2
7.	Layer Basics, Masks and Channels	About layers, Using the Layers panel, rearranging layers, applying a gradient to a layer, applying a layer style, Flattening and saving files, working with masks and channels, creating a mask, refining a mask, creating a quick mask, manipulating an image with Puppet Warp, Working with channels	2
8.	Typographic Design and Video tools	About type, creating a clipping mask from type, creating type on a path, Warping point type, Designing paragraphs of type. Video tools: Open Shot; Shortcut; Blender; Movie Maker 10; iMovie; Kapwing; KineMaster, Lightworks etc.	2
		Total Number of Lectures	**14**

Multimedia and Animation Workshop LAB

Module No.	**Title of the Module**	**Topics in the Module**	**No. of Labs**
1.	Microsoft Word	Microsoft Word: Creating, editing, saving and printing text documents, Font and paragraph formatting, Simple character formatting, Inserting tables, smart art, page breaks, Using lists and styles, Working with images, Using Spelling and Grammar check, Understanding document properties, Mail Merge	1
2.	Microsoft Excel	Spreadsheet basics, Creating, editing, saving and printing spreadsheets, Working with functions & formulas, Modifying worksheets with color & auto formats, Graphically representing data : Charts & Graphs, Speeding data entry : Using Data Forms, Analyzing data : Data Menu, Subtotal, Filtering Data, Formatting worksheets, Securing & Protecting spreadsheets	2
3.	Microsoft Power Point	Opening, viewing, creating, and printing slides, Applying auto layouts, Adding custom animation, Using slide transitions, Graphically representing data : Charts & Graphs, Creating Professional Slide for Presentation	1
4.	Introduction to Image tools	Raster vs. Vector, Creating new images, Saving files for print, Saving files for web/screen, Working with Adobe Bridge, Using the tools, Using the options bar and other panels, Undoing actions in Photoshop, Customizing the workspace, Tools panel overview	2
5.	Basic Photo Corrections	Strategy for retouching, Resolution and image size, Adjusting the color in Camera Raw, Straightening and cropping the image in	2

		Photoshop, Replacing colors in an image, Adjusting saturation with the Sponge tool, Repairing areas with the Clone Stamp tool ,Using the Spot Healing Brush tool, Using content-aware fill, Applying the Unsharp Mask filter	
6.	Working with Selections	About selecting and selection tools, Using the Quick Selection tool, Moving a selected area , Manipulating selections ,Using the Magic Wand tool, Selecting with the lasso tools, Rotating a selection, Selecting with the Magnetic Lasso tool , Cropping an image and erasing within a selection ,Refining the edge of a selection,	2
7.	Layer Basics, Masks and Channels	About layers, Using the Layers panel, Rearranging layers, Applying a gradient to a layer, Applying a layer style, Flattening and saving files, Working with masks and channels, Creating a mask, Refining a mask, Creating a quick mask, Manipulating an image with Puppet Warp, Working with channels	2
8.	Typographic Design and Video tools	About type, Creating a clipping mask from type, Creating type on a path, Warping point type, Designing paragraphs of type. Video tools: OpenShot; Shotcut; Blender; Movie Maker 10; iMovie; Kapwing; KineMaster, Lightworks etc	2
		Total number of Labs	**14**

Evaluation Criteria

Components	**Maximum Marks**
Mid Term	30 (Lab Exam)
End Semester Examination	40
TA	30 (Quiz, Assignments, Tutorials)
Total	**100**

Project based learning: Each student in a group of 4-5 will apply the concepts of multimedia and utilize multimedia tools to perform various operations on the multimedia application.

Recommended Reading material:

1.	Lambert, Joan, and Curtis Frye. Microsoft Office 2019 Step by Step. Microsoft Press, 2018.
2.	Foulkes, Linda. Learn Microsoft Office 2019. 1st ed. Packt Publishing, 2020. Web. 25 Sept. 2021.
3.	David W Beskeen, Carol M Cram, Lynn Wermers, Jennifer Duffy, Lisa Friedrichsen, llustrated Microsoft Office 365 & Office 2019, 2019.
4.	Prabat K Andleigh and Kiran Thakrar, ―Multimedia Systems and Design, PHI, 2003.
5.	Donald Hearn and M.Pauline Baker, ―Computer Graphics C Version, Pearson Education, 2003.

CO-PO-PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO-CS	PSO-IT	PSO-CP
CO1	3			2			1	1	3	2	2	2
CO2	3	1	1	2			1	1	3	2	2	2
CO3	3	1	1	2				1	3	2	2	2
CO4	3	1	1	3	2		1	1	3	3	3	3
CO5	3	1	1	3	2		1	1	3	3	3	3
CO6	3	1	1	3	2		1	1	3	3	3	3
Avg	3	1	1	3	2		1	1	3	3	3	3