



SCHOOL OF ENGINEERING AND TECHNOLOGY
Bachelor in Computer Application (BCA)
BCA with Specialization in Multimedia and Animations

Programme Code: SET0103

Duration- 1/2/3/4 Years Full Time

PROGRAM STRUCTURE
AND
CURRICULUM & SCHEME OF EXAMINATION
2021

1. Standard Structure of the Program at University Level

1.1 Vision, Mission and Core Values of the University

Vision of the University

To serve the society by being a global University of higher learning in pursuit of academic excellence, innovation and nurturing entrepreneurship.

Mission of the University

- 1. Transformative educational experience**
- 2. Enrichment by educational initiatives that encourage global outlook**
- 3. Develop research, support disruptive innovations and accelerate entrepreneurship**
- 4. Seeking beyond boundaries**

Core Values

- Integrity**
- Leadership**
- Diversity**
- Community**

Note: Detailed Mission Statements of University can be used for developing Mission Statements of Schools/ Departments.

Vision and Mission of the School

Vision of the School

To become a globally acclaimed institution of higher learning in engineering and technology promoting excellence in research, innovation and entrepreneurship

Mission of the School

- 1. To impart quality education with strong industry & academic connectivity in the expanding fields of Engineering and Technology in a conducive and enriching learning environment.**
- 2. To product technocrats equipped with technical & soft skills and experiential learning required to stay current with the modern tools in emerging technologies to fulfill professional responsibilities and uphold ethical values.**
- 3. To inculcate a culture of interdisciplinary research, innovation and entrepreneurship to provide sustainable solutions to meet the growing challenges and societal needs.**
- 4. To foster collaborative learning and to play adaptive leadership role in professional career and pursuit of higher education through effective mentoring and counseling.**

Core Values

- Industry & Academic Connectivity**
- Experiential learning**
- Interdisciplinary research**
- Global**

1.2 Vision and Mission of the Department

Vision of the Department

To be recognized as the fountainhead of excellence in technical knowledge and research in computer science and engineering to attract students and scholars across the globe

Mission of the Department

- 1. To strengthen core competency of students to be successful, ethical, effective problem solver in Computer Science & Engineering through analytical learning.**
- 2. To promote interdisciplinary research & innovation-based activities in emerging areas of technology globally**
- 3. To facilitate and foster the industry-academia collaboration to enhance entrepreneurship skills and acquaintance with corporate culture.**
- 4. To inculcate in them a higher degree of social consciousness and moral values towards solving interdisciplinary societal problems using industry-academia collaboration**

Core Values

- Competency**
- Global**
- Entrepreneurship Skills**
- Interdisciplinary research**

1.3 Programme Educational Objectives (PEO)

1.3.1 Writing Programme Educational Objectives (PEO)

Program educational objectives are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve.

The Program Educational Objectives (PEOs) of UG Program in Computer Science & Engineering are:

PEO-1 The graduates will establish themselves as professionals by solving real-life problems using exploratory and analytical skills acquired in the field of Computer Science and Engineering.

PEO-2 The graduates will provide sustainable solutions to ever changing interdisciplinary global problems through their Research & Innovation capabilities.

PEO-3 The graduates will become employable, successful entrepreneur as an outcome of Industry-Academia collaboration.

PEO-4 The graduates will embrace professional code of ethics while providing solution to multidisciplinary social problems in industrial, entrepreneurial and research environment to demonstrate leadership qualities

Methods of Forming PEO's

- STEP 1 : The needs of the Nation and society are identified through scientific publications, industry interaction and media.
- STEP 2. Taking the above into consideration, the PEOs are established by the Coordination Committee of the department.
- STEP 3. The PEOs are communicated to the alumni and their suggestions are obtained.
- STEP 4. The PEOs are communicated to all the faculty members of the department and their feedback is obtained.
- STEP 5. The PEOs are then put to the Board of Studies of the department for final approval.

[Note: Prepare a file for the same, how you arrive for PEO's]

1.3.2 Map PEOs with Mission Statements:

DEPARTMENT PEOs DEPT OF CSE MISSION STATEMENTS	1. The graduates will establish themselves as professionals by solving real-life problems using exploratory and analytical skills acquired in the field of Computer Science and Engineering.	2. The graduates will be able to provide sustainable solutions to ever changing interdisciplinary global problems through their Research & Innovation capabilities.	3. The graduates will become employable, successful entrepreneur and innovator as an outcome of Industry-Academia collaboration.	4. The graduates will be able to embrace professional code of ethics while providing solution to multidisciplinary social problems in industrial, entrepreneurial and research environment to demonstrate leadership qualities.	
1. To strengthen core competency of students to be successful, ethical, effective problem solver in Computer Science & Engineering through analytical learning.	3	3	2	2	10/12
2. To promote interdisciplinary research & innovation based activities in emerging areas of technology globally.	2	3	2	2	9/12
3. To facilitate and foster the industry-academia collaboration to enhance entrepreneurship skills and acquaintance with corporate culture.	2	2	3	3	10/12
4: To inculcate in them a higher degree of social consciousness and moral values towards solving interdisciplinary societal problems using industry-academia collaboration	2	2	2	3	9/12
	9/12	10/12	9/12	10/12	83%

Enter correlation levels 1, 2, or 3 as defined below:

- 1. Slight (Low) 2. Moderate (Medium) 3. Substantial (High)**

If there is no correlation, put “-“

1.3.3 Program Outcomes (PO's)

PO1:	Computing knowledge:	Apply the knowledge of computing fundamentals to Identify, formulate, and solve problems in the areas of computer applications
PO2:	Problem Analysis and Design of solutions:	Apply analytical skills in solving computer based problems using fundamentals of computer science and application domains.
PO3:	Modern tool usage:	Ability to select and apply modern IT Tools and technologies for innovative software solutions and applications.
PO4:	Technical Skill Development	To develop and sharpen their IT/ programming, networking and data management skills required for identifying problems and issues relating to the Disciplinary area and field of study/ higher education.
PO5:	Societal Concern:	Recognize & appreciate the role of computing to design state-of-the-art methodologies for solving real life problems for the betterment of the society
PO6:	Environment and Sustainability:	Actively involved with knowledge, skills and right attitude to give sustainable solutions for the benefit of environment.
PO7:	Ethics:	Pertain ethical principles and entrust to professional ethics and responsibilities in a global economic environment.
PO8:	Individual and team work:	Ability to work effectively as an individual, and in assorted teams.
PO9:	Communication:	Development of good communication skills in both written and verbal form in a substantial technical manner.
PO10:	Life-long learning:	Ability to engage in independent and life-long learning through professional activities.
PSO1:	Multimedia Applications	Professionally trained in the areas of multimedia, animation, web designing, effective media management, and to acquire knowledge in various domain multimedia applications.
PSO2:		Develop competence in the field of, system analysis and design, multimedia and graphics, web design, data & information security, networking, and recent areas of cloud computing.

1.3.4 Mapping of Program Outcome Vs Program Educational Objectives

Mapping	PEO1	PEO2	PEO3	PEO4
PO1:	3	3	2	1
PO2:	3	3	3	1
PO3:	2	2	3	2
PO4:	2	3	2	2
PO5:	1	2	2	3
PO6:	1	1	2	3
PO7:	1	1	2	3
PO8:	1	2	3	1
PO9:	1	1	3	2
PO10:	2	3	1	1
PSO1:	2	3	1	3
PSO2:	3	3	2	2

1. Slight (Low)

2. Moderate (Medium)

3. Substantial (High)

1.3.5 Program Outcome Vs Courses Mapping Table¹:

1. Slight (Low)

2. Moderate (Medium)

3. Substantial (High)

¹ Cel value will contain the correlation value of respective course with PO.

1.3.5.2 COURSE ARTICULATION MATRIX²

1-Slight (Low)

2-Moderate (Medium)

3-Substantial (High)

² Each course outcome (Based on Blooms Taxonomy-CO1, CO2, CO3, CO4, CO5, and CO6) of the course needs to map with PO. This table evolves once faculty has mapped each course outcomes of their respective course with PO's.

Course Outcome

- **Course Outcomes**–What is it?
 - Course outcomes (COs) are clear statements of what a student should be able to demonstrate on completion of a course.
 - COs should be assessable and measurable knowledge, skills, abilities and attitudes that student attains by the end of the course.
 - It is generally good idea to identify between 4 and 7 outcomes.
 - All courses in a particular programme shall have their own PO.
 - Each CO is mapped to relevant PO.
 - The teaching learning process and assessment process are to be designed in a way to achieve the COs.

Beginning words for Course Outcome:

Active verbs developed based on Bloom's Taxonomy

Knowledge	Understand	Apply	Analyze	Evaluate	Create
define	explain	solve	analyze	reframe	design
identify	describe	apply	compare	criticize	compose
describe	interpret	illustrate	classify	evaluate	create
label	paraphrase	modify	contrast	order	plan
list	summarize	use	distinguish	appraise	combine
name	classify	calculate	infer	judge	formulate
state	compare	change	separate	support	invent
match	differentiate	choose	explain	compare	hypothesize
recognize	discuss	demonstrate	select	decide	substitute
select	distinguish	discover	categorize	discriminate	write
examine	extend	experiment	connect	recommend	compile
locate	predict	relate	differentiate	summarize	construct
memorize	associate	show	discriminate	assess	develop
quote	contrast	sketch	divide	choose	generalize
recall	convert	complete	order	convince	integrate
reproduce	demonstrate	construct	point out	defend	modify
tabulate	estimate	dramatize	prioritize	estimate	organize
tell	express	interpret	subdivide	find errors	prepare
copy	Identify	Manipulate	survey	grade	produce
discover	indicate	Paint	advertise	measure	rearrange
duplicate	Infer	Prepare	appraise	predict	rewrite
enumerate	relate	produce	Break down	rank	role-play

(Reference: Retrieved from <http://www.teachthought.com/learning/249-blooms-taxonomy-verbs-for-critical-thinking/>)

School of Engineering and Technology							
Department Of Computer Science & Engineering							
BCA							
Batch: 2021 Onwards						TERM: I	
S. No.	Course Code	Course	Teaching Load			Credits	Pre-Requisite/Co Requisite
			L	T	P		
THEORY SUBJECTS							
1		Problem solving using C Programming	4	0	0	4	
2		Discrete Structures and Data Structure	4	0	0	4	
3		Digital Electronics & Computer Organization	4	0	0	4	
4		Vocational Faculty-1	3	0	0	3	
5		Food and Nutrition	2	0	0	2	
Practical/Viva-Voce/Jury							
6	ARP101	Communicative English-1	1	0	2	2	
7		Problem solving using C Programming Lab	0	0	4	2	
8		Discrete Structures and Data Structure Lab	0	0	4	2	
9		Digital Electronics & Computer Organization Lab	0	0	4	2	
TOTAL CREDITS						25	

School of Engineering and Technology							
Department Of Computer Science & Engineering							
BCA							
Batch: 2021 Onwards						TERM: II	
S. No.	Course Code	Course	Teaching Load			Credits	Pre-Requisite/Co Requisite
			L	T	P		
THEORY SUBJECTS							
1		Principles of Data Base Management System	4	0	0	4	
2		Operating System and Unix Shell Programing	4	0	0	4	
3		Web Designing and Object Oriented Programming Using Java	4	0	0	4	
4		Vocational Faculty-2	3	0	0	3	
5		Health and Hygien	2	0	0	2	
Practical/Viva-Voce/Jury							
6	ARP102	Communicative English -2	1	0	2	2	
7		Principles of Data Base Management System Lab	0	0	4	2	
8		Operating System and Unix Shell Programing Lab	0	0	4	2	
9		Object Oriented Programming and Web Designing Using Java Lab	0	0	4	2	
TOTAL CREDITS						25	

School of Engineering and Technology							
Department Of Computer Science & Engineering							
BCA							
Batch: 2021 Onwards						TERM: III	
S. No.	Course Code	Course	Teaching Load			Credits	Pre-Requisite/Co Requisite
			L	T	P		
THEORY SUBJECTS							
1		Application based Programming in Python and Machine Learning	4	0	0	4	
2		Computer Networks and Data Communication	4	0	0	4	
3		Mathematics in Computer Applications	4	0	0	4	
4		Vocational Faculty-3	3	0	0	3	
5		Physical Education	2	0	0	2	
Practical/Viva-Voce/Jury							
6	ARP207	Aptitude Reasoning and Business Communication Skills - Basic	1	0	2	2	
7		Application based Programming in Python and Machine Learning Lab	0	0	4	2	
8		Computer Networks and Data Communication Lab	0	0	4	2	
9		Numerical Techniques Lab	0	0	2	1	
		Project Based Learning-1	0	0	2	1	
TOTAL CREDITS						25	

School of Engineering and Technology							
Department Of Computer Science & Engineering							
BCA							
Batch: 2021 Onwards					TERM: IV		
S. No.	Course Code	Course	Teaching Load			Credits	Pre-Requisite/Co Requisite
			L	T	P		
THEORY SUBJECTS							
1		Software Engineering and Testing Methodologies	4	0	0	4	
2		Design and Analysis of Algorithm	4	0	0	4	
3		Android Development & Applications	3	0	0	3	
4		Vocational Faculty-4	3	0	0	3	
5		Human values and Environment Studies	2	0	0	2	
Practical/Viva-Voce/Jury							
6	ARP208	Aptitude Reasoning and Business Communication Skills- Intermediate	1	0	2	2	
7		Software Engineering and Testing Methodologies Lab	0	0	4	2	
8		Design and Analysis of Algorithm Lab	0	0	4	2	
9		Android Development & Applications Lab	0	0	2	1	
		Project Based Learning-2	0	0	4	2	
TOTAL CREDITS						25	

School of Engineering and Technology							
Department Of Computer Science & Engineering							
BCA							
Batch: 2021 Onwards					TERM: V		
S. No.	Course Code	Course	Teaching Load			Credits	Pre-Requisite/Co Requisite
			L	T	P		
THEORY SUBJECTS							
1		Computer Graphics and Animations	4	0	0	4	
2		Web Technology	3	0	0	3	
3		Program Elective-1	4	0	0	4	
4		Program Elective-2	4	0	0	4	
Practical/Viva-Voce/Jury							
6		Analytical Ability and Digital Awareness	1	0	2	2	
7		Computer Graphics and Animations	0	0	4	2	
		Web Technology	0	0	2	1	
8		Simulation Lab Pract-1	0	0	2	1	
9		Technical Skill Enhancement Course-1	0	0	2	1	
		Industrial Training				3	
TOTAL CREDITS						25	

School of Engineering and Technology							
Department Of Computer Science & Engineering							
BCA							
Batch: 2021 Onwards					TERM: VI		
S. No.	Course Code	Course	Teaching Load			Credits	Pre-Requisite/Co Requisite
			L	T	P		
THEORY SUBJECTS							
1		Artificial Intelligence	4	0	0	4	
2		SoftComputing	4	0	0	4	
3		Program Elective-3	4	0	0	4	
4		Program Elective-4	4	0	0	4	
Practical/Viva-Voce/Jury							
6		Communication Skills and Personality Development	1	0	2	2	
7		Artificial Intelligence Lab	0	0	4	2	
8		Simulation Lab Pract-2	0	0	2	1	
9		Technical Skill Enhancement Course-2	0	0	2	1	
		Community connect program				3	
TOTAL CREDITS						25	

School of Engineering and Technology							
Department Of Computer Science & Engineering							
BCA							
Batch: 2021 Onwards					TERM: VII		
S. No.	Course Code	Course	Teaching Load			Credits	Pre-Requisite/Co Requisite
			L	T	P		
THEORY SUBJECTS							
1		Theory of Computation and Principal of Programming Language	4	0	0	4	
2		Program Elective-5	4	0	0	4	
3		Program Elective-6	4	0	0	4	
4		Program Elective-7	4	0	0	4	
5		Introduction of Entrepreneurship	2	0	0	2	
Practical/Viva-Voce/Jury							
6		Theory of Computation and Principal of Programming Language Lab	0	0	4	2	
7		Research Methodology	1	0	2	2	
8		Industrial Training				3	
9		Capstone - 1	-	-	-	3	
TOTAL CREDITS						28	

School of Engineering and Technology							
Department Of Computer Science & Engineering							
BCA							
Batch: 2021 Onwards					TERM: VIII		
S. No.	Course Code	Course	Teaching Load			Credits	Pre-Requisite/Co Requisite
			L	T	P		
THEORY SUBJECTS							
1		Pattern Recognition	4	0	0	4	
2		Program Elective-8	4	0	0	4	
3		Program Elective-9	4	0	0	4	
4		Program Elective-10	4	0	0	4	
5		Introduction of Entrepreneurship	2	0	0	2	
Practical/Viva-Voce/Jury							
6		Pattern Recognition Lab	0	0	4	2	
7		Seminar	1	0	2	2	
8		Capstone - 2				6	
TOTAL CREDITS						28	

School of Engineering and Technology							
Department Of Computer Science & Engineering							
BCA (Multimedia & Animation)							
Batch: 2021 Onwards					TERM: I		
S. No.	Course Code	Course	Teaching Load			Credits	Pre-Requisite/Co Requisite
			L	T	P		
THEORY SUBJECTS							
1		Problem solving using C Programming	4	0	0	4	
2		Discrete Structures and Data Structure	4	0	0	4	
3		Digital Electronics & Computer Organization	4	0	0	4	
4		Vocational Faculty-1	3	0	0	3	
5		Food and Nutrition	2	0	0	2	
Practical/Viva-Voce/Jury							
6	ARP101	Communicative English-1	1	0	2	2	
7		Problem solving using C Programming Lab	0	0	4	2	
8		Discrete Structures and Data Structure Lab	0	0	4	2	
9		Digital Electronics & Computer Organization Lab	0	0	4	2	
TOTAL CREDITS						25	

School of Engineering and Technology							
Department Of Computer Science & Engineering							
BCA (Multimedia & Animation)							
Batch: 2021 Onwards					TERM: II		
S. No.	Course Code	Course	Teaching Load			Credits	Pre-Requisite/Co Requisite
			L	T	P		
THEORY SUBJECTS							
1		Principles of Data Base Management System	4	0	0	4	
2		Operating System and Unix Shell Programing	4	0	0	4	
3		front-end web development: HTML, CSS and JavaScript	4	0	0	4	
4		Vocational Faculty-2	3	0	0	3	
5		Health and Hygien	2	0	0	2	
Practical/Viva-Voce/Jury							
6	ARP102	Communicative English -2	1	0	2	2	
7		Principles of Data Base Management System Lab	0	0	4	2	
8		Operating System and Unix Shell Programing Lab	0	0	4	2	
9		front-end web development: HTML, CSS and JavaScript Lab	0	0	4	2	
TOTAL CREDITS						25	

School of Engineering and Technology							
Department Of Computer Science & Engineering							
BCA (Multimedia & Animation)							
Batch: 2021 Onwards				TERM: III			
S. No.	Course Code	Course	Teaching Load			Credits	Pre-Requisite/Co Requisite
			L	T	P		
THEORY SUBJECTS							
1		Application based Programming in Python and Machine Learning	4	0	0	4	
2		Computer Networks and Data Communication	4	0	0	4	
3		Multimedia and Animation	4	0	0	4	
4		Vocational Faculty-3	3	0	0	3	
5		Physical Education	2	0	0	2	
Practical/Viva-Voce/Jury							
6	ARP207	Logical Skills Building and Soft Skills	1	0	2	2	
7		Application based Programming in Python and Machine Learning Lab	0	0	4	2	
8		Computer Networks and Data Communication Lab	0	0	4	2	
9		Multimedia and Animation Lab	0	0	2	1	
		Project Based Learning-1	0	0	2	1	
TOTAL CREDITS						25	

School of Engineering and Technology							
Department Of Computer Science & Engineering							
BCA (Multimedia & Animation)							
Batch: 2021 Onwards					TERM: IV		
S. No.	Course Code	Course	Teaching Load			Credits	Pre-Requisite/Co Requisite
			L	T	P		
THEORY SUBJECTS							
1		Visual Programming with VB	4	0	0	4	
2		Multimedia authoring and production	4	0	0	4	
3		Android Development & Applications	3	0	0	3	
4		Vocational Faculty-4	3	0	0	3	
5		Human values and Environment Studies	2	0	0	2	
Practical/Viva-Voce/Jury							
6	ARP208	Aptitude Reasoning and Business Communication Skills- Intermediate	1	0	2	2	
7		Visual Programming with VB Lab	0	0	4	2	
8		Multimedia authoring and production lab	0	0	4	2	
9		Android Development & Applications Lab	0	0	2	1	
		Project Based Learning-2	0	0	4	2	
TOTAL CREDITS						25	

School of Engineering and Technology							
Department Of Computer Science & Engineering							
BCA (Multimedia & Animation)							
Batch: 2021 Onwards					TERM: V		
S. No.	Course Code	Course	Teaching Load			Credits	Pre-Requisite/Co Requisite
			L	T	P		
THEORY SUBJECTS							
1		Instructional Design for multimedia	4	0	0	4	
2		Web Technology	3	0	0	3	
3		Introduction to Cyber security (4-0-0) (PE1)	4	0	0	4	
4		Digital Design and Animation (PE2)	4	0	0	4	
Practical/Viva-Voce/Jury							
6		Analytical Ability and Digital Awareness	1	0	2	2	
7		Instructional Design for multimedia Lab	0	0	4	2	
		Web Technology	0	0	2	1	
8		Simulation Lab Pract-1	0	0	2	1	
9		Technical Skill Enhancement Course-1	0	0	2	1	
		Industrial Training				3	
TOTAL CREDITS						25	

School of Engineering and Technology							
Department Of Computer Science & Engineering							
BCA (Multimedia & Animation)							
Batch: 2021 Onwards				TERM: VI			
S. No.	Course Code	Course	Teaching Load			Credits	Pre-Requisite/Co Requisite
			L	T	P		
THEORY SUBJECTS							
1		Multimedia security	4	0	0	4	
2		Corporate multimedia production (4-0-0)	4	0	0	4	
3		Audio Video Production (PE3)	4	0	0	4	
4		Digital Image Processing (4-0-0) (PE4)	4	0	0	4	
Practical/Viva-Voce/Jury							
6		Communication Skills and Personality Development	1	0	2	2	
7		Multimedia security Lab	0	0	4	2	
8		Simulation Lab Pract-2	0	0	2	1	
9		Technical Skill Enhancement Course-2	0	0	2	1	
		Community connect program				3	
TOTAL CREDITS						25	

C. Course Syllabuses

Syllabus: Database Management System Lab

School: SET		Batch: 2021-2024	
Program: B. Sc		Current Academic Year: 2021-2022	
Branch: CSE/IT		Semester: II	
1	Course Code		
2	Course Title	Database Management System Lab	
3	Credits	2	
4	Contact Hours (L-T-P)	0-0-4	
	Course Status	Compulsory	
5	Course Objective	<ul style="list-style-type: none"> To Develop efficient SQL programs to access Oracle databases Build database using Data Definition Language Statements Perform operations using Data Manipulation Language statements like Insert, Update and Delete 	
6	Course Outcomes	<p>By the end of this course, the student will be able to:</p> <p>CO1: Understand the basic concept of SQL commands in DBMS. CO2: Demonstrate various DDL Commands used to create and alter a table. CO3: Experiment with operations using Data Manipulation Language statements like Insert, Update and Delete. CO4: Examine data to apply various grouping clauses and aggregate functions. CO5: Evaluate the queries using the concepts like sub-queries, JOINS, Views, Cursors, Triggers. CO6: Develop project based on various SQL commands.</p>	
7	Course Description	An introduction to the design and creation of relational databases. Create database-level applications and tuning robust business applications. Lab sessions reinforce the learning objectives and provide participants the opportunity to gain practical hands-on experience.	
8	Outline syllabus		CO Mapping
	Unit 1	Practical based Data types	
		Classification SQL, Data types of SQL/Oracle	CO1, CO6
	Unit 2	Practical based on DDL commands	
		Create table, Alter table and Drop table	CO2, CO6
	Unit 3	DML commands	
		Introduction about the INSERT, SELECT, UPDATE & DELETE commands.	CO3, CO6
	Unit 4	Practical based on Grouping Clauses GROUP BY, ORDER BY, HAVING & Aggregate Functions	
		Briefly explain Group by, order by, having clauses with examples. Aggregate function: sum, avg, count, max, min	CO4, CO6
	Unit 5	Practical based on Sub- queries, JOINS, Views	
		Related example of Sub- queries, Joins and related examples, Views, Cursors, Trigger, PL/SQL	CO5, CO6
	Mode of examination	Jury/Practical/Viva	
	Weightage Distribution	CA 60%	MTE 0%
		ETE 40%	
	Text book/s*	1. Korth, Silberschatz & Sudarshan, Data base Concepts, Tata McGraw-Hill	
	Other References	1. Elmasri, Navathe, Fundamentals of Database Systems, Pearson Education Inc. 2. Thomas Connolly, Carolyn Begg, Database Systems: A Practical Approach to design, Implementation and Management, Pearson Education, Latest Edition.	

CO and PO Mapping

S. No.	Course Outcome	Program Outcomes (PO) & Program Specific Outcomes (PSO)
1.	CO1: Understand the basic concept of SQL commands in DBMS.	PO1,PO3,PO4,PO8,PO9,PO10,PSO1
2.	CO2: Demonstrate various DDL Commands used to create and alter a table.	PO1,PO2,PO3,PO4,PO8,PO9,PO10
3.	CO3: Experiment with operations using Data Manipulation Language statements like Insert, Update and Delete.	PO1,PO2,PO3,PO4,PO8,PO9,PO10
4.	CO4: Examine data to apply various grouping clauses and aggregate functions.	PO1,PO2,PO3,PO4,PO8,PO9,PO10,PSO1
5.	CO5: Evaluate the queries using the concepts like sub-queries, JOINS, Views, Cursors, Triggers.	PO1,PO2,PO3,PO4,PO8,PO9,PO10, PSO1
6.	CO6: Develop project based on various SQL commands.	PO1,PO2,PO3,PO4,PO5, PO7, PO8, PO9, PO10, PSO1

PO and PSO mapping with level of strength for Course Name Database Management System lab (Course Code)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	3	-	3	2	-	-	-	2	2	2	1	-
CO2	3	3	3	2	-	-	-	3	2	2	-	-
CO3	3	3	3	2	-	-	-	3	2	2	-	-
CO4	3	3	3	3	-	-	-	3	2	2	2	-
CO5	3	3	3	2	-	-	-	3	2	2	2	-
CO6	3	3	3	2	2	-	2	3	2	2	3	-

Average of non-zeros entry in following table (should be auto calculated).

Course Code/ Name	PO 1	PO2	PO 3	PO 4	PO5	PO6	PO7	PO8	PO9	PO10	PSO 1	PSO 2
DBMS lab	3	3	3	2.2	2	-	2	2.8	2	2	2	-

Strength of Correlation

1. Addressed to *Slight (Low=1) extent*
2. Addressed to *Moderate (Medium=2) extent*
3. Addressed to *Substantial (High=3) extent*

Syllabus: Database Management System

School: SET		Batch: 2021	
Program: BSc		Current Academic Year: 2021-22	
Branch: CSE		Semester:4	
1	Course Code	Course Name: B.Sc.	
2	Course Title	Database Management Systems	
3	Credits	4	
4	Contact Hours (L-T-P)	4-0-0	
	Course Status	Core	
5	Course Objective	The objective of this course is to: <ol style="list-style-type: none"> To learn about basic concepts of databases, terms, Introduce students to build data base management systems Apply DBMS concepts to various examples and real life applications 	
6	Course Outcomes	At the end of the course student will be able to: CO1: Explain the basics concepts of data base & design an ER model for a given example from real world description. CO2: Design & Solve the given problem using Relational Algebra, Relational Calculus, SQL and PL/SQL. CO3: Apply normalization techniques to reduce redundancy from the database. CO4: To appraise the basic issues of Transaction processing, Serializability & deadlock. CO5: Determine the roles of concurrency control techniques in database design. CO6: Design & develop database system for real life problems.	
7	Course Description	This course introduces basic aspects of data bases.	
8	Outline syllabus	Proposed No. of Lectures	CO Mapping
	Unit 1	INTRODUCTION TO DATABASES & ENTITY–RELATIONSHIP (ER) MODEL	
	A	12	CO1, CO6
	B		CO1, CO6
	C		CO1, CO6
	Unit 2	RELATIONAL DATA MODEL & CONCEPTS OF SQL	
	A	13	CO1, CO2, CO6
	B		CO1, CO2, CO6
	C		CO1, CO2, CO6
	Unit 3	RELATIONAL DATABASE DESIGN & NORMALIZATION	
	A	13	CO3,

		Database, loss less join decompositions		CO6
B		Normal Forms: First, Second, Third normal forms and Boyce Codd normal form (BCNF), Multi-valued dependencies, fourth normal forms		CO3, CO6
C		Case Study based on Relational Database Design & Normalization		CO3, CO6
	Unit 4	TRANSACTION PROCESSING CONCEPTS		
A		Introduction to Transaction processing; ACID property, Testing of Serializability, Serializability of Schedules,	12	CO4
B		Conflict & View Serializable, Schedule, Recoverability, Recovery from Transaction Failures, Log Based Recovery, Checkpoints, Deadlock,		CO4
C		Case Study based on Transaction Processing System		CO4
	Unit 5	CONCURRENCY CONTROL TECHNIQUES		
A		Concurrency Control, Two-Phase Locking Techniques for Concurrency Control, Time Stamping Protocols for Concurrency Control,	10	CO5
B		Validation Based Protocol, Multiple Granularity, Multi Version Schemes,		CO5
C		Case Study based on Oracle		CO5
Mode of examination	Theory			
Weightage Distribution	CA	MTE	ETE	
	30%	20%	50%	
Text book/s*	1. Korth, Silberschatz & Sudarshan, Data base Concepts, Tata McGraw-Hill 2. Elmasri, Navathe, Fundamentals of Database Systems, Pearson Education Inc.			
Other References	1. Thomas Connolly, Carolyn Begg, Database Systems: A Practical Approach to design, Implementation and Management, Pearson Education, Latest Edition. 2. Jeffrey D. Ullman, Jennifer Windon, A first course in Database Systems, Pearson Education. 3. Date C.J., An Introduction to Database Systems, Addison Wesley. 4. Richard T. Watson, Data Management: databases and organization, Wiley.			

CO and PO Mapping

S. No.	Course Outcome (CO)	Program Outcomes (PO) & Program Specific Outcomes (PSO)
1.	Explain the basics concepts of data base & design an ER model for a given example from real world description.	PO1, PO4, PO8, PO9, PO10
2.	Design & Solve the given problem using Relational Algebra, Relational Calculus, SQL and PL/SQL.	PO1, PO2, PO4, PO8, PO10
3.	Apply normalization techniques to reduce redundancy from the database.	PO1, PO2, PO3, PO4, PO8, PO10
4.	To appraise the basic issues of Transaction processing, Serializability & deadlock.	PO1, PO2, PO3, PO4, PO8
5	Determine the roles of concurrency control techniques in database design.	PO1, PO2, PO3, PO4, PO10
6	Design & develop database system for real life problems	PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PSO1, PSO2

PO and PSO mapping with level of strength for Course Name: Database Management Systems (Course Code:)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	3	-	-	3	-	-	-	2	2	3	-	-
CO2	3	3	-	3	-	-	-	3	-	2	-	-
CO3	3	3	3	3	-	-	-	3	-	2	-	-
CO4	2	2	2	3	-	-	-	2	-		-	-
CO5	2	2	2	3	-	-	-	-	-	2	-	-
CO6	2	3	3	3	2	2	2	3	3	3	2	2

Average of non-zeros entry in following table (should be auto calculated).

Course Code/ Name	PO1	PO2	PO3	PO 4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
/ DBMS	2.5	2.6	2.5	3	2	2	2	2.6	2.5	2.4	2	2

Strength of Correlation: 1. Addressed to Slight (Low=1) extent

2. Addressed to Moderate (Medium=2)

School: SET		Batch : 2021-2024	
Program: B.Sc		Current Academic Year: 2021-22	
Branch: CS/IT		Semester: I	
1	Course Code	Course Name:	
2	Course Title	Digital Electronics & Computer Organization	
3	Credits	4	
4	Contact Hours (L-T-P)	4-0-0	
	Course Status	UG	
5	Course Objective	To provide students with an overview of digital electronics that forms the basic foundation of digital computer. It includes the number system, binary logic circuit and k-maps, evaluating circuit designs within the context of digital and combinational circuits. To understand the building blocks of computer and study various design issues	
6	Course Outcomes	CO1: Define the basic logic operations and simplify using Boolean algebra and/or Karnaugh mapping techniques, sum of products (SOP) and product of sums (POS). CO2: Illustrate combinatorial logic circuits and explain their operation. CO3: Construct different types of sequential logic circuits using Flip Flops. CO4: Analyze the basic structure and functional units of a digital computer & understand basic processing unit and organization of simple processor. CO5: Explain hierarchical memory systems including cache memories & select appropriate interfacing standards for I/O devices. CO6: Develop a real-life project applying the concepts of digital electronics and computer organization.	
7	Course Description	This course covers the core concepts of digital electronics that include AND, OR, NAND, NOR, NOT logic functions and integrated circuits, combinational and sequential logic circuits. The course also provides a study of Boolean algebra, binary and hexadecimal number systems, binary codes, and the analysis of the basic components and circuits used in semiconductor switching. This course also discusses the basic structure of a digital computer and used for understanding the organization of various units such as control unit, Arithmetic and Logical unit and Memory unit and I/O unit in a digital computer.	
8	Outline syllabus	Proposed No. of Lectures	CO Mapping
	Unit 1	Logic Gates & Boolean Algebra	
	A	AND, OR, NOT, NAND, NOR, XOR, XNOR, NAND & NOR as Universal Gates	CO1, CO6
	B	Theorems, Simplification of Boolean Expression using Boolean Algebra, SOP & POS Forms, Realization of Boolean Expression using Gates	CO1, CO6
	C	K-Maps, Simplification of Boolean Expression using K-Maps (upto 4- variables)	CO1, CO6
	Unit 2	Combinational Logic Circuits	
	A	Half Adder & Half Subtractor, Full Adder & Full Subtractor	CO2, CO6
	B	Multiplexers & Demultiplexers, Implementation of Boolean equations using Multiplexer and Demultiplexer	CO2, CO6
	C	Encoders & Decoders, Comparator, Basic Concepts of A/D and D/A converters	CO2, CO6
	Unit 3	Sequential Logic Circuits: Synchronous & Asynchronous	
	A	Latch, Flip Flops- R-S, J-K, Master-Slave J-K Flip-Flop, Race Condition, Removing Race Condition	CO3, CO6
	B	D Flip-Flop, T Flip-Flop, Sequential Circuits: Registers and Counters: Shift Registers, Ripple Counter, Synchronous Counter, Ring counter,	CO3, CO6
	C	Asynchronous Circuits: Analysis procedure, circuit with latches, Design procedure, Race free state assignment, hazards.	CO3, CO6

Unit 4	Basic Computer Organization and Design			12	
A	Digital computer: functional units and their interconnections, buses, Bus architecture, types of buses and bus arbitration. Bus and memory transfer, micro-operations				CO4, CO6
B	Control Unit: Processor organization: general register organization, stack organization and addressing modes				CO4, CO6
C	Memory Unit: Basic concept and hierarchy, semiconductor RAM memories and types, ROM memories and types.			CO4, CO6	
Unit 5	Memory Management & I/O Interfaces			12	
A	Cache memories: concept and design issues (Performance, address mapping and replacement)				CO5, CO6
B	Peripheral devices, I/O interface, I/O ports, Interrupts: interrupt hardware, types of interrupts, Modes of Data Transfer: Programmed I/O, interrupt initiated I/O and Direct Memory Access				CO5, CO6
C	Case Study based on Memory Management			CO5, CO6	
Mode of examination	Theory				
Weightage Distribution	CA	MTE	ETE		
	30%	20%	50%		
Text book/s*	1. Moris Mano, "Digital Logic and Computer Design", PHI Publications, 2002 2. Carl Hamacher, Zvonko Vranesic, Safwat Zaky, "Computer Organization", McGraw-Hill, Fifth Edition, Reprint 2012 3. David A. Patterson and John L. Hennessy, "Computer Organization and Design: The Hardware/Software Interface"				
Other References	1. Digital Electronics (TMH) 1998: Malvino and Leach 2. Computer Organization and Architecture: William Stallings				

CO and PO Mapping

S. No.	Course Outcome (CO)	Program Outcomes (PO) & Program Specific Outcomes (PSO)
1.	CO1: Define the basic logic operations and simplify using Boolean algebra and/or Karnaugh mapping techniques, sum of products (SOP) and product of sums (POS).	PO1, PO2, PO3, PO4, PO8, PO9, PO10, PSO1
2.	CO2: Illustrate combinatorial logic circuits and explain their operation.	PO1, PO2, PO3, PO4, PO8, PO10
3.	CO3: Construct different types of sequential logic circuits using Flip Flops.	PO1, PO2, PO3, PO4, PO8, PO10, PSO1
4.	CO4: Analyze the basic structure and functional units of a digital computer & understand basic processing unit and organization of simple processor.	PO1, PO2, PO3, PO4, PO8, PO10, PSO1
5.	CO5: Explain hierarchical memory systems including cache memories & select appropriate interfacing standards for I/O devices.	PO1, PO2, PO3, PO4, PO6, PO10
6.	CO6: Develop a real-life project applying the concepts of digital electronics and computer organization.	PO1, PO2, PO3, PO4, PO5, PO6, PO8, PO9, PO10, PSO1

PO and PSO mapping with level of strength for Course Name: Digital Electronics & Computer Organization (Course Code:)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	3	3	-	3	-	-	-	2	2	3	3	-
CO2	3	3	3	3	-	-	-	3	-	2	3	-
CO3	3	3	3	3	-	-	-	3	-	3	2	-
CO4	3	3	3	3	-	-	-	3	-	3	3	-
CO5	2	2	2	3	-	2	-	-	-	2	-	-
CO6	2	3	3	3	2	2	-	3	3	3	3	-

Average of non-zeros entry in following table (should be auto calculated).

Course Code/ Name	PO1	PO2	PO3	PO 4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
/ Digital Electronics & Computer Organization	2.7	2.8	2.8	3.0	2.0	2.0	-	2.8	2.5	2.7	2.8	-

Strength of Correlation: 1. Addressed to Slight (Low=1) *extent*

2. Addressed to Moderate (Medium=2)

School:		School of Engineering and technology		
Department		Department of Computer Science and Engineering		
Program:		BSC-IT		
Branch:				
1	Course Code			
2	Course Title	Discrete Structures and Data Structures		
3	Credits	4		
4	Contact Hours (L-T-P)	4-0-0		
	Course Status	Core		
5	Course Objective	This course provides a mathematical foundation for subsequent study in Computer Science, as well as developing the skills necessary to solve practical problems.		
6	Course Outcomes	<p>After the completion of this course, students will be able to:</p> <p>CO-1. Apply the basic principles of sets and operations in sets.</p> <p>CO-2. Construct and prove models by using algebraic structures.</p> <p>CO-3. Classify logical notation and determine if the argument is or is not valid.</p> <p>CO-4. Apply the concepts of data structure, data type and ADT and appropriate data structures and Choose the suitable data structures like arrays, linked list, stacks and queues to solve real world problems efficiently.</p> <p>CO-5. Represent and manipulate data using nonlinear data structures like trees and graphs to design algorithms for various applications.</p> <p>CO-6 Formulate new solutions for programming problems as per industry standards.</p>		
7	Course Description	<p>The purpose of this course is to understand and use (abstract) discrete structures that are backbones of computer science. A basic understanding of discrete mathematical topics is fundamental for work in computer science. Many students of this course will find they have familiarity with some of the topics: for instance, truth tables, logical propositions, elements of set theory, as well as basic notions of functions and mathematical induction. In this course we will discover that logical propositions are the underlying model of discrete systems. From this modest beginning we develop algorithms and prove their efficacy. Topics include propositional and predicate logic, basic proof techniques, set algebra and Boolean algebra, recursion and induction. The knowledge gained will be extremely useful in upper level of computer science classes.</p>		
8	Outline syllabus			CO Mapping
	Unit 1	Introduction to Set Theory, Relations and Functions.		
	A	Set Theory: Introduction, Combination of sets, Multi sets, ordered pairs, Set Identities.		CO1
	B	Relations: Definition, Operations on relations, Properties of relations, Composite Relations, Equality of relations, Order of relations.		CO1
	C	Functions: Definition, Classification of functions, Operations on functions, Recursively defined functions.		CO1

	Unit 2	Algebraic Structures			
	A	Definition, Groups, Subgroups and order, Cyclic Groups, Cosets, Lagrange's theorem, Normal Subgroups,			CO2
	B	Homomorphism's, Definition and elementary properties of Rings and Fields, Integers Modulo n.			CO2
	C	Partial order sets: Definition, Partial order sets, Combination of partial order sets, Hasse diagram.			CO2
	Unit 3	Logics and Mathematical Induction			
	A	Propositional Logic: Proposition, well formed formula, Truth tables, Tautology, Satisfiability, Contradiction, Algebra of proposition, Theory of Inference, Natural Deduction.			CO1,CO3
	B	Predicate Logic: First order predicate, well formed formula of predicate, quantifiers, Inference theory of predicate logic.			CO1,CO3
	C	Natural Numbers: Introduction, Mathematical Induction, Variants of Induction , Definition, Properties of lattices – Bounded, Complemented, Modular and Complete Lattice, Morphisms of lattices.			CO1,CO3
	Unit 4	Introduction to data structures			
	A	Data Structure – Definition, Operations and Applications, Abstract Data Types, Algorithm – Definition, Introduction to Complexity, Big OH notation, Time and Space tradeoffs.			CO4
	B	Arrays and Linked list: Implementation of One Dimensional Arrays, Multidimensional Arrays, Applications of Arrays, Address Calculation, Matrix Operations, Concept of Linked List, Representation of linked List in memory, Operations on a Linked List. More types of linked list: Doubly Linked list, Header Linked List, Two way List and Circular linked list.			CO4
	C	Stacks & Queues: Concepts of Stack, Operation on Stack, Array Representation of Stack, Arithmetic Expression POLISH Notation, Concepts of Queue, Operation on Queue, Representation of queues, Other types of queue: Priority Queues, Deque and Circular queue.			CO4
	Unit 5	Trees and Graph Theory.			
	A	Trees: Definition, Binary tree, Binary tree traversal, Binary search tree.			CO4,CO5
	B	Graphs: Definition and terminology, Representation of graphs.			CO4,CO5
	C	Multi graphs, Bipartite graphs, Planar graphs, Isomorphism and Homeomorphism of graphs, Euler and Hamiltonian paths, Graph colouring. Industry Problem solving skills, practice of interview questions.			CO4,CO5, CO6
	Mode of examination	Theory/Jury/Practical/Viva			
	Weightage Distribution	CA	MTE	ETE	
		30%	20%	50%	
	Text book/s*	1) <i>I. C. L. Liu, Elements of Discrete Mathematics, second edition 1985, McGraw-Hill Book Company. Reprinted 2000.</i> 2) <i>Jean Paul Trembley, R Manohar, "Discrete</i>			

		<p><i>Mathematical Structures with Application to Computer Science”, McGraw-Hill.</i></p> <p>3) <i>K. H. Rosen, Discrete Mathematics and applications, fifth edition 2003, Tata McGraw Hill Publishing Company.</i></p> <p>4) <i>Lipschutz, “Data Structures” Schaum’s Outline Series, TMH</i></p>	
	Other References	<p>1) <i>J.L. Mott, A. Kandel, T.P .Baker, Discrete Mathematics for Computer Scientists and Mathematicians, second edition 1986, Prentice Hall of India.</i></p> <p>2) <i>Aaron M. Tenenbaum, Yedidyah Langsam and Moshe J. Augenstein “Data Structures Using C and C++”, PHI</i></p> <p>3) <i>Horowitz and Sahani, “Fundamentals of Data Structures”, Galgotia Publication</i></p>	

CO and PO Mapping

S. No.	Course Outcome	Program Outcomes (PO) & Program Specific Outcomes (PSO)
1.	CO1: Apply the basic principles of sets and operations in sets.	PO1,PO4 ,PSO2
2.	CO2: Construct and prove models by using algebraic structures.	PO3,PO4,PSO3,PSO4
3.	CO3: Classify logical notation and determine if the argument is or is not valid.	PO3,PSO2
4.	CO4: Apply the concepts of data structure, data type and ADT and appropriate data structures and Choose the suitable data structures like arrays, linked list, stacks and queues to solve real world problems efficiently.	PO1, PO3, PSO1
5.	CO5:Represent and manipulate data using nonlinear data structures like trees and graphs to design algorithms for various applications.	PO2, PO3, PO9, PSO1, PSO2
6.	CO6:Formulate new solutions for programming problems as per industry standards.	PO1, PO3, PO4, PO5, PO9, PSO1, PSO2, PSO3

PO and PSO mapping with level of strength for Course Name Discrete Structures and Data Structures (Course Code **yyyy**)

Course Code_ Course Name	CO's	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2
Discrete Structures and Data Structures	CO1	3	3	2	1	1	1	1	2	1	3		2
	CO2	3	3	2	2	1	1	1	2	1	3		2
	CO3	3	3	1	2	1	1	1	2	1	2		3
	CO4		2	2					2			1	2
	CO5		2	2						2		1	2
	CO6			1	2						2	3	2

Average of non-zeros entry in following table (should be auto calculated).

Course Code	Course Name	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2
	Discrete & Data Structure	2.83	2.67	1.67	1.67	1.00	1.00	1.00	2.00	1.00	2.67		2.50

Strength of Correlation

1. Addressed to *Slight (Low=1) extent*
2. Addressed to *Moderate (Medium=2) extent*
3. Addressed to *Substantial (High=3) extent*

School:		School of Engineering and technology		
Department		Department of Computer Science and Engineering		
Program:		BSC-IT		
Branch:				
1	Course Code			
2	Course Title	Operating Systems and Unix shell Programming		
3	Credits	4		
4	Contact Hours (L-T-P)	4-0-0		
	Course Status	Core		
5	Course Objective	<ol style="list-style-type: none"> 1. This course introduces the challenges for designing the operating systems. 2. Includes different design principles and algorithms. 3. Evaluation of algorithms proposed. 4. Implementation of algorithms and utilities. 		
6	Course Outcomes	<p>CO1: Define role, responsibilities, features, and design of operating system.</p> <p>CO2: Evaluate the strengths and weaknesses of the algorithms. And Identify the challenges and apply suitable algorithms for operating system.</p> <p>CO3: Implement tools and utility of operating system.</p> <p>CO4: Apply various memory management and memory management and to understand file and disk management and analyzing it.</p> <p>CO5: Understand the concepts of unix and shell programming.</p> <p>CO6: Design and develop solutions to real world problem using Linux</p>		
7	Course Description	This course introduces the design principles of operating systems, resource management, identifying challenges and applying respective algorithms. This course will also provide the basic of unix and shell programming.		
8	Outline syllabus		CO Mapping	
	Unit 1	Introduction to Operating System Concepts		
	A	Operating System Concepts and functions, Comparison of different Operating system, Open-Source Operating Systems.		CO1, CO2
	B	Types of Operating Systems (Batch, Multiprogramming, Multi-Tasking, Multiprocessing, Distributed and Real Time Operating System), Operating System Structure, Operating System Services.		CO1, CO2
	C	Operating System Structure, System Components, Operating System Services, Kernels, Monolithic and Microkernel Systems.		CO1, CO2
	Unit 2	Process Management and Scheduling		
	A	Process Concepts (PCB, Process States, Process Operations)		CO1, CO2
	B	CPU Scheduling: Concept, Types of schedulers (Short term, Long term, Middle term), Dispatcher,		CO1, CO2, CO4

	C	Performance Criteria CPU Scheduling Algorithms(FCFS, SJF, Priority, Round Robin, Multilevel Queue, Multilevel feedback Queue)		CO1,CO2,CO4
	Unit 3	Deadlock Handling		
	A	Race condition, Critical sections, Mutual exclusion,		CO1,CO2
	B	Deadlock concepts & Handling Techniques: Avoidance, Prevention		CO1,CO3
	C	Deadlock Detection & Recovery		CO4
	Unit 4	Memory Management and File Management		
	A	Memory Hierarchy, Memory Management Unit, Paging, Segmentation		CO1, CO5
	B	Virtual memory concept, demand paging, Page replacement algorithms(FCFS, Optimal, LRU),		CO3, CO5
	C	File Concept ,File operations, File Directories, Case study of Windows Operating System, Disk structure , Disk scheduling(FCFS,SSTF, SCAN, LOOK,C-SCAN, C-LOOK)		CO2,CO3, CO5
	Unit 5	Unix and Shell Scripting		
	A	Unix file system, Commands related to Process and File Handling.		CO1, CO2,CO3
	B	Introduction to shell and various type of shell, Various editors present in linux, Different modes of operation in vi editor,		CO1, CO4,CO6
	C	Introduction to shell script, Writing and executing the shell script, Shell variable (user defined and system variables) System calls, Using system calls, Pipes and Filters, Decision making in Shell Scripts (If else, switch), Loops in shell, Functions, Utility programs (cut, paste, join, tr , uniq utilities), Pattern matching utility (grep)		CO1, CO4,CO6
	Mode of examination	Theory/Jury/Practical/Viva		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*	1. Silberschatz G, <i>Operating System Concepts</i> , Wiley		
	Other References	1. W. Stalling, "Operating System", Maxwell Macmillan 2. Tannenbaum A S, <i>Operating System Design and Implementation</i> , Prentice Hall India 3. Milenkovic M, <i>Operating System Concepts</i> , McGraw Hill		

CO and PO Mapping

S. No.	Course Outcome	Program Outcomes (PO) & Program Specific Outcomes (PSO)
1.	CO1: Define role, responsibilities, features, and design of operating system.	PO1,PO2,PO3,PO4,PSO1
2.	CO2: Evaluate the strengths and weaknesses of the algorithms. And Identify the challenges and apply suitable algorithms for operating system.	PO1, PO3, PO4, PSO2
3.	CO3: Implement tools and utility of operating system.	PO1,PO2,PO3,PO4
4.	CO4: Apply various memory management and memory management and to understand file and disk management and analyzing it.	PO9, PO10,PO11
5.	CO5: Understand the concepts of unix and shell programming.	PO1,PO2,PO8,PO9,PO10,PSO1
6.	CO6: Design and develop solutions to real world problem using Linux	PO1,PO2,PO10,PSO1,PSO2

PO and PSO mapping with level of strength for Course Name Operating Systems and Unix shell Programming (Course Code **yyyy**)

Course Code_ Course Name	CO's	PO 1	PO 2	PO 3	PO4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO2
OS & shell Programming	CO1	3	3	3	3	--	--	--	2	2	1	3	2
	CO2	3	2	3	3	--	--	--	2	2	2	2	3
	CO3	3	3	3	3	--	--	--	1	1	1	3	2
	CO4	2	2	2	2	1	--	--	2	3	3	2	2
	CO5	2	2	2					3	3	1	3	
	CO6	3	2								2	2	2

Average of non-zeros entry in following table (should be auto calculated).

Course Code	Course Name	PO 1	PO2	PO3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2
	OS & shell Programming	2.83	2.67	1.67	1.67	1.00	1.00	1.00	2.00	1.00	2.67		2.50

Strength of Correlation

1. Addressed to Slight (Low=1) **extent**
2. Addressed to Moderate (Medium=2) **extent**
3. Addressed to Substantial (High=3) **extent**

School:		School of Engineering and technology	
Department		Department of Computer Science and Engineering	
Program:		BSC-IT	
Branch:			
1	Course Code		
2	Course Title	Operating Systems Using Linux Lab	
3	Credits	2	
4	Contact Hours (L-T-P)	0-0-4	
	Course Status	Compulsory	
5	Course Objective	Introduces the UNIX/Linux operating system, including: task scheduling and management, memory management, input/output processing, internal and external commands, shell configuration, and shell customization. Explores the use of operating system utilities such as text editors, electronic mail, file management, scripting, and C/C++ compilers	
6	Course Outcomes	<p>On completion of this course the student should be able to:</p> <p>CO1: To Identify and use UNIX/Linux utilities to create and manage simple file processing operations, organize directory structures with appropriate security, and develop shell scripts to perform more complex tasks.</p> <p>CO2: To accomplish typical personal, office, technical, and software development tasks.</p> <p>CO3: To Analyze system performance and network activities. Effectively use software development tools including libraries, preprocessors, compilers, linkers, and make files.</p> <p>CO4: Comprehend technical documentation, prepare simple readable user documentation and adhere to style guidelines.</p> <p>CO5: Analyze various utilities to structure the Linux Program</p> <p>CO6: Implement the Linux utilities to successfully write a program</p>	
7	Course Description	This courses introduces Linux Operating System	
8	Outline syllabus		CO Mapping
	Unit 1	Practical based on Basic Linux Commands	
		Introduction to Unix, Unix architecture, Features of Unix, Internal & External Commands, Basic unix commands: pwd, cd, mkdir, rmdir, ls, help, man, whatis	CO1, CO2, CO4
	Unit 2	Practical based on File Management	
		Unix file system, file permission, file handling commands: cat, touch, cp, rm, mv, more/less, lp, wc, cmp, diff, comm., dos2unix & unix2dos, gzip&gunzip, zip & unzip, tar	CO1, CO2. CO3, CO4
	Unit 3	Practical based on process Management	
		Process basics: PID, PPID, ps, process states, zombies, foreground and background processes, nice, kill.	CO2, CO3, CO4
	Unit 4	Practical Based on Filters	
		Simple filters: pr, head, tail, cut, paste, sort, nl, tr, grep	CO2, CO3, CO4
	Unit 5	Practical Based on Shell Scripting	
		Shell scripts, execution of shell scripts, using command line arguments, loops, condition	CO1, CO2, CO3, CO4, CO6

	Mode of examination	Jury/Practical/Viva			
	Weightage Distribution	CA	MTE	ETE	
		60%	0%	40%	
	Text book/s*	1. Sumitabha Das, "Unix Concepts and Applications", Tata McGraw Hill.			
	Other References	1. Unix Shell programming by Stephen G. Kochan and Patric Wood 2. Unix and shell programming by Richard F. Gilberg and Behrouz A. forouzan			

PO and PSO mapping with level of strength for Course Name Operating Systems Using Linux Lab (Course Code **yyyy)**

Course Code_ Course Name	CO's	PO 1	PO 2	PO 3	PO4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO2
OS & shell Programming lab	CO1	3	3	3	3	--	--	--	2	2	1	3	2
	CO2	3	2	3	3	--	--	--	2	2	2	2	3
	CO3	3	3	3	3	--	--	--	1	1	1	3	2
	CO4	2	2	2	2	2	--	--	2	3	3	2	2
	CO5	2	2	2	2	2	--	--	2	3	3	2	2
	CO6	2	2	2	2	2	--	--	2	3	3	2	2

Average of non-zeros entry in following table (should be auto calculated).

Course Code	Course Name	PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2
	OS & shell Programming lab	2.5	2.33	2.5	2.5	1.0			1.8	2.3	2.1	2.3	2.1

Strength of Correlation

1. Addressed to **Slight (Low=1) extent**
2. Addressed to **Moderate (Medium=2) extent**
3. Addressed to **Substantial (High=3) extent**

School: SET		Batch :	
Program: BSC-IT		Current Academic Year: 2021	
Branch:		Semester:1	
1	Course Code		Course Name: Problem solving using C Programming
2	Course Title	Problem solving using C Programming	
3	Credits	4	
4	Contact Hours (L-T-P)		
	Course Status	Core	
5	Course Objective	<ol style="list-style-type: none"> 1. Learn basic programming constructs –data types, decision structures, control structures in C 2. learning logic aptitude programming in c language 3. Developing software in c programming 	
6	Course Outcomes	Students will be able to: CO1: Demonstrate the hardware components of computer system algorithm, and flow chart for the given problem. CO2: Develop better understanding of basic concepts of C programming. CO3: Create and implement logic using array and function. CO4: Construct and implement the logic based on the concept of strings and pointers. CO5: Apply user-defined data types and I/O operations in file. CO6: Design and develop solutions to real world problems using C.	
7	Course Description	Programming for problem solving gives the Understanding of C programming and implement code from flowchart or algorithm	
8	Outline syllabus		CO Mapping
	Unit 1	Computer Fundamentals And Basic Computer Organization	
	A	Computer Fundamentals: Introduction to Computers: Characteristics of Computers, Uses of computers, Types and generations of Computers.	CO1,
	B	Units of a computer, CPU, ALU, memory hierarchy, registers, I/O devices. Number System	CO1
	C	Techniques of Problem Solving: Flowcharting, decision table, algorithms, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.	CO1
	Unit 2	Introduction to C Programming	

A	Introduction to C programming language, Data types, Variables, Constants, Identifiers and keywords, Storage classes	CO2, CO6	
B	Operators and expressions, Types of Statements: Assignment, Control, jumping.	CO2, CO6	
C	Control statements: Decisions, Loops, break, continue	CO2, CO6	
Unit 3	Arrays and Functions		
A	Arrays: One dimensional and multi dimensional arrays: Declaration, Initialization and array manipulation	CO3, CO6	
B	Functions: Definition, Declaration/Prototyping and Calling, Types of functions, Parameter passing: Call by value, Call by reference.	CO3, CO6	
C	Passing and Returning Arrays from Functions, Recursive Functions.	CO3, CO6	
Unit 4	Pre-processors and Pointers		
A	Pre-processors: Types, Directives, Pre-processors Operators (#,##,\)	CO4, CO6	
B	Pointer: Introduction, declaration of pointer variables, Operations on pointers: Pointer arithmetic, Arrays and pointers, Dynamic memory allocation.	CO4, CO6	
C	String: Introduction, predefined string functions, Manipulation of text data, Command Line Arguments.	CO4, CO6	
Unit 5	User Defined Data Types and File Handling		
A	Structure and Unions: Introduction, Declaration, Difference, Application, Nested structure, self-referential structure, Array of structures, Passing structure in function.	CO5, CO6	
B	Files: Introduction, concept of record, I/O Streaming and Buffering, Types of Files: Indexed file, sequential file and random file,	CO5, CO6	
C	Creating a data file, Opening and closing a data file, Various I/O operations on data files: Storing data or records in file, adding records, Retrieving, and updating Sequential file/random file.	CO5, CO6	
Mode of examination	Theory		
Weightage Distribution	CA	MTE	ETE
	30%	20%	50%
Text book/s*	Kernighan, Brian, and Dennis Ritchie. <i>The C Programming Language</i>		
Other References	1. B.S. Gottfried - Programming With C - Schaum's Outline Series - Tata McGraw Hill 2nd Edition - 2004. 2. E. Balagurusamy - Programming in ANSI C - Second Edition - Tata McGraw Hill- 1999		

CO and PO Mapping

S. No.	Course Outcome	Program Outcomes (PO) & Program Specific Outcomes (PSO)
1.	CO1: demonstrate the hardware components of computer system algorithm, and flow chart for the given problem.	PO1,PO2,PO3,PO4, PO10, PSO1,PSO2
2.	CO2: develop better understanding of basic concepts of C programming.	PO1,PO2,PO3,PO4, PO10, PSO1,PSO2
3.	CO3: create and implement logic using array and function.	PO1,PO2,PO3,PO4, PO10, PSO1,PSO2
4.	CO4: construct and implement the logic based on the concept of strings and pointers.	PO1,PO2,PO3,PO4, PO10, PSO1,PSO2
5.	CO5: apply user-defined data types and I/O operations in file.	PO1,PO2,PO3,PO4, PO10, PSO1,PSO2
6	CO6: design and develop solutions to real world problems using C.	PO1,PO2,PO3,PO4,PO5,PO6,PO8,PSO1 PSO2.

PO and PSO mapping with level of strength for Course Name Problem solving using C Programming (Course Code:XXXX)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO1	PSO2
CO1	1	3	2	2	-	-	-	-		1	2	3
CO2	2	3	3	2	2	-	-	-		1	2	3
CO3	3	3	2	2	2	-	-	-	-	1	2	3
CO4	3	3	2	2	2	-	-	-	-	1	2	3
CO5	3	3	2	2	2	-	-	-	-	1	2	3
CO6	3	3	3	2	2	2	-	2		1	2	3

Average of non-zeros entry in following table (should be auto calculated).

Course Code	Course Name	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PS O 1	PS O 2
xxxx	Problem solving using C Programming	2.5	3	2.3	1.5	2.0					1	2.	3

Strength of Correlation

1. Addressed to *Slight (Low=1) extent*
2. Addressed to *Moderate (Medium=2) extent*
3. Addressed to *Substantial (High=3) extent*

Syllabus: : Programming for problem solving Lab

School: SET		Batch: 2021	
Program: BSC-IT		Current Academic Year: 2021	
Branch:		Semester: I	
1	Course Code	XXXX	
2	Course Title	Programming for problem solving Lab	
3	Credits	2	
4	Contact Hours (L-T-P)	0-0-4	
	Course Status	Compulsory	
5	Course Objective	<ol style="list-style-type: none"> 1. Learn basic programming constructs –data types, decision structures, control structures in C 2. learning logic aptitude programming in c language 3. Developing software in c programming 	
6	Course Outcomes	Students will be able to: CO1: Implement core concept of c Programming CO2: develop programs using Array and String CO3: create Functions for any problem CO4: Use Union and Structure to write any program CO5: implement concept of Pointers CO6: design a real world problem with the help of c programming	
7	Course Description	Programming for problem solving gives the Understanding of C programming and implement code from flowchart or algorithm	
8	Outline syllabus		CO Mapping
	Unit 1	Logic Building	CO1, CO6
		Draw flowchart for finding leap year Write a c Program to Add Two Integers Write a program to create a calculator Write a program to add ‘n’ numbers. Write a program to find the area and circumference of a circle. Write a program to swap two numbers with or without use of a third variable.	
	Unit 2	Introduction to C Programming AND	CO2, CO6

		<p>Write a c program to convert length meter to cm</p> <p>Write a c program to convert temp</p> <p>Write a c program to swap two numbers</p> <p>Write a program to find largest among two and three numbers.</p> <p>Write a program to find the roots of a quadratic equation (real and imaginary).</p> <p>Write a menu-driven program using Switch case to calculate the followings:</p> <ol style="list-style-type: none"> i. Area of a circle ii. Area of a square iii. Volume of a sphere <p>Write a program to check whether the given number is Armstrong or not.</p>	
	Unit 3	Arrays and Functions	CO3, CO6
		<p>Write a c program to calculate the average using arrays</p> <p>Write a c program to find the largest element of the array</p> <p>Write a program to calculate the factorial of the given number using function.</p> <p>Write a program to find the Fibonacci series.</p> <p>Write a program to find the sum & reverse of digits and check whether it is palindrome or not.</p> <p>Write a program to multiply two matrices.</p> <p>Write a program to sort the elements of an integer array.</p> <p>Write a program to calculate factorial using recursive function.</p> <p>Write a program to show the use macros.</p> <p>Write a program to implement call by value and call by reference.</p>	
	Unit 4	Pre-processors and Pointers	CO4, CO6
		<p>Write a c program to swap two values using pointers</p> <p>Write a c program to find largest number from array using pointers</p> <p>Write a program to access array element using pointers.</p> <p>Write a program to count vowels and consonants in a string using pointer.</p> <p>Write a program to perform the string operations.</p> <p>To write a program to print the employee details of employees using structure.</p>	

	Unit 5	User Defined Data Types and File Handling	CO5, CO6						
		Write a c program to store information of a student using structure Write a c program to store information of a student using union Write a program to create array of structures. Write a program to perform file I/O operations. A program to display college address using pointers and structures A program to write data file and read data from file A program to write integer data into file and read it from file A program to write product details A program to use command line arguments in files							
	Mode of examination	Practical							
	Weightage Distribution	<table border="1"> <tr> <td>CA</td> <td>MTE</td> <td>ETE</td> </tr> <tr> <td>60%</td> <td>0%</td> <td>40%</td> </tr> </table>	CA	MTE	ETE	60%	0%	40%	
CA	MTE	ETE							
60%	0%	40%							
	Text book/s*	Kernighan, Brian, and Dennis Ritchie. <i>The C Programming Language</i>							
	Other References	4. B.S. Gottfried - Programming With C - Schaum's Outline Series - Tata McGraw Hill 2nd Edition - 2004. 5. E. Balagurusamy - Programming in ANSI C - Second Edition - Tata McGraw Hill- 1999							
Course outline This course implements array and pointer and Recursive applications. The course talks primarily about Array, string, functions, structure & union and Pointers etc.									
Course Evaluation									
Attendance	None								
Any other	CA judged on the practicals conducted in the lab , weightage may be specified								
References									
Text book	Kernighan, Brian, and Dennis Ritchie. <i>The C Programming Language</i>								
Other References	1. B.S. Gottfried - Programming With C - Schaum's Outline Series - Tata McGraw Hill 2nd Edition - 2004. 2. E. Balagurusamy - Programming in ANSI C - Second Edition - Tata McGraw Hill- 1999								

PO and PSO mapping with level of strength for Course Name Programming for problem solving Lab (Course Code XXXX)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO1	PSO2
CO1	1	3	2	2	-	-	-	-		1	2	3
CO2	2	3	3	2	2	-	-	-		1	2	3
CO3	3	3	2	2	2	-	-	-	-	1	2	3
CO4	3	3	2	2	2	-	-	-	-	1	2	3
CO5	3	3	2	2	2	-	-	-	-	1	2	3
CO6	3	3	3	2	2	2	-	2		1	2	3

Average of non-zeros entry in following table (should be auto calculated).

Course Code	Course Name	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2
xxxx	Problem solving using C Programming	2.5	3	2.3	1.5	2.0					1	2.	3

Strength of Correlation

1. Addressed to Slight (Low=1) **extent**
2. Addressed to Moderate (Medium=2) **extent**
3. Addressed to Substantial (High=3) **extent**

School:		School of Engineering and technology		
Department		Department of Computer Science and Engineering		
Program:		Bachelor of Science		
Branch:		BSC		
1	Course Code	BOLXXX		
2	Course Title	Object Oriented Programming Using Java and Web Designing Lab		
3	Credits	2		
4	Contact Hours (L-T-P)	0-0-4		
	Course Status	Compulsory/Elective		
5	Course Objective	To implement Java language syntax and semantics and concepts such as classes, objects, inheritance, polymorphism, packages, multithreading and Web development through HTML, CSS, JavaScript etc.		
6	Course Outcomes	CO1: Installing, Writing and executing Java programs and Web Desig. CO2: Understand and formulate the problems in basic programming constructs CO3: Applying OOP and Web Design concepts to solve real world problems CO4: Implement inheritance and polymorphism features of Java and HTML, CSS. CO5: Implementing multithreading, XML and JavaScript CO6: Develop Java and Web Program for application development		
7	Course Description	Basic Object Oriented Programming (OOP) concepts including objects, classes, methods, parameter passing, information hiding, inheritance and polymorphism are discussed. Web Designing is to give students the basic understanding of how things work in the Web world from the technology point of view as well as to give the basic overview of the different technologies.		
8	Outline syllabus			CO Mapping
	Unit 1	Introduction		
		Installation, Configuration and basic programming.		CO1
	Unit 2	Introduction to Java with class and object		
		Programs on the concept of class and object		CO2,CO3
	Unit 3	Inheritance, Polymorphism & Exception and Multithreading		
		Programs on the concept of Inheritance, Polymorphism & Exception and Multithreading		CO2,CO3
	Unit 4	HTML and CSS		
		Programs on the concept of HTML and CSS		CO3,CO4,CO6
	Unit 5	XML and JavaScript		
		Programs on the concept of XML and JavaScript		CO3,CO5,CO6
	Mode of examination	Jury/Practical/Viva		
	Weightage Distribution	CA	MTE	ETE
		60%	0%	40%
	Text book/s*	1.Schildt H, "The Complete Reference JAVA2", TMH 2. Douglas Comer "The Internet Book - Pearson Education", Asia		
	Other	1. Balagurusamy E, "Programming in JAVA", TMH		

References	2. Professional Java Programming: BrettSpell, WROX Publication Douglas E. Comer "Internetworking with TCP/IP", Volume-I, PHI	
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PO and PSO mapping with level of strength for Course Name Introduction to Object Oriented Programming Using Java and Web Designing Lab (Course Code BOLXXX)

Course Code_ Course Name	CO's	PO 1	PO 2	PO 3	PO4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO2	PSO3
BOLXXX Object Oriented Programming Using Java and Web Designing Lab	CO1	1			2	2					2		2	2		
	CO2	2			2	2					2			2		
	CO3	2	3	3	3	2					2		2	3		
	CO4	3			3	2					2			2	2	
	CO5	3			3	2					2			2	2	
	CO6	3	3	3	3	2					2		3	3	2	

Average of non-zeros entry in following table (should be auto calculated).

Course Code	Course Name	PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2
BOLXXX	Object Oriented Programming Using Java and Web Designing Lab	2.5	3	3	2.5	3	0	0	0	0	2	2.5	2

Strength of Correlation

1. Addressed to *Slight (Low=1) extent*
2. Addressed to *Moderate (Medium=2) extent*
3. Addressed to *Substantial (High=3) extent*

School:		School of Engineering and technology		
Department		Department of Computer Science and Engineering		
Program:		Bachelor Of Science		
Branch:		Computer Science		
1	Course Code	BCO XXX		
2	Course Title	Object Oriented Programming Using Java and Web Designing		
3	Credits	4		
4	Contact Hours (L-T-P)	4-0-0		
	Course Status	Core /Elective/Open Elective		
5	Course Objective	Understand the fundamentals of object-oriented concept in Java, defining classes, objects, invoking methods inheritance, interfaces and exception handling mechanisms. To develop skills in analyzing the usability of a web and understand fundamentals of tools and technology of web design.		
6	Course Outcomes	CO1: Describe the fundamental of object-oriented concept in java and web design. CO2: Compare and contrast different features of java and web design. CO3: Develop programs using core concepts of java and web development tools . CO4: Analyze Exception and Error in java programs and security in web design CO5: Explain the concept of inheritance, polymorphism and interfaces and web applications. CO6: Design application of real-world problem using Java and web development tools.		
7	Course Description	Basic Object-Oriented Programming (OOP) concepts, including objects, classes, methods, parameter passing, information hiding, inheritance and polymorphism are introduced and their implementations using Java are discussed.		
8	Outline syllabus			CO Mapping
	Unit 1	Introduction to Object Oriented Paradigm		
	A	Procedural Languages, object-based languages, object-oriented languages, difference between programming paradigms, advantages of OOPs.		CO1, CO2
	B	Object oriented programming features: Abstraction, class, object, Encapsulation, data hiding, polymorphism, inheritance.		CO2
	C	Java virtual machine, Byte Code, Architecture of JVM, Class Loader, Execution Engine, Garbage collection.		CO2
	Unit 2	Introduction to Java with class and object		
	A	Java development Kit (JDK), Introduction to IDE for java development, setting java environment (steps for path and CLASSPATH setting)		CO2
	B	Constants, Variables, Data Types, Operators, Expressions, Decision Making, Branching, Loops, command line argument		CO2

	C	Arrays, Type conversion & casting, Input from keyboard, Classes, Objects, Methods, Method overloading, Constructors, Constructor's overloading, static keyword, Introducing Access Control, String handling	CO1, CO2, CO3	
	Unit 3	Inheritance, Polymorphism & Exception and Multithreading		
	A	Types of inheritance, Implementing Interface, Concept of multiple inheritances, use of this and super, Polymorphism, Overriding methods	CO5	
	B	Final class, method and variable, Abstract class and method, Introduction to Exception Handling, Introduction to try, catch, throw and throws.	CO4, CO5, CO6	
	C	Checked and Unchecked exceptions, User define exception, Introduction to Multithreading: multithreading advantages and issues, creating thread using Runnable interface and Thread class, Thread life cycle.	CO4, CO5, CO6	
	Unit 4	Web Design and Architecture		
	A	Introduction to Web: History of Internet, WWW, Client or Browser, website, internet browsers, Hypertext, Web server, Locating resource on internet-URI, URL, URN, ISP, Gateways.	CO1, CO2	
	B	Basic features of HTTP, Working of HTTP, HTTP response code, social networks, search engines, Video Conferencing, e-Commerce, m-Commerce. Web Architecture: Server, Type of server, database server, mail server, web server	CO1, CO2, CO3	
	C	Components of web, usage of Web, client-server architecture, Domain Name System, Type of DNS servers, Example of DNS query and response, Wildcards, Negative response caching, Zone maintenance and transfers	CO1, CO2	
	Unit 5	Web Applications and security		
	A	SMTP-components, working of SMTP, SMTP protocol stack, SMTP headers, SMTP forwarding, SMTP relays, interoperation, how SMTP uses DNS, Concept of remote login, remote Login methods, setting environment for putty, login to remote system using putty	CO4, CO5, CO6	
	B	FTP: FTP protocol, Usage of FTP, anonymous ftp, Setting FileZilla server and client, FTP commands: Access control commands, Transfer Parameter Commands, FTP Service Commands, FTP command arguments	CO4, CO5, CO6	
	C	Security requirements, confidentiality, authenticity, integrity, plain text, cipher text, Symmetric Cryptography, Asymmetric Cryptography,	CO4, CO5, CO6	
	Mode of examination	Theory/Jury/Practical/Viva		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%

Text book/s*	1.Schildt H, “The Complete Reference JAVA2”, TMH 2. Douglas Comer “The Internet Book - Pearson Education”, Asia	
Other References	3. Balagurusamy E, “Programming in JAVA”, TMH 4. Professional Java Programming: BrettSpell, WROX Publication 5. Douglas E. Comer “Internetworking with TCP/IP”, Volume-I, PHI	

CO and PO Mapping

S. No.	Course Outcome	Program Outcomes (PO) & Program Specific Outcomes (PSO)
1.	CO1: Describe the fundamental of object oriented concept in java and web design.	PO3, PO10
2.	CO2: Compare and contrast different features of java and web design.	PO3,PO10
3.	CO3: Develop programs using core concepts of java and web development tools .	P01,PO2,PO3,PO4,PO10
4.	CO4: Analyze Exception and Error in java programs and security in web design	PO3,PO10
5.	CO5: Explain the concept of inheritance, polymorphism and interfaces and web applications.	PO3,PO10
6.	CO6: Design application of real world problem using Java and web development tools.	PO1,PO2,PO3,PO4,PO5,PO6,PO8, PO10,PSO1,PSO2

PO and PSO mapping with level of strength for Course Name Object Oriented Programming Using Java and Web Designing (Course Code BCO-XXX)

Course Code_ Course Name	CO's	PO 1	PO 2	PO 3	PO4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO2
Object Oriented Programming Using Java and Web Designing BCO-XXX	CO1			2							2		
	CO2			2							2		
	CO3	2	3	2	2						2		
	CO4			2							2		
	CO5			2							2	2	1
	CO6	2	3	2	3	3	2		3		2	2	2

Average of non-zeros entry in following table (should be auto calculated).

Course Code	Course Name	PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2
BCO XXX	Object Oriented Programming Using Java and Web Designing BCO-XXX	2	3	2	2.5	3	2	0	3	0	2	2	1.5

BCA (Multimedia & Animation)

School:	School of Engineering and technology	
Department	Department of Computer Science and Engineering	
Program:	BCA (MM)	
Branch:	BCA	
1 Course Code		BCA269
2 Course Title	Visual Programming with VB	
3 Credits	4	
4 Contact Hours (L-T-P)	4-0-0	
Course Status	Core	
5 Course Objective	The objective of this course is to develop and improve skills of students in object-oriented analysis, design, programming, and testing. Learn to use the VB IDE, .NET CLR, CLS, and class libraries to develop Windows desktop applications. Learn the Visual Basic syntax, program structure, properties, modules, collections, XML data, multi-tier applications with the event-driven programming model. Windows Forms, common controls, design-view, code view, class diagram view.	
6 Course Outcomes (must be 6 COs, following verbs given in Bloom's Taxonomy)	CO1: Develop the fundamental concepts of object-oriented programming techniques. CO2: Explain basic concepts and definitions of visual programming. CO3: Express constants and arithmetic operations. CO4: Distinguish variable and data types. CO5: Students code visual programs by using Visual Basic work environment. CO6: Students prepare various projects by helping visual programming.	
7 Course Description	Visual programming languages are widely used for the rapid development of graphical applications. This subject will introduce students to the fundamental principles of event-driven programming and to programming using a visual environment through the use of the Visual C# programming language.	
8 Outline syllabus		CO Mapping

Unit 1	Introduction to Visual Basic	
A	Introduction Graphical User Interface (GUI), Programming Language, Procedural, Object Oriented, Event Driven)	CO1, CO2
B	The Visual Basic Environment: tool box, menu bar, tool bar	CO1, CO2
C	How to use VB compiler to compile / debug and run the programs.	CO1, CO2
Unit 2	Introduction to VB Controls	
A	Textboxes, Frames, Check Boxes, Option Buttons, Images, Setting a Border & Styles,	CO1, CO2
B	The Shape Control, the line Control, Working with multiple controls and their properties,	CO1, CO2, CO3
C	Designing the User Interface, Keyboard access, tab controls, Default & Cancel property, Coding for controls.	CO2, CO3, CO4
Unit 3	Variables, Constants, and Calculations	
A	Variables, Variables Public, Private, Static, Constants, Data Types,	CO1, CO2, CO4
B	Naming rules/conventions, Constants, Named & intrinsic, Declaring variables, Scope of	CO1, CO2, CO4

	variables	
C	Val Function, Arithmetic Operations, Formatting Data	CO1, CO2
Unit 4	Decision & Conditions	
A	If Statement, If-then-else Statement, Comparing Strings,	CO1, CO2, CO5
B	Compound Conditions(And, Or, Not), Nested If Statements, Case Structure ,Using If statements with Option Buttons & Check Boxes,	CO1, CO4, CO5
C	Displaying Message in Message Box, Testing whether Input is valid or not , Apply test conditions. Using Call Statement to call a procedure.	CO1, CO4, CO5
Unit 5	List Boxes, Combo Boxes, Sub-Procedures and Sub-functions	
A	List Boxes & Combo Boxes, Filling the List using Property window / AddItem Method, Clear Method, List box Properties, Removing an item from a list, List Box/ Combo Box,	CO2, CO3, CO6
B	Do/Loops, For/Next Loops, Using MsgBox Function, Using String Function, Printing to printer using Print Method,	CO2, CO3, CO6
C	Creating a new sub-procedure, Passing Variables to Procedures, Passing Argument ByVal or ByRef, Writing a Function Procedure,	CO2, CO3, CO6

Mode of examination	Theory		
Weightage Distribution	CA	MTE	ETE
	30%	20%	50%
Text book/s*	VB.NET: Programmer's Cookbook, by Matthew MacDonald, Microsoft Press.		
Other References	"Programming in Visual Basic" by McBride "Programming in Visual Basic 6.0 with Working Model CD-ROM" by Julia Case Bradley and Anita Millspaugh		

CO and PO Mapping

S. No.	Course Outcome	Program Outcomes (PO) & Program Specific Outcomes (PSO)
1.	CO1: Develop the fundamental concepts of object-oriented programming techniques.	PO1, PO2, PO4, PO6, PSO1, PSO2
2.	CO2: Apply modern IDE to visually and programmatically implement programs.	PO1, PO2, PO3, PO4, PO5, PO7, PO8, PO10, PSO1, PSO2
3.	CO3: Analyze the event-driven model and its interaction with the modern multitasking operating system	PO1, PO2, PO3, PO4, PO5, PO6, PO8, PO10, PSO1, PSO2
4.	CO4: Design and implement applications using an object-oriented methodology	PO1, PO2, PO4, PO8, PO9, PO10, PSO1, PSO2
5	CO5: Apply decision and conditional statement in programming.	PO1, PO2, PO3, PO5, PO9, PSO1, PSO2
6	CO6: Make use of debugging and testing tools available in Visual Studio	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO10, PSO1, PSO2

Course Code_ Course Name	CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
BCA 269_Visual Programming with VB	CO1	2	2	-	1	-	2	-	-		-	3	2
	CO2	1	3	3	2	2	-	1	2	-	3	2	1
	CO3	2	1	2	1	1	3	-	1	-	2	2	1
	CO4	1	2	-	3	-	-	-	2	2	1	2	3
	CO5	2	2	2	-	1	-	-	-	1	-	1	2
	CO6	2	3	2	3	2	2	2	2	2	-	2	1

PO and PSO mapping with level of strength for Visual Programming with VB

Average of non-zeros entry in following table (should be auto calculated).

Course Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
BCA 269	Visual Programmi ng with VB	1.7	2.2	2.3	2.0	1.5	2.3	1.5	1.8	1.5	2.0	1.8	1.7

Strength of Correlation

1. Addressed to Slight (Low=1) *extent*
2. Addressed to Moderate (Medium=2) *extent*
3. Addressed to Substantial (High=3) *extent*

Multimedia Authoring and Production

School:		School of Engineering and technology	
Department		Department of Computer Science and Engineering	
Program:		BCA	
Branch:			
1	Course Code	BCA277	
2	Course Title	Multimedia Authoring and Production	
3	Credits	4	
4	Contact Hours (L-T-P)	4-0-0	
	Course Status	Core /Elective/Open Elective	
5	Course Objective	Upon successful completion of this course you should be able to: Design an effective interactive program using Macromedia Director and the Lingo authoring language, Design an interactive multimedia program that can be effectively produced by another person, or a team, Implement script-based solutions for multimedia and hypermedia programs, Design and implement a practical user interface, Apply problem-solving methods pertinent to multimedia and hypermedia production, Write script handlers that incorporate digital video, sound, graphics, and animation.	
6	Course Outcomes (must be 6 COs, following verbs given in Bloom's Taxonomy)	After Successful completion of this course the student will be able to: CO1: Outline visual of multimedia design assessment. CO2: Develop the authoring design effects CO3: Identify the design implementation of multimedia. CO4: Analyze the interface and interaction design for multimedia CO5: Discover the interactive multimedia publications CO6: Examine the need for assessment of multimedia.	
7	Course Description	This course is designed to give you a fundamental understanding of computer authoring techniques as they pertain to multimedia and hypermedia production. You will be given the opportunity to develop your authoring skills using Adobe Director and the Lingo authoring language. The emphasis of this course is not so much about programming as it is about applying media design techniques to an authoring language framework to solve implementation problems, and to enhance nonlinear content presentation. Activities will focus primarily on completed projects and their effectiveness. You are encouraged to develop reusable tools and programs that serve real needs, or fit well into a portfolio.	
8	Outline syllabus		CO Mapping
	Unit 1	The Power of Visual Storytelling	
	A	Creative Approaches: Building design resource team, Brain storming, Formats and Storytelling and Researching data.	CO1, CO2,
	B	Visualization Information Methods: Visual metaphors, Visualizing Information and Design Thinking	CO1, CO2,
	C	Authoring Design: Create building information model	CO1, CO2

		Document Construction, Human-Computer interfaces and basic interaction language, Coaching, Experience and Development		
	Unit 2	Interface Design		
	A	Visual Elements & Design Principles: Color, line, space, texture, form, Unity, harmony, balance, hierarchy, scale/proportions, dominance/ emphasis, similarity & contrast, Title and Typography	CO1, CO2, CO3	
	B	Gestalt Principles Implementation: Proximity, Similarity, Closure, Good continuation, Common fate, good form	CO1, CO2, CO3	
	C	Layout and Compositions: Content Compositions, Grids/Wire framing, The power of icon & symbols	CO1, CO2, CO3	
	Unit 3	Interaction Design Implementation (Part-1)		
	A	Screen casting & Researching, Problem solving: Planning and Workflow	CO1, CO2, CO3, CO4	
	B	Recording: Video recording, Audio recording and Conversion	CO1, CO2, CO3, CO4	
	C	Compositing, Transition and Distributing	CO1, CO2, CO3, CO4	
	Unit 4	Interaction Design Implementation (Part-2)		
	A	Importing media: Text, Graphics, Animation, Audio, Video	CO3, CO4, CO5	
	B	Interactive media (Media Framework): Compositing, Navigation techniques	CO3, CO4, CO5	
	C	Animation & Video elements and Transition	CO3, CO4, CO5	
	Unit 5	Interactive Multimedia Publications		
	A	Multimedia Format conversion Practice & Discussion	CO4, CO5, CO6	
	B	Animate CC, Media burning, DVD, CD-Rom, Data storage, Multimedia, Publishing	CO4, CO5, CO6	
	C	Media testing and Evaluation with case studies	CO4, CO5, CO6	
	Mode of examination	Theory/Jury/Practical/Viva		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*	Multimedia Authoring: Building and Developing Documents Book by Scott Fisher		
	Other References			

CO and PO Mapping

S. No.	Course Outcome	Program Outcomes (PO) & Program Specific Outcomes (PSO)
1.	CO1: Outline visual of multimedia design assessment.	PO1, PO3, PO4, PO6,

		PO10, PSO1, PSO2
2.	CO2: <i>Develop</i> the authoring design effects	PO1, PO2, PO3, PO4, PO7, PO8, PO10, PSO1, PSO2
3.	CO3: <i>Identify</i> the design implementation of multimedia.	PO1, PO2, PO3, PO4, PO10, PSO1, PSO2
4.	CO4: <i>Analyze</i> the interface and interaction design for multimedia	PO1, PO2, PO4, PO10, PSO1, PSO2
5.	CO5: <i>Discover</i> the interactive multimedia publications	PO1, PO2, PO3, PO4, PO10, PSO1, PSO2
6.	CO6: <i>Examine</i> the need of assessment of multimedia.	PO1, PO2, PO3, PO10, PSO1, PSO2

PO and PSO mapping with level of strength for Course Name Multimedia authoring and production (Course Code BCA277)

Course Code_ Course Name	CO's	PO 1	PO2	PO3	PO4	PO 5	PO6	PO7	PO8	PO9	PO10	PSO 1	PSO 2
BCA277_ Multimedia authoring and production	CO1	1	-	2	2	-	2	-	-	-	2	2	2
	CO2	2	3	2	2	-	-	2	2	-	2	2	2
	CO3	2	3	1	1	-	-	-	-	-	1	2	3
	CO4	2	2	-	3	-	-	-	-	-	1	2	1
	CO5	3	3	2	1	2	-	-	-	-	1	2	3
	CO6	2	3	2	1	-	2	2	-	-	2	2	2

Average of non-zeros entry in following table (should be auto calculated).

Course Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PSO 1	PSO2
BCA277	Multimedia authoring and production	2.0	2.3	1.5	1.7	0.3	0.7	0.7	0.3	0.0	1.5	2.0	2.2

Strength of Correlation

1. Addressed to *Slight (Low=1) extent*
2. Addressed to *Moderate (Medium=2) extent*
3. Addressed to *Substantial (High=3) extent*

Multimedia & Animation

School:		School of Engineering and technology		
Department		Department of Computer Science and Engineering		
Program:		BCA		
Branch:				
1	Course Code	BCA366		
2	Course Title	Multimedia & Animation		
3	Credits	4		
4	Contact Hours (L-T-P)	4-0-0		
	Course Status	Core		
5	Course Objective	This course emphasizes the design and implementation of 2D animation for a wide variety of multimedia products.		
6	Course Outcomes	CO1: <i>Illustrate</i> the concepts Multimedia, Multimedia Hardware and Software. CO2: <i>Discover</i> different approaches in Multimedia and Animation. CO3: <i>Analyse</i> The concept of 2D and 3D animation. CO4: <i>Apply</i> Audio, and Video Production Techniques to an Animation Project. CO5: <i>Choose</i> layout and designing principles for animation. CO6: <i>Demonstrate</i> the use of digitized sound, video control, and scanned images		
7	Course Description	Multimedia is the combined use of text, graphics, sound, animation, and video. A primary objective of this workshop is to teach participants how to develop multimedia programs. Another objective is to demonstrate how still images, sound, and video can be digitized on the computer.		
8	Outline syllabus			CO Mapping
	Unit 1	Introduction to Multimedia		
	A	What is multimedia, Components of multimedia, usage of multimedia, design principles of multimedia, Multimedia hardware and Multimedia software		CO1, CO2
	B	Multimedia operating system: Concepts of Operating system, Types of Multimedia Operating system		CO1, CO2
	C	Multimedia communication systems and types		CO1, CO2
	Unit 2	Image and Video		
	A	Image: Creation of image (BMP & vector), image colour models, Image file format, Image compression.		CO1,CO2, CO6
	B	Video: video broadcast standard (PAL, NTSC), shooting and editing video.		CO1,CO2, CO4,CO6
	C	Video file formats. Video tips, video compression: MPEG standards.		CO1,CO2, CO4,CO6
	Unit 3	Animation		
	A	Principle of Animation. Animation techniques: cell animation, computer animation.		CO2,CO3, CO5
	B	Kinematics, morphing, anti-aliasing, animation files		CO2, CO5

		formats.	
	C	Different animation packages: Acrobat Photoshop, flash.	CO2, CO5
	Unit 4	2D Animation	
	A	Introduction to 2D animation: Drawing concept, Colour theory & basics, Incorporating sound into 2D animation	CO2, CO3, CO4, CO6
	B	Drawing concept and colour theory & basics, Incorporating sound into 2D animation	CO2, CO3, CO4, CO6
	C	Introduction to 3D Animation: Techniques of 3D animation, Create, Edit and working with 3D Animation Graph	CO2, CO3, CO4, CO6
	Unit 5	Layout & Designing	
	A	Basic of sketching still and assignment of basic drawing, composition of basic elements.	CO1, CO2, CO5
	B	Work in different media, such as drawing, collage and painting	CO1, CO2, CO5, CO6
	C	Pixel and resolution: vector and bitmap Graphics.	CO1, CO2, CO5, CO6
	Mode of examination	Theory	
	Weightage Distribution	CA 30%	MTE 20%
			ETE 50%
	Text book/s*	1. Multimedia Making It Work-by Tay Vaughan, Tata Mcgrwa Hills. 2. Multimedia Systems: John F, Koegel Buford Pearson.	
	Other References	1. Multimedia In Action-James E Shuman-Vikas Publishing House 2. Multimedia basic-Volumes-1 Technology.	

CO and PO Mapping

S. No.	Course Outcome	Program Outcomes (PO) & Program Specific Outcomes (PSO)
1.	Illustrate the concepts Multimedia, Multimedia Hardware and Software.	PO1, PO2, PO3, PO4, PO10, PSO1, PSO2
2.	Discover different approaches in Multimedia and Animation.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO10, PSO1, PSO2
3.	Analyse: The concept of 2D and 3D animation.	PO1, PO2, PO3, PO4, PO5, PO6, PO8, PSO1, PSO2
4.	Apply Audio, and Video Production Techniques to an Animation Project.	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO9, PO10, PSO1, PSO2
5.	Choose layout and designing principles for animation.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PSO1, PSO2
6.	Demonstrate the use of digitized sound, video control, and scanned images	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PSO1, PSO2

**PO and PSO mapping with level of strength for Course Name Multimedia & Animation
 (Course Code BCA 366)**

BCA 366_Multimedia & Animation	CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
BCA 366_Multimedia & Animation	CO1	3	1	1	1	-	-	-	-	-	3	1	1
	CO2	3	1	2	2	1	3	2	-	-	3	3	1
	CO3	2	2	2	3	3	1	-	2	-	-	3	2
	CO4	2	3	3	3	3	2	2	2	3	2	3	3
	CO5	2	2	3	1	3	1	3	3	3	2	3	1
	CO6	2	3	3	1	2	3	3	-	3	-	3	1

Average of non-zeros entry in following table (should be auto calculated).

BCA 366	Multimedia & Animation	PO1	PO2	PO 3	PO 4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
		2.33	2	2.33	1.83	2	1.66	1.66	1.16	1.5	1.66	2.66	1.5

Strength of Correlation

1. Addressed to *Slight (Low=1) extent*
2. Addressed to *Moderate (Medium=2) extent*
3. Addressed to *Substantial (High=3) extent*

Multimedia Authoring and Production Lab

School:		School of Engineering and technology	
Department		Department of Computer Science and Engineering	
Program:		BCA	
Branch:			
1	Course Code	BCP277	
2	Course Title	Multimedia Authoring and Production Lab	
3	Credits	1	
4	Contact Hours (L-T-P)	0-0-4	
	Course Status	Compulsory	
5	Course Objective	Upon successful completion of this course you should be able to: Design an effective interactive program using Macromedia Director and the Lingo authoring language, Design an interactive multimedia program that can be effectively produced by another person, or a team, Implement script-based solutions for multimedia and hypermedia programs, Design and implement a practical user interface, Apply problem-solving methods pertinent to multimedia and hypermedia production, Write script handlers that incorporate digital video, sound, graphics, and animation.	
6	Course Outcomes (must be 6 COs, following verbs given in Bloom's Taxonomy)	After Successful completion of this course the student will be able to: CO1: Outline visual of multimedia design assessment. CO2: Develop the authoring design effects CO3: Identify the design implementation of multimedia. CO4: Analyze the interface and interaction design for multimedia CO5: Discover the interactive multimedia publications CO6: Examine the need of assessment of multimedia	
7	Course Description	This course is designed to give you a fundamental understanding of computer authoring techniques as they pertain to multimedia and hypermedia production. You will be given the opportunity to develop your authoring skills using Adobe Director and the Lingo authoring language. The emphasis of this course is not so much about programming as it is about applying media design techniques to an authoring language framework to solve implementation problems, and to enhance nonlinear content presentation. Activities will focus primarily on completed projects and their effectiveness. You are encouraged to develop reusable tools and programs that serve real needs, or fit well into a portfolio.	
8	Outline syllabus		CO Mapping
	Unit 1	Practical based on Playback and editing	
		<ol style="list-style-type: none"> Study of Interactivity, Playback, editing Programming / Scripting, Cross Platform, Internet Playability Delivery/Distribution and Project organization 	CO1, CO2
	Unit 2	Practical related to Card and page-based tools and Icon based, event driven tools:	

		<ol style="list-style-type: none"> Practice on Hyper Card (Mac) Tool Book (Mac / Windows) Practice on Author ware (Mac/Windows) Icon Author (Windows) 	CO1, CO2	
	Unit 3	Practical related to Time based tools and Text Editing Tools		
		<ol style="list-style-type: none"> Practice on Macromedia Director / Flash, Word pad, MS Word, Open Office. Painting and Drawing tools: All the drawing tools have the GUI with menu tool bars and dialogue box 	CO3, CO4, CO5	
	Unit 4	Practical related to Image Editing Tools		
		<ol style="list-style-type: none"> Animation Tools: 2D and 3 D Animator Flash, Image Plug-ins: Apple Quicktime, Adobe Acrobat Reader Macromedia Flash Player 	CO3, CO4, CO5, CO6	
	Unit 5	Practical related to Sound Editing Tools		
		<ol style="list-style-type: none"> Sound Edit pro, Audio edit deluxe, Audio Editor Pro Gold wave digital audio editor and Video Editing Tools Linear Editing and Non-linear Editing 	CO4, CO5, CO6	
	Mode of examination	Jury/Practical/Viva		
	Weightage Distribution	CA	MTE	ETE
		60%	0%	40%
	Text book/s*	Multimedia Authoring: Building and Developing Documents Book by Scott Fisher		
	Other References			

PO and PSO mapping with level of strength for Course Name Multimedia authoring and production Lab (Course Code BCP277)

Course Code_ Course Name	CO's	PO 1	PO2	PO3	PO4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2
BCP277_Multi media authoring and production Lab	CO1	2	1	3	1	2	-	1	-	-	2	3	2
	CO2	-	2	2	3	-	3	-	-	-	3	2	1
	CO3	2	2	2	1	1	-	2	-	-	1	2	1
	CO4	1	2	-	3	1	1	1	2	-	1	2	3
	CO5	2	2	-	-	2	2	2	2	2	1	3	2
	CO6	2	3	2	2	-	2	2	1	1	2	1	3

Average of non-zeros entry in following table (should be auto calculated).

Course Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO 7	PO8	PO9	PO10	PSO1	PSO2
BCP277	Multimedia authoring and production Lab	1.5	2.0	1.5	1.6	1.0	1.3	1.3	0.8	0.5	1.7	2.2	2.0

Strength of Correlation

- 1. Addressed to Slight (Low=1) extent***
- 2. Addressed to Moderate (Medium=2) extent***
- 3. Addressed to Substantial (High=3) extent***

Multimedia and Animation Lab

School:		School of Engineering and technology	
Department		Department of Computer Science and Engineering	
Program:		BCA	
Branch:		CS/IT	
1	Course Code	BOL032	
2	Course Title	Multimedia and Animation Lab	
3	Credits	2	
4	Contact Hours (L-T-P)	0-0-2	
	Course Status	Core	
5	Course Objective	Individual students will successfully develop, manage, and produce professional multimedia segments. Students will develop proficiency using professional industry standard systems, including the Adobe premiere.	
6	Course Outcomes	CO1: <i>Illustrate</i> the concepts Multimedia, Multimedia Hardware and Software. CO2: <i>Discover</i> different approaches in Multimedia and Animation. CO3: <i>Analyse</i> The concept of 2D and 3D animation. CO4: <i>Apply</i> Audio, and Video Production Techniques to an Animation Project. CO5: <i>Choose</i> layout and designing principles for animation. CO6: <i>Demonstrate</i> the use of digitized sound, video control, and scanned images	
7	Course Description	Multimedia is the combined use of text, graphics, sound, animation, and video. A primary objective of this workshop is to teach participants how to develop multimedia programs. Another objective is to demonstrate how still images, sound, and video can be digitized on the computer.	
8	Outline syllabus		CO Mapping
	Unit 1	Practical based on Multimedia Basics	
		1. To study multimedia hardware system: a) Input devices b) Output devices c) Communication devices	CO1, CO2
		2. To study about HTML tags.	CO1, CO2, CO3
		3. Procedure to create an animation to represent the growing moon.	CO1, CO2
	Unit 2	Practical related to animation & Drawing	
		1. Procedure to create an animation to indicate a ball bouncing on steps.	CO1, CO2,
		2. Procedure to simulate movement of a cloud.	CO2, CO3, CO4

		3. Procedure to draw the fan blades and to give proper animation.	CO3, CO4, CO5	
	Unit 3	Practical related to animation effects		
		1. Write a program to justify a text entered by the user on both the left and right hand side. For example, the test “an architect may have a graphics program to draw an entire building but be interested in only the ground floor”, can be justified in 30 columns. an architect may have a graphics programs draw an entire building but interested in ground floor.	CO3, CO4, CO5	
		2. Study the notes of a piano and stimulate them using the keyboard and store them in file.	CO3, CO4, CO5	
		3. Devise a routine to produce the animation effect of a square transforming to a triangle and then to a circle.	CO2, CO4, CO5	
	Unit 4	Practical related to use animation in Web Designing		
		1. Write a program to show a bitmap image on your computer screen.	CO5, CO6	
		2. Create a web page for a clothing company which contains all the details of that company and at least five links to other web pages.	CO3, CO5	
		3. Create a web page for a clothing company which contains all the details of that company and at least five links to other web pages.	CO4, CO6	
		4. Create a web page for a clothing company which contains all the details of that company and at least five links to other web pages.	CO5, CO6	
	Unit 5	Project		
		1. Select Project title(Domain) 2. Design a website of your own choice 3. Use Maximum functionality of Multimedia	CO5, CO6	
	Mode of examination	Jury/Practical/Viva		
	Weightage Distribution	CA	MTE	ETE
		60%	0%	40%
	Text book/s*	1. Multimedia Making It Work-by Tay Vaughan, Tata Mcgrwa Hills.		

		2. Multimedia Systems: John F, Koegel Buford Pearson.	
Other References		1. Multimedia In Action-James E Shuman-Vikas Publishing House Multimedia basic-Volumes-1 Technology.	

PO and PSO mapping with level of strength for Multimedia and Animation Lab (BOL032)

BOL032_ Multimedia and Animation Lab	CO's	PO1	PO2	PO3	PO4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2
BOL032_ Multimedia and Animation Lab	CO1	2	3	2	1	2	-	1	1		2	3	2
	CO2	1	3	3	2	-	-	-	-	-	3	2	1
	CO3	2	1	2	1	1	-	-	-	-	1	2	1
	CO4	1	2	-	3	1	1	-	2	-	1	2	3
	CO5	2	2	-	-	2	2	-	2	2	1	3	2
	CO6	3	3	2	2	-	-	-	-	-	2	1	3

Average of non-zeros entry in following table (should be auto calculated).

Course Code	Course Name	PO 1	PO2	PO3	PO4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2
BOL032_	Multimedia and Animation Lab	1.8	2.3	1.5	1.5	1.0	0.5	0.2	0.8	0.3	1.7	2.2	2.0

Strength of Correlation

1. Addressed to Slight (Low=1) **extent**
2. Addressed to Moderate (Medium=2) **extent**
3. Addressed to Substantial (High=3) **extent**

School:		School of Engineering and technology	
Department		Department of Computer Science and Engineering	
Program:		BCA	
Branch:			
1	Course Code		
2	Course Title	Front-End web development: HTML, CSS and JavaScript Lab	
3	Credits	2	
4	Contact Hours (L-T-P)	0-0-4	
	Course Status	Compulsory	
5	Course Objective	<p>Enable participants to develop elegant and responsive Front-end by leveraging latest technologies</p> <p>Build strong foundations in entry level engineers thereby making them job ready as per industry requirements. Enable them to learn new technologies by applying foundation paradigms</p> <p>By the end of the program participants will be become an industry-ready engineer who can be readily deployed in a project</p>	
6	Course Outcomes (must be 6 COs, following verbs given in Bloom's Taxonomy)	<p>CO1: Understand, analyze and apply the role of scripts/languages like HTML, CSS to solve real world problems</p> <p>CO2: Understand, analyze and design the role of JavaScript for dynamic web pages.</p> <p>CO3: Design a web pages based on Bootstrap</p> <p>CO4: Design and deploy different components using reactjs and try to handle errors in the program.</p> <p>CO5: Develop front end application using AngularJS</p> <p>CO6: Design and deploy a front-end application.</p>	
7	Course Description	The purpose of this course is to give students the basic understanding of front-end development to be used for designing front end application	
8	Outline syllabus		CO Mapping
	Unit 1	HTML and CSS	
		<p>P1: Write HTML/Java scripts to display your CV in navigator, your Institute website, Department Website and Tutorial website for specific subject</p> <p>P2: Write a program to specify different padding for each side of an element</p> <p>P3: Write a program to specify an element with a total width of 250px</p>	CO1
	Unit 2	Javascript	
		<p>P1: Create a javascript object</p> <p>P2: Write a program to display last modified date and time</p> <p>P3: Write a program to use different functions of DOM</p>	CO2
	Unit 3	BootStrap	
		<p>P1: Write a program to show reversed blockquote</p> <p>P2: Create a grid with two unequal columns</p> <p>P3: Write a program for active and disabled buttons</p>	CO3
	Unit 4	React js	
		<p>P1: Write a program to show split components</p> <p>P2: Write a program to show error handling in react</p> <p>P3: Implement server-side rendering in react</p>	CO4, CO6
	Unit 5	Angular js	

		P1: Write a program for angularjs expression using variable P2: Write a program using new directive as element, attribute and class P3: Write a program to show a model with two-way binding.	CO5, CO6	
	Mode of examination	Jury/Practical/Viva		
	Weightage Distribution	CA	MTE	ETE
		60%	0%	40%
	Text book/s*	1. Web Programming, building internet applications, Chris Bates 2nd edition, WILEY Dreamtech 2. The complete Reference Java 2 Fifth Edition by Patrick Naughton and Herbert Schildt. TMH (Chapters: 25)		
	Other References	1. Java Server Pages –Hans Bergsten, SPD O’Reilly. 2. Internet and World Wide Web – How to program by Dietel and Nieto PHI/Pearson Education Asia 3. Joel Sklar, “Web Warrior guide to web design technologies”, Cengage Learning, New Delhi		

PO and PSO mapping with level of strength for Front-End web development: HTML, CSS and JavaScript Lab

Course Code_ Course Name	CO's	PO 1	PO2	PO3	PO4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO1	PSO2
Front-End web development: HTML, CSS and JavaScript Lab	CO1	1	-	2	2	-	2	-	-	-	2	2	2
	CO2	2	3	2	2	-	-	2	2	-	2	2	2
	CO3	2	3	1	1	-	-	-	-	-	1	2	3
	CO4	2	2	-	3	-	-	-	-	-	1	2	1
	CO5	3	3	2	1	2	-	-	-	-	1	2	3
	CO6	2	3	2	1	-	2	2	-	-	2	2	2

Average of non-zeros entry in following table (should be auto calculated).

Course Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PSO 1	PSO2
	Front-End web development: HTML, CSS and JavaScript Lab	2.0	2.3	1.5	1.7	0.3	0.7	0.7	0.3	0.0	1.5	2.0	2.2

Strength of Correlation

1. Addressed to **Slight (Low=1) extent**
2. Addressed to **Moderate (Medium=2) extent**
3. Addressed to **Substantial (High=3) extent**

front-end web development: HTML, CSS and JavaScript

School:		School of Engineering and technology	
Department		Department of Computer Science and Engineering	
Program:		BCA	
Branch:			
1	Course Code		
2	Course Title	Front-End web development: HTML, CSS and JavaScript	
3	Credits	4	
4	Contact Hours (L-T-P)	4-0-0	
	Course Status	Core	
5	Course Objective	Objective of this course is to enable participants to develop elegant and responsive Front-end by leveraging latest technologies build strong foundations in entry level engineers thereby making them job ready as per industry requirements. Enable them to learn new technologies by applying foundation paradigms by the end of the program participants will be become an industry-ready engineer who can be readily deployed in a project	
6	Course Outcomes (must be 6 COs, following verbs given in Bloom's Taxonomy)	CO1: Define the basic concept of HTML and CSS CO2: Understand, analyze and build dynamic web pages using client-side programming JavaScript. CO3: To develop a web pages based on Bootstrap CO4: Design real time search and navigation menus using reactjs CO5: Building Strong expertise to develop front end application using AngularJS CO6: Design and deploy a front-end application.	
7	Course Description	The purpose of this course is to give students the basic understanding of front-end development to be used for designing front end application	
8	Outline syllabus		CO Mapping
	Unit 1	HTML and CSS	
	A	Introduction to HTML: HTML Common tags - List, Tables, images, forms	CO1, CO2
	B	Introduction to CSS, fundamentals of CSS, properties and methods, padding	CO1, CO2
	C	CSS3 properties, animations, layouts, box shades, multiple background image	CO1, CO2
	Unit 2	Javascript	
	A	Introduction to JavaScript: Scripts, Objects in Java Script, Dynamic HTML with Java Script	CO2, CO3
	B	Introduction to DOM, DOM manipulation, DOM methods and events	CO2, CO3
	C	Inner functions, Anonymous functions, Intermediate functions, closures	CO2, CO3
	Unit 3	BootStrap	
	A	Introduction of Bootstrap: Containers, Typography, Colors, tables, images,	CO3, CO4
	B	Grid system, Grid small and Grid Xsmall, Grid large and grid Xlarge, Stacked and Horizontal	CO3, CO4
	C	Reference: Alerts, Button, collapse, Carousel, Dropdown,	CO3, CO6

		Scrollspy			
	Unit 4	React js			
	A	Introduction, Templating using JSX, Components: Lifecycle of components			CO4, CO6
	B	Error Handling, Routers, Redux and Redux saga			CO4, CO5
	C	Service side rendering, Unit testing			CO4, CO5
	Unit 5	Angular js			
	A	Introduction to angular js			CO5, CO6
	B	Dependency injections and controllers, Directives			CO5, CO6
	C	Communication with server			CO5, CO6
	Mode of examination	Theory/Jury/Practical/Viva			
	Weightage Distribution	CA	MTE	ETE	
		30%	20%	50%	
	Text book/s*	<ol style="list-style-type: none"> 1. Web Programming, building internet applications, Chris Bates 2nd edition, WILEY Dreamtech 2. The complete Reference Java 2 Fifth Edition by Patrick Naughton and Herbert Schildt. TMH (Chapters: 25) 			
	Other References	<ol style="list-style-type: none"> 1. Java Server Pages –Hans Bergsten, SPD O'Reilly. 2. Internet and World Wide Web – How to program by Dietel and Nieto PHI/Pearson Education Asia 3. Joel Sklar, "Web Warrior guide to web design technologies", Cengage Learning, New Delhi 			

CO and PO Mapping

S. No.	Course Outcome	Program Outcomes (PO) & Program Specific Outcomes (PSO)
1.	Define the basic concept of HTML and CSS	PO1, PO2, PO3, PO9, PO10, PSO1, PSO2
2.	Understand, analyze and build dynamic web pages using client-side programming JavaScript.	PO1, PO2, PO3, PO9, PO10, PSO1, PSO2
3.	To develop a web pages based on Bootstrap	PO1, PO2, PO3, PO9, PO10, PSO1, PSO2
4.	Design real time search and navigation menus using reactjs	PO1, PO2, PO3, PO5, PO9, PO10, PSO1, PSO2
5.	Building Strong expertise to develop front end application using AngularJS	PO1, PO2, PO3, PO5 PO9, PO10, PSO1, PSO2
6.	Design and deploy a front-end application.	PO1, PO2, PO3, PO4, PO5 PO9, PO10, PSO1, PSO2

PO and PSO mapping with level of strength for Course Name Front-End web development: HTML, CSS and JavaScript (Course Code **yyyy)**

Course Code_ Course Name	CO's	PO 1	PO2	PO3	PO4	PO 5	PO6	PO7	PO8	PO9	PO10	PSO 1	PSO 2
Front-End web development: HTML, CSS and JavaScript_xxxx	CO1	1	-	2	2	-	2	-	-	-	2	2	2
	CO2	2	3	2	2	-	-	2	2	-	2	2	2
	CO3	2	3	1	1	-	-	-	-	-	1	2	3
	CO4	2	2	-	3	-	-	-	-	-	1	2	1
	CO5	3	3	2	1	2	-	-	-	-	1	2	3
	CO6	2	3	2	1	-	2	2	-	-	2	2	2

Average of non-zeros entry in following table (should be auto calculated).

Course Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PSO 1	PSO 2
	Front-End web development: HTML, CSS and JavaScript	2.0	2.3	1.5	1.7	0.3	0.7	0.7	0.3	0.0	1.5	2.0	2.2

Strength of Correlation

1. Addressed to **Slight (Low=1) extent**
2. Addressed to **Moderate (Medium=2) extent**
3. Addressed to **Substantial (High=3) extent**

Schools: SET SOL SMFE SBS-BBA SBSR SOE SAP		Batch : 2021-2022	
		Academic Year: 2021-2022	
		Semester: 1 st	
1	Course Code	ARP101	
2	Course Title	Communicative English-1	
3	Credits	2	
4	Contact Hours (L-T-P)	1-0-2	
5	Course Objective	To minimize the linguistic barriers that emerges in varied socio-linguistic environments through the use of English. Help students to understand different accents and standardise their existing English. Guide the students to hone the basic communication skills - listening, speaking, reading and writing while also uplifting their perception of themselves, giving them self-confidence and building positive attitude.	
6	Course Outcomes	<p>After completion of this course, students will be able to:</p> <p>CO1 Develop a better understanding of advanced grammar rules and write grammatically correct sentences</p> <p>CO2 Acquire wide vocabulary and punctuation rules and learn strategies for error-free communication.</p> <p>CO3 Interpret texts, pictures and improve both reading and writing skills which would help them in their academic as well as professional career</p> <p>CO4 Comprehend language and improve speaking skills in academic and social contexts</p> <p>CO5 Develop, share and maximise new ideas with the concept of brainstorming and the documentation of key critical thoughts articulated towards preparing for a career based on their potentials and availability of opportunities.</p> <p>CO6 Function effectively in multi-disciplinary teams through the knowledge of team work, Inter-personal relationships, conflict management and leadership quality</p>	
7	Course Description	The course is designed to equip students, who are at a very basic level of language comprehension, to communicate and work with ease in varied workplace environment. The course begins with basic grammar structure and pronunciation patterns, leading up to apprehension of oneself through written and verbal expression as a first step towards greater employability.	
8	Outline syllabus - ARP 101		
	Unit A	Sentence Structure	CO Mapping
	Topic 1	Subject Verb Agreement	CO1

	Topic 2	Parts of speech	
	Topic 3	Writing well-formed sentences	
	Unit B	Vocabulary Building & Punctuation	
	Topic 1	Homonyms/ homophones, Synonyms/Antonyms	CO1, CO2
	Topic 2	Punctuation/ Spellings (Prefixes-suffixes/Unjumbled Words)	CO1, CO2
	Topic 3	Conjunctions/Compound Sentences	CO1, CO2
	Unit C	Writing Skills	
	Topic 1	Picture Description – Student Group Activity	CO3
	Topic 2	Positive Thinking - Dead Poets Society-Full-length feature film - Paragraph Writing inculcating the positive attitude of a learner through the movie SWOT Analysis – Know yourself	CO3, CO2, CO3
	Topic 3	Story Completion Exercise –Building positive attitude - The Man from Earth (Watching a Full length Feature Film)	CO2, CO3
	Topic 4	Digital Literacy Effective Use of Social Media	CO3
	Unit D	Speaking Skill	
	Topic 1	Self-introduction/Greeting/Meeting people – Self branding	CO4
	Topic 2	Describing people and situations - To Sir With Love (Watching a Full length Feature Film)	CO4
	Topic 3	Dialogues/conversations (Situation based Role Plays)	CO4
	Unit E	Professional Skills Career Skills	
	Topic 1	Exploring Career Opportunities	CO4, CO5
	Topic 2	Brainstorming Techniques & Models	CO4, CO5
	Topic 3	Social and Cultural Etiquettes	CO4, CO5
	Topic 4	Internal Communication	CO4, CO5
	Unit F	Leadership and Management Skills	
	Topic 1	Managerial Skills	CO6
	Topic 2	Entrepreneurial Skills	CO6
9	Evaluations	<i>Class Assignments/Free Speech Exercises / JAM Group Presentations/Problem Solving Scenarios/GD/Simulations (60% CA and 40% ETE</i>	N/A
10	Texts & References Library Links	<ul style="list-style-type: none"> Blum, M. Rosen. <i>How to Build Better Vocabulary</i>. London: Bloomsbury Publication Comfort, Jeremy (et.al). <i>Speaking Effectively</i>. 	

		Cambridge University Press	
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COs	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	PS O1	PSO 2	PSO 3
ARP101.1	-	-	-	-	-	-	-	-	1	3		2	-	-	-
ARP101.2	-	-	-	-	-	-	-	-	1	3		2	-	-	-
ARP101.3	-	-	-	-	-	-	-	-	1	3		2	-	-	-
ARP101.4	-	-	-	-	-	-	-	-	1	2	1	2	-	-	-
ARP101.5	-	-	-	-	-	-	-	-	1	2	1	2	-	-	-
ARP101.6	-	-	-	-	-	-	-	-	1	2	1	2	-	-	-

Schools: SET SOL SMFE SBS-BBA SBSR SOE SAP		Batch : 2021-22	
		Current Academic Year: 2021-2022	
		Semester: 2nd (Second)	
1	Course Code	ARP102	
2	Course Title	Communicative English -2	
3	Credits	2	
4	Contact Hours (L-T-P)	1-0-2	
5	Course Objective	To Develop LSRW skills through audio-visual language acquirement, creative writing, advanced speech et al and MTI Reduction with the aid of certain tools like texts, movies, long and short essays.	
6	Course Outcomes	<p>After completion of this course, students will be able to:</p> <p>CO1 Acquire Vision, Goals and Strategies through Audio-visual Language Texts</p> <p>CO2 Synthesize complex concepts and present them in creative writing</p> <p>CO3 Develop MTI Reduction/Neutral Accent through Classroom Sessions & Practice</p> <p>CO4 Determine their role in achieving team success through defining strategies for effective communication with different people</p> <p>CO5 Realize their potentials as human beings and conduct themselves properly in the ways of world.</p> <p>CO6 Acquire satisfactory competency in use of Quantitative aptitude and Logical Reasoning</p>	
7	Course Description	The course takes the learnings from the previous semester to an advanced level of language learning and self-comprehension through the introduction of audio-visual aids as language enablers. It also leads learners to an advanced level of writing, reading, listening and speaking abilities, while also reducing the usage of L1 to minimal in order to increase the employability chances.	
8	Outline syllabus - ARP 102		
	Unit A	Acquiring Vision, Goals and Strategies through Audio-visual Language Texts	CO Mapping
	Topic 1	Pursuit of Happiness / Goal Setting & Value Proposition in life	CO1
	Topic 2	12 Angry Men / Ethics & Principles	
	Topic 3	The King's Speech / Mission statement in life strategies & Action Plans in Life	

	Unit B	Creative Writing	
	Topic 1	Story Reconstruction - Positive Thinking	CO2
	Topic 2	Theme based Story Writing - Positive attitude	
	Topic 3	Learning Diary Learning Log – Self-introspection	
	Unit C	Writing Skills 1	
	Topic 1	Precis	CO2
	Topic 2	Paraphrasing	
	Topic 3	Essays (Simple essays)	
	Unit D	MTI Reduction/Neutral Accent through Classroom Sessions & Practice	
	Topic 1	Vowel, Consonant, sound correction, speech sounds, Monothongs, Diphthongs and Triphthongs	CO3
	Topic 2	Vowel Sound drills , Consonant Sound drills, Affricates and Fricative Sounds	
	Topic 3	Speech Sounds Speech Music Tone Volume Diction Syntax Intonation Syllable Stress	
	Unit E	Gauging MTI Reduction Effectiveness through Free Speech	
	Topic 1	Jam sessions	CO3
	Topic 2	Extempore	
	Topic 3	Situation-based Role Play	
	Unit F	Leadership and Management Skills	
	Topic 1	Innovative Leadership and Design Thinking	CO4
	Topic 2	Ethics and Integrity	CO4
	Unit F	Universal Human Values	
	Topic 1	Love & Compassion, Non-Violence & Truth	CO5
	Topic 2	Righteousness, Peace	CO5
	Topic 3	Service, Renunciation (Sacrifice)	CO5
	Unit G	Introduction to Quantitative aptitude & Logical Reasoning	
	Topic 1	Analytical Reasoning & Puzzle Solving	CO6
	Topic 2	Number Systems and its Application in Solving Problems	CO6
9	Evaluations	<i>Class Assignments/Free Speech Exercises / JAM Group Presentations/Problem Solving Scenarios/GD/Simulations (60% CA and 40% ETE</i>	N/A
10	Texts & References Library Links	<ul style="list-style-type: none"> Wren, P.C.&Martin H. <i>High English Grammar and Composition</i>, S.Chand& Company Ltd, New Delhi. Blum, M. Rosen. <i>How to Build Better Vocabulary</i>. London: Bloomsbury Publication Comfort, Jeremy(et.al). <i>Speaking Effectively</i>. Cambridge University Press. The Luncheon by W.Somerset Maugham - http://mistera.co.nf/files/sm_luncheon.pdf	

COs	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	PS O1	PSO 2	PSO 3
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ARP102.1	-	-	-	-	-	-	-	-	1	3	1	2	-	-	-
ARP102.2	-	-	-	-	-	-	-	-	1	3	1	2	-	-	-
ARP102.3	-	-	-	-	-	-	-	-	1	3	1	2	-	-	-
ARP102.4	-	-	-	-	-	-	-	-	1	2	1	2	-	-	-
ARP102.5	-	-	-	-	-	-	-	-	1	2	1	2	-	-	-
ARP102.6	1	-	-	-	-	-	-	-	1	2	1	2	-	-	-

School: SET		Batch : 2021-2022	
Program:		Academic Year: 2021-2022	
Branch: CSE		Semester: III	
1	Course Code	ARP207	Course Name : Logical Skills Building and Soft Skills
2	Course Title	Logical Skills Building and Soft Skills	
3	Credits	2	
4	Contact Hours (L-T-P)	1-0-2	
	Course Status	Active	
5	Course Objective	To enhance holistic development of students and improve their employability skills. To provide a 360 degree exposure to learning elements of Business English readiness program, behavioural traits, achieve softer communication levels and a positive self-branding along with augmenting numerical and altitudinal abilities. To step up skill and upgrade students' across varied industry needs to enhance employability skills. By the end of this semester, a student will have entered the threshold of his/her 1 st phase of employability enhancement and skill building activity exercise.	
6	Course Outcomes	<p>After completion of this course, students will be able to:</p> <p>CO1: Ascertain a competency level through Building Essential Language and Life Skills</p> <p>CO2: Build positive emotional competence in self and learn GOAL Setting and SMART Goals techniques</p> <p>CO3: Apply positive thinking, goal setting and success-focused attitudes which would help them in their academic as well as professional career</p> <p>CO4: Acquire satisfactory competency in use of aptitude, logical and analytical reasoning</p> <p>CO5: Develop strategic thinking and diverse mathematical concepts through building number puzzles</p> <p>CO6: Demonstrate an ability to apply various quantitative aptitude tools for making business decisions</p>	
7	Course Description	This Level 1 blended training approach equips the students for Industry employment readiness and combines elements of soft skills and numerical abilities to achieve this purpose.	
8	Outline syllabus - ARP 207		
	Unit 1	BELLS (Building Essential Language and Life Skills)	CO Mapping

	A	<i>Know Yourself: Core Competence. A very unique and interactive approach through an engaging questionnaire to ascertain a student's current skill level to design, architect and expose a student to the right syllabus as also to identify the correct TNI/TNA levels of the student.</i>	C01
	B	Techniques of Self Awareness Self Esteem & Effectiveness Building Positive Attitude Building Emotional Competence	C01, CO2
	C	Positive Thinking & Attitude Building Goal Setting and SMART Goals - Milestone Mapping Enhancing L S R W G and P (Listening Speaking Reading Writing Grammar and Pronunciation) Verbal Abilities - 1	C01, CO2, CO3
	Unit 2	Introduction to APTITUDE TRAINING- Reasoning- Logical/ Analytical	
	A	Syllogism Letter Series Coding, Decoding , Ranking & Their Comparison Level-1	C04
	B	Number Puzzles	C05
	C	Selection Based On Given Conditions	C05
	Unit 3	Quantitative Aptitude	
	A	Number Systems Level 1 Vedic Maths Level-1	C06
	B	Percentage ,Ratio & Proportion Mensuration - Area & Volume Algebra	C06
	Weightage Distribution	<i>Class Assignment/Free Speech Exercises / JAM - 60% Group Presentations/Mock Interviews/GD/ Reasoning, Quant & Aptitude - 40%</i>	
	Text book/s*	<i>Wiley's Quantitative Aptitude-P Anand Quantum CAT - Arihant Publications Quicker Maths- M. Tyra Power of Positive Action (English, Paperback, Napoleon Hill) Streets of Attitude (English, Paperback, Cary Fagan, Elizabeth Wilson) The 6 Pillars of self-esteem and awareness - Nathaniel Brandon Goal Setting (English, Paperback, Wilson Dobson</i>	

COs	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	PS O1	PSO 2	PSO 3
ARP207.1	-	-	-	-	1	-	-	-	1	3	-	2	-	-	-
ARP207.2	-	-	-	-	1	-	-	-	1	3	-	2	-	-	-
ARP207.3	-	-	-	-	1	-	-	-	1	3	-	2	-	-	-
ARP207.4	-	-	-	-	-	-	-	-	1	2	1	2	-	-	-
ARP207.5	1	-	-	-	-	-	-	-	1	2	1	2	-	-	-
ARP207.6	1	-	-	-	-	-	-	-	1	2	1	2	-	-	-

School: SET		Batch : 2021-2022	
Program:		Academic Year: 2021-2022	
Branch: CSE		Semester: IV	
1	Course Code	ARP208	Course Name : Quantitative and Qualitative Aptitude Skill Building
2	Course Title	Quantitative and Qualitative Aptitude Skill Building	
3	Credits	2	
4	Contact Hours (L-T-P)	1-0-2	
	Course Status	Active	
5	Course Objective	To enhance holistic development of students and improve their employability skills. Provide a 360 degree exposure to learning elements of Business English readiness program, behavioural traits, achieve softer communication levels and a positive self-branding along with augmenting numerical and altitudinal abilities. To up skill and upgrade students' across varied industry needs to enhance employability skills. By the end of this semester, a will have entered the threshold of his/her 2 nd phase of employability enhancement and skill building activity exercise.	
6	Course Outcomes	<p>After completion of this course, students will be able to:</p> <p>CO1: Develop and deliver the effective presentations to interpret the deeper meaning of life.</p> <p>CO2: Improve listening skills so as to understand complex business communication in a variety of global English accents through proper pronunciation</p> <p>CO3: Demonstrate a good understanding of effective business writing and telephone handling Skills</p> <p>CO4: Acquire higher level competency in use of aptitude, logical and analytical reasoning</p> <p>CO5: Develop higher level strategic thinking and diverse mathematical concepts through building number puzzles</p> <p>CO6: Demonstrate higher level quantitative aptitude tools for making business decisions</p>	
7	Course Description	This course bundle allows students to build vision, mission and strategy statements while exposing them to various models of communication along with MTI reduction and the 2nd level of quant, aptitude and reasoning abilities	
8	Outline syllabus - ARP208		CO MAPPING
	Unit 1	Communicate to Conquer	

	A	VMOSA (Vision, Mission, Values and Ethics) Business Communication - Verbal Communication Skills Barriers in communication Basics of effective communication - PRIDE & STAR Model	C01
	B	Different styles of communication & style flexing (Based on the 4 social styles-Analytical, Driving, Expressive, Amiable) Importance of Listening & practice of Active Listening The Art of Giving Feedbacks Feedback Skills Asking fact finding questions- Probing Skills	C02
	C	Email Etiquette Business Writing Skills Telephone Etiquette Skills (Telephone Handling Skills) Non Verbal Communication-Kinesthetics, Proxemics, Paralanguage MTI Reduction Program Verbal Abilities - 2	C03
	Unit 2	Introduction to APTITUDE TRAINING- Reasoning- Logical/ Analytical	
	A	Coding Decoding , Ranking & Their Comparison Level-2	C04
	B	Series, Blood Relations & Number Puzzle	C05
	Unit 3	Quantitative Aptitude	
	A	Number System Level 2	C05
	B	Vedic Maths Level-2 Probability Permutation & Combination	C06
	C	Percentage, Profit & Loss ,Partnership, Simple Interest & Compound Interest	C06
	Weightage Distribution	<i>(CA)Class Assignment/Free Speech Exercises / JAM - 60% (ETE) Group Presentations/Mock Interviews/GD/ Reasoning, Quant & Aptitude - 40%</i>	
	Text book/s*	<i>Wiley's Quantitative Aptitude-P Anand Quantum CAT - Arihant Publications Quicker Maths- M. Tyra Power of Positive Action (English, Paperback, Napoleon Hill) Streets of Attitude (English, Paperback, Cary Fagan, Elizabeth Wilson) The 6 Pillars of self-esteem and awareness - Nathaniel Brandon Goal Setting (English, Paperback, Wilson Dobson</i>	

COs	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	PS O1	PSO 2	PSO 3
ARP208.1	-	-	-	-	-	-	-	-	1	2	1	2	-	-	-
ARP208.2	-	-	-	-	-	-	-	-	1	2	1	2	-	-	-
ARP208.3	-	-	-	-	-	-	-	-	1	2	1	2	-	-	-
ARP208.4	-	-	-	-	-	-	-	-	1	2	1	2	-	-	-
ARP208.5	1	-	-	-	-	-	-	-	1	2	1	2	-	-	-
ARP208.6	1	-	-	-	-	-	-	-	1	2	1	2	-	-	-