FIRST YEAR SEMESTER-I

SEM I	LANGUAGE	Lecture	Practical	Credit
23ULT10	**TAMIL I**	**6**	**0**	**3**

Expected Course Outcomes

On the Sucessful completion of the Course, Students will be able to

இப்Hொடத்ழதக் கற்Hதொல் Hின்வரும் Hயன்கழை மொணவர் அழடவர்

CO 1 ெஙக இலக்கியத்தில் கொணப்பHறும் வொழ்வியல் ெிந்தழனகழை அறிந்துபகொள்வர்   K4

CO 2 அற இலக்கியம் மற்றும் தமிழ் கொப்Hியங்கைின்வை வொழ்வியல் ெிந்தழனழயப் பHறுவர்   K5, K6

CO 3 Hக்தி இலக்கியங்கழைக் கற்Hதன் மூலம் Hக்தி பநறியிழனயும், Hகுத்தறிவு இலக்கியங்கழைக் கற்Hதன் வை நல்லிணக்கத்ழதயும் பதெிந்து

Hின்Hற்றுவர்   K3

CO 4 பமொழைியறிவவொடு ெிந்தழனத்திறழனப் பHறுவர்K3

CO 5 பமொழைிப்Hயிற்ெிக்குத் வதழவயொன இலக்கணங்கழைக் கற்Hர். K2

K1 - Remember; K2 - Undestand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

SEM I	ENGLISH	Lecture	Practical	Credit
23ULE10	**GENERAL ENGLISH I**	**6**	**0**	**3**

Subject Code	Category	L	T	P	S	Credits	Inst. Hours	Marks		
								CIA	External	Total
23ULE10	**Part II**	Y	Y	-	-	3	6	25	75	100

Course Outcomes		
Course Outcomes	On completion of this course, students will:	
CO1	Acquire self-awareness and positive thinking required in various life situations	PO1,PO7
CO2	Acquire the attribute of empathy.	PO1,PO2,PO10
CO3	Acquire creative and critical thinking abilities.	PO4,PO6,PO9
CO4	Learn basic grammar	PO4,PO5,PO6
CO5	Development and integrate the use of four language skills i.e., listening, speaking, reading and writing.	PO3,PO8

Don Bosco College(Co-Ed) Yelagiri Hills
Department of Computer Application
Course Outcomes for 2023 Curriculum

SEM I	ELECTIVE I	Lecture	Practical	Credit
23UECA12B	NUMERICAL METHODS	2	0	2

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
23UECA12B	**NUMERICAL METHODS**	Elective	4	-	-	-	3	4	25	75	100

	Course Outcomes	Programme Outcome
CO	Upon completion of the course the students would be Able to:	
1	Solve the problems of fitting of straight lines, parabolas and the different form of exponential curves	PO1
2	Solve algebraic equations using various methods like Bisection method, Iteration method, Regula Falsi method and Newton – Raphson method	PO1, PO2
3	Estimate the solution of simultaneous linear equations using different numerical methods	PO3, PO5
4	Define basic concept of operators Δ, A□□□□, solving interpolation with equal intervals problems using Gregory Newton‟s forward formula and Newton‟s backward formula	PO5
5	Estimate the solution of central difference formula using the methods Gauss's forward, backward formula, Stirling's formula and Bessel,s formula	PO3, PO6

Don Bosco College(Co-Ed) Yelagiri Hills
Department of Computer Application
Course Outcomes for 2023 Curriculum

Subject Code	Subject Name	Category	L	T	P	S	Credits	CIA	External	Total
									Marks	
23UCA11	**Python Programming**		5	-	-	-	5	25	75	100

Course Outcomes	

CO	
CO1	Learn the basics of python, Do simple programs on python, Learn how to use an array.
CO2	Develop program using selection statement, Work with Looping and jump statements, Do programs on Loops and jump statements.
CO3	Concept of function, function arguments, Implementing the concept strings in various application, Significance of Modules, Work with functions, Strings and modules.
CO4	Work with List, tuples and dictionary, Write program using list, tuples and dictionary.
CO5	Usage of File handlings in python, Concept of reading and writing files, Do programs using files.

Don Bosco College(Co-Ed) Yelagiri Hills
Department of Computer Application
Course Outcomes for 2023 Curriculum

Subject Code	Subject Name	Category	L	T	P	S	Credits	CIA	External	Total
									Marks	
23UCA11	Python Lab		-	-	4	-	4	25	75	100
Course Outcomes										
On completion of this course, students will										
CO1	Demonstrate the understanding of syntax and semantics of									
CO2	Identify the problem and solve using PYTHON programming techniques.									
CO3	Identify suitable programming constructs for problem solving.									
CO4	Analyze various concepts of PYTHON language to solve the problem in an efficient way.									
CO5	Develop a PYTHON program for a given problem and test for its correctness.									

Subject Code	Subject Name	Category	L	T	P	S	Credits	Marks		
								CIA	External	Total
23USCA13	FUNDAMENTALSOF INFORMATION TECHNOLOGY	Specific Elective	2	-	-	-	2	25	75	100

Course Outcomes	
CO	On completion of this course, students will
CO1	Learn the basics of computer, Construct the structure of the required things in computer, learn how to use it.
CO2	Develop organizational structure using for the devices present currently under input or output unit.
CO3	Concept of storing data in computer using two header namely RAM and ROM with different types of ROM with advancement in storage basis.
CO4	Work with different software, Write program in the software and applications of software.
CO5	Usage of Operating system in information technology which really acts as a interpreter between software and hardware.

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
23UFCA14	**Structured Programming Language in C**	FC	2	-	-	-	2	2	25	75	100
Total										**30**	

Course Outcomes		Programme Outcome
CO	On completion of this course, students will	
1	Remember the program structure of C with its syntax and semantics	PO1,PO3,PO5
2	Understand the programming principles in C (data types, operators, branching and looping, arrays, functions, structures, pointers and files)	PO2,PO3,PO6,PO7
3	Apply the programming principles learnt in real-time problems	PO3,PO4,PO7
4	Analyze the various methods of solving a problem and choose the best method	PO4,PO5,PO6
5	Code, debug and test the programs with appropriate test Cases	PO7,PO8

SEMESTER – II

SEM II	LANGUAGE	Lecture	Practical	Credit
23ULT20	TAMIL II	6	0	3

CO 1 ெ◌ிற்றிலக்கியங்ைகின்ைவி இலக்கியச் சுழவயிைனயும் Hண்Hெ◌ாட்டு அறிவிைனயும் பHறுவர்   K4

CO 2 புதுக்கவிழத வரெலாற்றிழன அறிந்து பெகாள்வர்   K5, K6

CO 3 திெராவிட இயக்க இலக்கியங்கைழக் கற்Hதன் மூலம் பெமாைெ◌ி உணர்வு , இன உணர்வு, ெமத்துவம் ெெ◌ாந்த ெெ◌ிந்தழனகைழப் பHறுவர்   K3

CO 4 தமிழ்பெமாைெ◌ிழயப் Hிைழயின்றி எழுதவும், புதிய கழலச்ெபாற்கைழ உருெவாக்கவும் அறிந்து பெகாள்வர்   K3

CO 5 வHெ◌ாட்டித் வதர்வுைகில் பவற்றி பHறுவதற்குத் தமிழ்ப் Hெ◌ாடத்திைனப் Hயன்பெகாள்ளும் வழகயில் Hயிற்ெ◌ி பHறுவர். K2

SEM II	ENGLISH	Lecture	Practical	Credit
23ULE20	**GENERAL ENGLISH II**	**6**	**0**	**3**

Course Outcomes	On completion of this course, students will;
CO1	Realize the importance of resilience
CO2	Become good decision-makers
CO3	Imbibe problem-solving skills
CO4	Use tenses appropriately
CO5	Use English effectively at the work place.

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
23UCA21	**Object Oriented Programming Concepts Using C++**	Core	5	-	-	-	5	5	25	75	100

Course Outcomes	
CO	Upon completion of the course the students would be able to:
1	Remember the program structure of C with its syntax and semantics
2	Understand the programming principles in C (data types, operators, branching and looping, arrays, functions, structures, pointers and files)
3	Apply the programming principles learnt in real-time problems
4	Analyze the various methods of solving a problem and choose the best method
5	Code, debug and test the programs with appropriate test cases

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
23UPCA25	**Object Oriented Programming Concepts Using C++Lab**	Core	-	-	4	-	5	5	25	75	100

	Course Outcomes	Programme Outcome
CO	Upon completion of the course the students would be able to:	
1	Remember the program structure of C with its syntax and semantics	PO4,PO5
2	Understand the programming principles in C (data types, operators, branching and looping, arrays, functions, structures, pointers and files)	PO6
3	Apply the programming principles learnt in real-time problems	PO4 ,PO5
4	Analyze the various methods of solving a problem and choose the best method	PO6
5	Code, debug and test the programs with appropriate test cases	PO4,PO5

Subject Code	Subject Name	Category	L	T	P	S	Credits	CIA	External	Total
									Marks	
23USCA23	**INTRODUCTION TO HTML**	(SEC)	2	-	-		2	25	75	100
						TOTAL HOURS		**30**		

	Course Outcomes	Programme Outcomes
CO	On completion of this course, students will	
CO1	Knows the basic concept in HTML Concept of resources in HTML	PO1, PO2, PO3, PO4, PO5, PO6
CO2	Knows Design concept. Concept of Meta Data Understand the concept of save the files.	PO1, PO2, PO3, PO4, PO5, PO6
	Understand the page formatting.	PO1, PO2, PO3, PO4,
CO3	Concept of list	PO5, PO6
CO4	Creating Links. Know the concept of creating link to email address	PO1, PO2, PO3, PO4, PO5, PO6
CO5	Concept of adding images Understand the table creation.	PO1, PO2, PO3, PO4, PO5, PO6

SEM II	LANGUAGE	Lecture	Practical	Credit
	Resource Management Technique	6	0	3

CO	Upon completion of the course the students would be Able to:
1	Apply quantitative techniques to formulate business problems into linear programming problems for optimization of results.
2	Utilize Assignment and transportation model to maximize profit and minimize cost in business.
3	Use CPM and PERT to plan, schedule and control project activities.
4	Propose the best strategy and predict how firms behave in a specific strategic situation
5	Develop and apply systematic and analytical decision skills to determine the best choice using decision trees

Subject Code	Subject Name	Category	L	T	P	S	Credits	CIA	External
								Marks	
23USCA24	**Understanding Internet**	(SEC)	2	-	-	2		25	75

Course Outcomes		Programme Outcomes
CO	On completion of this course, students will	
CO1	On completion of this course, students will	PO1, PO2, PO3, PO4, PO5, PO6
CO2	Knows the basic concept in internet	PO1, PO2, PO3, PO4, PO5, PO6
CO3	Know the concept of TCP/IP – Internet Technologies and Protocol	PO1, PO2, PO3, PO4, PO5, PO6
CO4	Understand the concept of Internet connectivity.	PO1, PO2, PO3, PO4, PO5, PO6
CO5	Can be able to know about internet networks	PO1, PO2, PO3, PO4, PO5, PO6

SEMESTER – III

SEM III	LANGUAGE	Lecture	Practical	Credit
23ULT30	**TAMIL III**	**6**	**0**	**3**

Course Code	Course Name	Category		L	T	P	S	Credit	Ins.Hrs	CIA	Exter	Total
	பஙொதுத்தமிழ் -3 தமிைக வரலொறும் ஙண்ஙொடும்	Supportive	Y	-	-	-	3	6	25	75	100

CO 1   தமிழக வரலாற்றை ைஅிந்துயகாள்வர்.   **K4**
CO 2   தமிழரின் ொழ்வியல் யதான்றமறெ ைஅிவர்.   **K5, K6**
CO 3   தமிழரின் பண்பாட்டுக் கூறுகளை ைஅிந்துயகாள்வர்   **K3**
CO 4   பிை பண்பாட்டுத் தாக்கம் மற்றும் அணுகுமுறைகளை ைஅிவர்.   **K3**
CO 5   பமொைிப்ஙயிற்ெிக்குத் வதழவயொன இலக்கணங்களைக் கற்ஙர். **K2**

SEM III	ENGLISH	Lecture	Practical	Credit
23ULE30	**GENERAL ENGLISH III**	**6**	**0**	**3**

Subject Code	Category	L	T	P	S	Credits	Inst. Hours	Marks		
								CIA	**External**	**Total**

Course Outcomes	On completion of this course, students will;
CO1	Listen actively
CO2	Develop interpersonal relationship skills
CO3	Acquire self-confidence to cope with stress
CO4	Master grammar skills
CO5	Carry out business communication effectively

Don Bosco College(Co-Ed) Yelagiri Hills
Department of Computer Application
Course Outcomes for 2023 Curriculum

Title of the Course/ Paper	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	CIA	External	Total
23UCA31	**Data Structure and Algorithms**	Core	5	-	-	-	5	5	25	75	100

	Course Outcomes	Programme Outcome
CO	On completion of this course, students will	
CO1	Understand the concept of Dynamic memory management, data types, algorithms, Big O notation	PO1,PO6
CO2	Understand basic data structures such as arrays, linked lists, stacks and queues	PO2
CO3	Describe the hash function and concepts of collision and its resolution methods	PO2,PO4
CO4	Solve problem involving graphs, trees and heaps	PO4,PO6
CO5	Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data	PO5,PO6

Title of the Course/ Paper	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
23UPCA35	**Data Structure and Algorithms Lab** [Note: Practicals may be offered through C / C++ / Python]	Core	-	-	4	-	5	5	25	75	100
Course Outcomes								**Programme Outcome**			
CO	On completion of this course, students will										
1	Understand the concept of Dynamic memory management, data types, algorithms, Big O notation							PO1,PO4,PO5			
2	Understand basic data structures such as arrays, linked lists, stacks and queues							PO1, PO4,PO6			
3	Describe the hash function and concepts of collision and its resolution methods							PO1,PO3,PO6			
4	Solve problem involving graphs, trees and heaps							PO3,PO4			
5	Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data							PO1,PO5,PO6			

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
EC3	**Introduction to Data Science**	Elective	4	-	-	-	3	4	25	75	100

Course Outcomes		Programme Outcome
CO	On completion of this course, students will	
CO1	Understand the basics in Data Science and Big data.	PO1
CO2	Understand overview and building process in Data Science.	PO1, PO2
CO3	Understand various Algorithms in Data Science.	PO3, PO6
CO4	Understand Hadoop Framework in Data Science.	PO4, PO5
CO5	Case study in Data Science.	PO3, PO5

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
EC3	**Office Automation**	Elective	2	-	-	-	3	4	25	75	100
		Total									30

Course Outcomes		Programme Outcomes
CO	On completion of this course, students will	
CO1	Possess the knowledge on the basics of computers and its components	PO1,PO2,PO3,PO6,PO8
CO2	Gain knowledge on Creating Documents, spreadsheet and presentation.	PO1,PO2,PO3,PO6
CO3	Learn the concepts of Database and implement the Query in Database.	PO3,PO5,PO7
CO4	Demonstrate the understanding of different automation tools.	PO3,PO4,PO5,PO7
CO5	Utilize the automation tools for documentation, calculation and presentation purpose.	PO4,PO6,PO7,PO8

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
23USCA33	**Problem Solving Techniques**	FC	2	-	-	-	1	1	25	75	100

UNIT	Contents	No. Of. Hours
	Course Outcomes	Programme Outcomes
CO	On completion of this course, students will	
CO1	Study the basic knowledge of Computers. Analyze the programming languages.	PO1, PO2, PO3, PO4, PO5, PO6
CO2	Study the data types and arithmetic operations. Know about the algorithms. Develop program using flow chart and pseudocode.	PO1, PO2, PO3, PO4, PO5, PO6
CO3	Determine the various operators. Explain about the structures. Illustrate the concept of Loops	PO1, PO2, PO3, PO4, PO5, PO6
CO4	Study about Numeric data and character-based data. Analyze about Arrays.	PO1, PO2, PO3, PO4, PO5, PO6
CO5	Explain about DFD Illustrate program modules. Creating and reading Files	PO1, PO2, PO3, PO4, PO5, PO6

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
SEC5	**PHP PROGRAMMING**	(SEC)	2	-	-	-	2	2	25	75	100

	Course Outcomes	Programme Outcomes
CO	On completion of this course, students will	
CO1	Write PHP scripts to handle HTML forms	PO1,PO4,PO6
CO2	Write regular expressions including modifiers, operators, and meta characters.	PO2,PO5,PO7.
CO3	Create PHP Program using the concept of array.	PO3,PO4,PO5.
CO4	Create PHP programs that use various PHP library functions	PO2,PO3,PO5
CO5	Manipulate files and directories.	PO3,PO5,PO6.

SEM IV	LANGUAGE	Lecture	Practical	Credit
FLT40	**TAMIL IV**	**6**	**0**	**3**

SEMESTER – IV

Expected Course Outcomes
On the Sucessful completion of the Course, Students will be able to
இப்Hொடத்ழதக் கற்Hதொல் Hின்வரும் Hயன்கழை மொணவர் அழடவர்
CO 1 தாய்யமாழி வழிௌௗக �௝ிவிெல் பற்ையிச் சிந்திக்கும் தி௝ன் யபற்ை௝ிருப்பர். **K4**
CO 2 ஔிவிெல் கறலச் யசால்லாக்கம் பற்ை௝ிெ விதிகள், நுணுக்கங்கறளத் யதரிந்திருப்பர். **K5, K6**
CO 3 ஔிவிெல் தமிழ் வளர்ச்சிெ௝ில் யமாழியபர்ப்பின் பங்கு கு௝ைித்து ஔிந்திருப்பர். **K3**
CO 4 பமொ௝ையறிவவொடு ெ௝ிந்தழனத்திறழனப் பH௝ுவர் **K3**
CO 5 பமொ௝ைப்Hயிற்௝ிக்குத் வதழவயொன இலக்கணங்கழைக் கற்Hர். **K2**

SEM II	ENGLISH	Lecture	Practical	Credit
23ULE20	**GENERAL ENGLISH II**	**6**	**0**	**3**

Subject Code	Category	L	T	P	S	Credits	Inst. Hours	Marks		
								CIA	External	Total
	Part II	Y	Y	-	-	3	6	25	75	100

Course Outcomes

Course Outcomes	On completion of this course, students will	
CO1	Determine their goals	PO1,PO7
CO2	Identify the value of integrity.	PO1,PO2,PO10
CO3	Deal with emotions.	PO4,PO6,PO9
CO4	Frame grammatically correct sentences	PO4,PO5,PO6
CO5	Write cohesive reports.	PO3,PO8

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	Ext	Total
CC7	**Java Programming**	Core	5	-	-	-	5	5	25	75	100
Course Outcomes											
Course Outcomes	On completion of this course, students will;										
CO1	Understand the basic Object-oriented concepts.Implement the basic constructs of Core Java.	PO1, PO2, PO6									
CO2	Implement inheritance, packages, interfaces and exception handling of Core Java.	PO2, PO3, PO8									
CO3	Implement multi-threading and I/O Streams of Core Java	PO1, PO3, PO5									
CO4	Implement AWT and Event handling.	PO2, PO6									
CO5	Use Swing to create GUI.	PO1, PO3, PO6									

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
CC8	**Java Programming Lab**	Core	-	-	4	-	5	5	25	75	100
	Total										60

Course Outcomes		Programme Outcome
CO	On completion of this course, students will	
1	Understand the basic Object-oriented concepts. Implement the basic constructs of Core Java.	PO1
2	Implement inheritance, packages, interfaces and exception handling of Core Java.	PO1, PO2
3	Implement multi-threading and I/O Streams of Core Java	PO4, PO6
4	Implement AWT and Event handling.	PO4, PO5, PO6
5	Use Swing to create GUI.	PO3, PO6

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
EC4	**Network Security**	Elective	5	-	-	-	3	3	25	75	100

Course Outcomes											
Course Outcomes	On completion of this course, students will;										
CO1	Analyze and design classical encryption techniques and block ciphers.	PO1, PO3, PO6									
CO2	Understand and analyze public-key cryptography, RSA and other public-key cryptosystems such as Diffie-Hellman Key Exchange, ElGamal Cryptosystem, etc	PO1,PO2,PO3,PO5									
CO3	Understand key management and distribution schemes and design User Authentication	PO4, PO5									
CO4	Analyze and design hash and MAC algorithms, and digital signatures.	PO1, PO2, PO3, PO6									
CO5	Know about Intruders and Intruder Detection mechanisms, Types of Malicious software,	P02, PO6									

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
Course Outcomes							**Programme Outcomes**				
CO	On completion of this course, students will										
CO1	understand the concepts, importance, application and the process of developing multimedia						PO1				
CO2	to have basic knowledge and understanding about image related processing						PO1, PO2				
CO3	To understand the framework of frames and bit images to animations						PO4, PO6				
CO4	Speaks about the multimedia projects and stages of requirement in phases of project.						PO4, PO5, PO6				
CO5	Understanding the concept of cost involved in multimedia planning, designing, and producing						PO3, PO6				

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst.	CIA	External	Total
										Marks	
SEC6	**WEB DESIGNING**	(SEC)	2	-	-	-	2	2	25	75	100

Course Outcomes		Programme Outcome
CO	On completion of this course, students will	
CO1	Develop working knowledge of HTML	PO1, PO3, PO6, PO8
CO2	Ability to Develop and publish Web pages using Hypertext Markup Language (HTML).	PO1,PO2,PO3,PO6
CO3	Ability to optimize page styles and layout with Cascading Style Sheets (CSS).	PO3, PO5
CO4	Ability to develop a java script	PO1, PO2, PO3, PO7
CO5	An ability to develop web application using Ajax.	P02, PO6, PO7

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
SEC7	**Cyber Forensics**	Skill Enha. Course (SEC)	2	-	-	-	2	2	25	75	100

Course Outcomes		Programme Outcomes
CO	On completion of this course, students will	
CO1	Understand the definition of computer forensics fundamentals.	PO1
CO2	Evaluate the different types of computer forensics technology.	PO1, PO2
CO3	Analyze various computer forensics systems.	PO4, PO6
CO4	Apply the methods for data recovery, evidence collection and data seizure.	PO4, PO5, PO6
CO5	Gain your knowledge of duplication and preservation of digital evidence.	PO3, PO8

SEMESTER – V

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
CC9	**Operating Systems**	Core	Y	-	-	-	3	4	25	75	100

	Course Outcomes	Programme Outcomes
CO	On completion of this course, students will	
1	Define the fundamentals of OS and identify the concepts relevant to process , process life cycle, Scheduling Algorithms, Deadlock and Memory management	PO1
2	know the critical analysis of process involving various algorithms, an exposure to threads and semaphores	PO1, PO2
3	Have a complete study about Deadlock and its impact over OS. Knowledge of handling Deadlock with respective algorithms and measures to retrieve from deadlock. .	PO4, PO6
4	Have complete knowledge of Scheduling Algorithms and its types.	PO4, PO5, PO6
5	understand memory organization and management	PO3, PO8

Don Bosco College(Co-Ed) Yelagiri Hills
Department of Computer Application
Course Outcomes for 2023 Curriculum

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	CIA	External	Total
CC10	**Operating System lab**	Core	-	-	5	-	4	3	25	75	100
	Total										

Course Outcomes	
CO	On completion of this course, students will
CO1	Able to understand the basics of UNIX commands and shell programming.
CO2	Able to understand the programming knowledge of scheduling algorithms.
CO3	Able to understand the working of semaphores in operating system
CO4	Able to understand how to code various algorithm used in operating system.
CO5	. Able to understand how to code and working procedure of file management concepts in operating system.

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	CIA	External	Total
CC11	**Database Management System**	Core	5	-	-	-	3	4	25	75	100
	Total									75	

	Course Outcomes	Programme Outcomes
CO	On completion of this course, students will	
CO1	Understand the various basic concepts of Data Base System. Difference between file system and DBMS and compare various data models.	PO1
CO2	Define the integrity constraints. Understand the basic concepts of Relational Data Model, Entity-Relationship Model.	PO1, PO2
CO3	Design database schema considering normalization and relationships within database. Understand and construct database using Structured Query Language. Attain a good practical skill of managing and	PO4, PO6
	retrieving of data using Data Manipulation Language (DML)	
CO4	Classify the different functions and various join operations and enhance the knowledge of handling multiple tables.	PO4, PO5, PO6
CO5	Learn to design Data base operations and implement using PL/SQL programs. Learn basics of PL/SQL and develop programs using Cursors, Exceptions	PO3, PO5

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
CC12	Database Management System lab	Core	-	-	5	-	4	5	25	75	100

Course Outcomes		Programme Outcomes
CO	On completion of this course, students will	
CO1	Understand the various basic concepts of Data Base System. Difference between file system and DBMS and compare various data models.	PO1
CO2	Define the integrity constraints. Understand the basic concepts of Relational Data Model, Entity-Relationship Model.	PO1, PO2
CO3	Design database schema considering normalization and relationships within database. Understand and construct database using Structured Query Language. Attain a good practical skill of managing and retrieving of data using Data Manipulation Language (DML)	PO4, PO6
CO4	Classify the different functions and various join operations and enhance the knowledge of handling multiple tables.	PO4, PO5, PO6
CO5	Learn to design Data base operations and implement using PL/SQL programs. Learn basics of PL/SQL and develop programs using Cursors, Exceptions	PO3, PO4

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
EC5	Mobile Computing	Elective	5	-	-	-	3	4	25	75	100
Course Outcomes											
Course Outcomes	On completion of this course, students will;										
CO1	To understand basic concepts of mobile computing.	PO1, PO3, PO6, PO8									
CO2	To learn the basics of mobile telecommunication system	PO1,PO2,PO3,PO6									
CO3	To comprehend wireless LAN and cellular systems.	PO3, PO5									
CO4	To understand protocols at network and transport layer	PO1, PO2, PO3, PO5									
CO5	To understand protocols at network and transport layer	PO2, PO4, PO6									

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
EC5	**Big Data Analytics**	Elective	4	-	-	-	3	4	25	75	100

	Course Outcomes	Programme Outcomes
CO	On completion of this course, students will	
1	Work with big data tools and its analysis techniques.	PO1
2	Analyze data by utilizing clustering and classification algorithms.	PO1, PO2
3	Learn and apply different mining algorithms and recommendation systems for large volumes of data.	PO4, PO5
4	Perform analytics on data streams.	PO3, PO5, PO6
5	Learn NoSQL databases and management.	PO3, PO4

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
EC5	**Artificial Intelligence**	Elective	4	-	-	-	3	4	25	75	100

Course Outcomes		Programme Outcome
CO	On completion of this course, students will	
1	Understand the various concepts of AI Techniques.	PO1
2	Understand various Search Algorithm in AI.	PO1, PO2
3	Understand probabilistic reasoning and models in AI.	PO4, PO6
4	Understand Markov Decision Process.	PO4, PO5, PO6
5	Understand various type of Reinforcement learning Techniques.	PO3, PO4

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
EC6	**Computer Networks**	Core	5	-	-	-	3	4	25	75	100

	Course Outcomes	Programme Outcome
CO	On completion of this course, students will	
CO1	To Understand the basics of Computer Network architecture, OSI and TCP/IP reference models	PO1
CO2	To gain knowledge on Telephone systems using wireless network	PO1, PO2
CO3	To understand the concept of MAC	PO4, PO6
CO4	To analyze the characteristics of Routing and Congestion control algorithms	PO4, PO5, PO6
CO5	To understand network security and define various protocols such as FTP, HTTP, Telnet, DNS	PO3, PO4

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	CIA	External	Total
EC6	**Software Testing**	Elective	Y	-	-	-	3	4	25	75	100
Course Outcomes							**Program Outcomes**				
CO	On completion of this course, students will										
CO1	Students learn to apply software testing knowledge and engineering Methods						PO1				
CO2	Have an ability to identify the needs of software test automation, and define and develop a test tool to support test automation.						PO1, PO2				
CO3	Have an ability understand and identify various software testing problems, and solve these problems by designing and selecting software test models, criteria, strategies, and methods.						PO4, PO6				
CO4	Have basic understanding and knowledge of contemporary issues in software testing, such as component-based software testing problems						PO4, PO5, PO6				
CO5	Have an ability to use software testing methods and modern software testing tools for their testing projects.						PO3, PO8				

Subject Code	Subject Name	Category	L	T	P	S	Credits	Marks		
								CIA	External	Total
EC6	**Cryptography**	**Elect**	4	-	-	-	3	25	75	100

	Course Outcomes	Programme Outcomes
CO	On completion of this course, students will	
CO1	Analyze the vulnerabilities in any computing system and hence be able to design a security solution.	PO1, PO2, PO3, PO4, PO5, PO6
CO2	different cryptographic Operations of symmetric cryptographic	PO1, PO2, PO3, PO4, PO5, PO6
CO3	Apply the different cryptographic operations of public key cryptography	PO1, PO2, PO3, PO4, PO5, PO6
CO4	Apply the various Authentication schemes to simulate different applications.	PO1, PO2, PO3, PO4, PO5, PO6
CO5	Understand various Security practices and System security standards	PO1, PO2, PO3, PO4, PO5, PO6

Subject Code	Subject Name	Category	L	T	P	S	Credits	CIA	External	Total
	Project with Viva voce		4	-	-		4	25	75	100

Course Outcomes	
CO	On successful completion of this course, students will be able to
1	show leadership skills and learn time management
2	identify various tools to be applied to a specific problem
3	evaluate the reports
4	take part in a team as well as manage it to deliver stunning outcomes
5	assess and develop the individual skills to present and organize projects

	Subject Name	Category	L	T	P	S	Credits	Marks		
								CIA	External	Total
	Internship / Industrial Training	-	-	-	-	-	2	25	75	100

	Course Outcomes	Programme Outcomes
CO	On successful completion of this course , students will be able to	
1	Find their specific areas of interest , refine their skills and abilities	PO1, PO2, PO3, PO4, PO5, PO6
2	Show a greater sense of self-awareness and appreciation for others	PO1, PO2, PO3, PO4, PO5, PO6
3	Apply problem solving and critical thinking skills to solve real time problem	PO1, PO2, PO3, PO4, PO5, PO6
4	Design various solution approaches for addressing IT business needs.	PO1, PO2, PO3, PO4, PO5, PO6
5	Apply best practices of IT industries by working in the Product or service domain.	PO1, PO2, PO3, PO4, PO5, PO6

SEMESTER – VI

Subject Code	Subject Name	Category	L	T	P	S	Credits	Instruction hour	CIA	External	Total
										Marks	
CC14	**Machine Learning**	Core	5	-	-	-	3	4	25	75	100

Course Outcomes		Programme Outcomes
CO	On completion of this course, students will	
CO1	Appreciate the importance of visualization in the data analytics solution	PO1, PO2, PO3, PO4, PO5, PO6
CO2	Apply structured thinking to unstructured problems	PO1, PO2, PO3, PO4, PO5, PO6
CO3	Understand a very broad collection of machine learning algorithms and problems	PO1, PO2, PO3, PO4, PO5, PO6
CO4	Learn algorithmic topics of machine learning and mathematically deep enough to introduce the required theory	PO1, PO2, PO3, PO4, PO5, PO6
CO5	Develop an appreciation for what is involved in learning from data.	PO1, PO2, PO3, PO4, PO5, PO6

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
CC16	Data Analytics using R Programming	Core	5	-	-	-	4	6	25	75	100

Course Outcomes		Programme Outcomes
CO	On completion of this course, students will	
1	Work with big data tools and its analysis techniques.	PO1
2	Analyze data by utilizing clustering and classification algorithms.	PO1, PO3
3	Learn and apply different mining algorithms and recommendation systems for large volumes of data.	PO2, PO6
4	Perform analytics on data streams.	PO4, PO5, PO6
5	Learn NoSQL databases and management.	PO5, PO6

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks CIA	External	Total
CC17	Data Analytics using R Programming Lab	Core	-	-	4	-	4	6	25	75	100

Course Outcomes		Program Outcome
CO	On completion of this course, students will	
1	Acquire programming skills in core R Programming	PO1,PO4,PO5
2	Acquire Object-oriented programming skills in R Programming.	PO1, PO4,PO6
3	Develop the skill of designing graphical-user interfaces (GUI) in R Programming	PO1,PO3,PO6
4	Acquire R Programming skills to move into specific branches	PO3,PO4
5	To do input/output with files in R Programming.	PO1,PO5,PO6

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
EC7	**Internet of Things and its applications**	Elective	4	-	-	-	3	5	25	75	100
Course Outcomes						**Programme Outcomes**					
CO	On completion of this course, students will										
1	Work with big data tools and its analysis techniques.					PO1					
2	Analyze data by utilizing clustering and classification algorithms.					PO1, PO2					
3	Learn and apply different mining algorithms and recommendation systems for large volumes of data.					PO4, PO6					
4	Perform analytics on data streams.					PO4, PO5, PO6					
5	Learn NoSQL databases and management.					PO3, PO5					

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
EC7	Software Project Management	Elective	4	-	-	-	3	5	25	75	100

CO	Course Outcomes
CO1	Understand the principles and concepts of project management
CO2	Knowledge gained to train software project managers
CO3	Apply software project management methodologies.
CO4	Able to create comprehensive project plans
CO5	Evaluate and mitigate risks associated with software development process

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
EC7	**Enterprise Resource Planning**	Elective	2	-	-	-	3	5	25	75	100

Course Outcomes		
Course Outcomes	On completion of this course, students will;	
CO1	Understand the basic concepts of ERP.	PO1, PO2, PO6
CO2	Identify different technologies used in ERP	PO2, PO3, PO4
CO3	Understand and apply the concepts of ERP Manufacturing Perspective and ERP Modules	PO1, PO3, PO6
CO4	Discuss the benefits of ERP	PO2, PO6
CO5	Apply different tools used in ERP	PO1, PO3, PO5

Subject Code	Subject Name	Category	L	T	P	S	Credits	Marks		
								CIA	External	Total
EC8	**NATURAL LANGUAGE PROCESSING**	Elect	4	-	-		3	25	75	100

	Course Outcomes	Programme Outcomes
CO	On completion of this course, students will	
CO1	Describe the fundamental concepts and techniques of natural language processing. Explain the advantages and disadvantages of different NLP technologies and their applicability in different business situations.	PO1, PO2, PO3, PO4, PO5, PO6

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CO2	Distinguish among the various techniques, taking into account the assumptions, strengths, and weaknesses of each Use NLP technologies to explore and gain a broad understanding oftext data.	PO1, PO2, PO3, PO4, PO5, PO6
CO3	Use appropriate descriptions, visualizations, and statistics to communicate the problems and their solutions. Use NLP methods to analyse sentiment of a text document.	PO1, PO2, PO3, PO4, PO5, PO6
CO4	Analyze large volume text data generated from a range of real-world applications. Use NLP methods to perform topic modelling.	PO1, PO2, PO3, PO4, PO5, PO6
CO5	Develop robotic process automation to manage business processes and to increase and monitor their efficiency and effectiveness. Determine the framework in which artificial intelligence and the Internet of things may function, including interactions with people, enterprise functions, and environments.	PO1, PO2, PO3, PO4, PO5, PO6

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
EC8	**Cloud Computing**	Elective	4	-	-	-	3	5	25	75	100
		Total									**60**

	Course Outcomes	Programme Outcome
CO	On completion of this course, students will	
CO 1	Understand the fundamental concepts and Technologies in Cloud Computing.	PO1
CO 2	Able to understand various cloud service types and their uses and pitfalls.	PO1, PO2
CO 3	Able to understand Cloud Architecture and Application design.	PO4, PO5
CO 4	Understand the various aspects of application design, benchmarking and security in the Cloud.	PO4, PO5, PO6
CO 5	Understand various Case Studies in Cloud Computing.	PO3, PO6

Subject Code	Subject Name	Category	L	T	P	S		Inst. Hours	CIA	External	Total
										Marks	
EC8	**Robotics and its Applications**	Elective	4	-	-	-	3	6	25	75	100
		Total							60		

	Course Outcomes	Programme Outcomes
CO	On completion of this course, students will	
CO1	Describe the different physical forms of robot architectures.	PO1
CO2	Kinematically model simple manipulator and mobile robots.	PO1, PO2
CO3	Mathematically describe a kinematic robot system	PO4, PO6
CO4	Analyze manipulation and navigation problems using knowledge of coordinate frames, kinematics, optimization, control, and uncertainty.	PO4, PO5, PO6
CO5	Program robotics algorithms related to kinematics, control, optimization, and uncertainty.	PO3, PO8

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	CIA	External	Total
										Marks	
SEC8	**Open Source Technology**	Skill Enha.Course	C	-	-	-	2	2	25	75	100

	Course Outcomes	Programme Outcome
CO	On completion of this course, students will	
1	Acquire and understand the basic concepts in Java,application of OOPS concepts.	PO1
2	Acquire knowledge about operators and decision-making statements.	PO1,PO2
3	Identify the significance and application of Classes, arrays and interfaces and analyzing java arrays	PO4,PO6
4	Understand about the applications of OOPS concepts and analyze overriding and packages through java programs.	PO4,PO5,PO6
5	Create window-based programming using applet and graphics programming.	PO3,PO8