

# E.G.S.PILLAY ENGINEERING COLLEGE

(Autonomous)

Approved by AICTE, New Delhi | Affiliated to  
Anna University, Chennai Accredited by NAAC with  
„A“ Grade | Accredited by NBA (CSE, EEE, MECH, ECE,  
CIVIL, IT)

NAGAPATTINAM–611002



## B.E. – Computer Science and Engineering 2019 Regulation: Full Time Curriculum and Syllabus

<b>SEMESTER III</b>										
Course Code	Course Name	L	T	P	C	Maximum Marks			Category	
						CA	ES	Total		
<b>Theory Course</b>										
1901MA302	Engineering Mathematics III	3	2	0	4	40	60	100	BS	
1902CS301	Data Structures	3	2	0	4	40	60	100	PC	
1902CS302	Object Oriented Programming	3	0	0	3	40	60	100	PC	
1902CS303	Computer Organization and Architecture	3	0	0	3	40	60	100	PC	
1902CS304	Digital Logic and Microprocessors	3	0	2	4	40	60	100	ES	
1901MCX02	Constitution of India	2	0	0	0	100	0	100	MC	
<b>Laboratory Course</b>										
1902CS351	Data Structures Laboratory	0	0	2	1	50	50	100	PC	
1902CS352	Object Oriented Programming Laboratory	0	0	2	1	50	50	100	PC	
1904GE351	Life Skills: Soft Skills	0	0	2	1	100	-	100	EEC	
<b>Total</b>		<b>17</b>	<b>4</b>	<b>8</b>	<b>21</b>	<b>500</b>	<b>400</b>	<b>900</b>		

L–Lecture|T–Tutorial|P–Practical|C–Credit|CA –Continuous Assessment| ES–End Semester

1901MA302	Engineering Mathematics III Queuing Model and Network Model		L	T	P	C
			3	2	0	4
<b>PREREQUISITES:</b> 1. Engineering Mathematics - I 2. Engineering Mathematics - II						
<b>COURSE OBJECTIVES:</b>						
1. To introduce Fourier series analysis and applications in Engineering, apart from its use in solving boundary value problems. 2. To emphasis on more advance topics that are particularly useful in modeling, such as queuing theory. 3. To emphasis on more advance topics that are particularly useful in modeling, such as Markov models and queuing theory.						
<b>Module I</b>	<b>FOURIER SERIES</b>					<b>9+3 Hours</b>
Dirichlet's conditions – General Fourier series – Odd and even functions – Half range sine series – Half range cosine series – Parseval's identity – Harmonic analysis.						
<b>Module II</b>	<b>FOURIER TRANSFORMS</b>					<b>9+3 Hours</b>
Statement of Fourier integral theorem – Fourier transform pair – Fourier sine and cosine transforms – Properties – Transforms of simple functions – Convolution theorem – Parseval's identity						
<b>Module III</b>	<b>QUEUEING MODELS</b>					<b>9+3 Hours</b>
Characteristics of Queuing Models – Markovian Queues – $(M / M / 1) : (FIFO / \infty / \infty)$ , $(M / M / 1) : (FIFO / N / \infty)$ , $(M / M / C) : (FIFO / \infty / \infty)$ , $(M / M / C) : (FIFO / N / \infty)$ models – Little's formulae.						
<b>Module IV</b>	<b>NETWORK MODEL</b>					<b>9+3 Hours</b>
Network Construction – Critical Path Method – Project Evaluation and Review Technique – Resource analysis in Network Scheduling.						
<b>Module V</b>	<b>TRANSPORTATION AND ASSIGNMENT MODELS</b>					<b>9+3 Hours</b>
Mathematical formulation of transportation problem- Methods for finding initial basic feasible solution – optimum solution - degeneracy – Mathematical formulation of assignment models – Hungarian Algorithm – Variants of the Assignment problem						
					<b>Total:</b>	<b>45+15 Hours</b>
<b>FURTHER READING</b>						
1. Linear Programming Problem 2. Replacement Models.						
<b>COURSE OUTCOMES:</b>						
After completion of the course, Student will be able to						
<b>CO1</b>	Compute the solution of partial differential equations					
<b>CO2</b>	Use Fourier series analysis which is central to many applications in engineering					
<b>CO3</b>	Solve boundary value problem using partial differential equation.					
<b>CO4</b>	Apply Fourier transform techniques used in wide variety of situations					
<b>CO5</b>	Apply Z transform techniques for discrete time systems.					
<b>Text/Reference Books</b>						
1. Veerarajan. T., "Transforms and Partial Differential Equations", Second reprint, Tata McGraw Hill Education Pvt. Ltd., New Delhi, 2012.						
2. Grewal. B.S., "Higher Engineering Mathematics", 42nd Edition, Khanna Publishers, Delhi, 2012.						
3. Gross. D and Harris C.M, "Fundamentals of Queuing Theory", Wiley Student Edition, 2004.						
4. Robertazzi, "Computer Networks and Systems: Queuing Theory and performance Evaluation", Springer, 3 <sup>rd</sup> Edition, 2006						
5. Taha H.A. "Operations Research", Pearson education, Asia, 8 <sup>th</sup> Edition, 2007						
6. Trivedhi K.S, "Probability and statistics with Reliability, queuing and Computer Science Applications", John Wiley and Sons, 2 <sup>nd</sup> Edition, 2002						
7. Kalavathy S, Operations Research, Second Edition, Vikas Publishing House, 2004.						
8.. nptel.ac.in/courses/111105035, www.nptelvideos.in/2012/11/Mathematics.html						
9. www.learnerstv.com/Free-maths-video lectures - ltv348-page1.html						

1902CS301	DATA STRUCTURES	L	T	P	C	
		3	2	0	4	
<b>PREREQUISITES:</b> Programming in C.						
<b>COURSE OBJECTIVES:</b>						
	1. Be exposed to the concepts of ADTs					
	2. Learn linear data structures – list, stack, and queue.					
	3. Be exposed to sorting, searching, hashing algorithms					
	4. Learn to apply Tree and Graph structures					
<b>Module I</b>	<b>LINEAR DATA STRUCTURES – LIST</b>	<b>9+3Hours</b>				
Introduction, Data structure Types - Data structure operations - Abstract Data Types (ADTs) – List ADT – array-based implementation – linked list implementation – singly linked lists- circularly linked lists- doubly linked lists – applications of lists –Polynomial Manipulation.						
<b>Module II</b>	<b>LINEAR DATA STRUCTURES – STACK AND QUEUE</b>	<b>9+3Hours</b>				
STACK: Array implementation, Linked list implementation, Applications of stack: Infix to Postfix, Evaluation of Postfix, Balancing symbols, Nested function calls, Recursion, Towers of Hanoi. QUEUE: Array implementation, Linked List implementation, Circular Queue.						
<b>Module III</b>	<b>SORTING, SEARCHING AND HASH TECHNIQUES</b>	<b>9+3Hours</b>				
Sorting algorithms: Insertion sort - Selection sort - Shell sort - Bubble sort - Quick sort - Merge sort - Radix sort – Searching: Linear search –Binary Search Hashing: Hash Functions – Separate Chaining – Open Addressing – Rehashing – Extendible Hashing						
<b>Module IV</b>	<b>NON LINEAR DATA STRUCTURES – TREES</b>	<b>9+3Hours</b>				
General trees, Terminology, Representation of trees, Tree traversal- Binary tree, Representation, Expression tree, Binary tree traversal, Binary Search Tree: Construction, Searching, Insertion, Deletion, AVL trees: Rotation, Insertion, Deletion, B-Trees, Splay trees, Red-Black Trees.						
<b>Module V</b>	<b>NON LINEAR DATA STRUCTURES – GRAPHS</b>	<b>9+3Hours</b>				
Representation of Graphs – Breadth-first search – Depth-first search – Topological sort – Minimum Spanning Trees – Kruskal’s and Prim’s algorithm – Shortest path algorithm – Dijkstra’s algorithm – Bellman-Ford algorithm – Floyd - Warshall algorithm.						
				<b>Total:</b>	<b>45 +15 Hours</b>	
<b>FURTHER READING</b>						
	1. Applications of queue: Priority queue, Double ended queue.					
	2. Threaded Binary Tree					
<b>COURSE OUTCOMES:</b>						
<b>After completion of the course, Student will be able to</b>						
<b>CO1</b>	Implement abstract data types for linear data structures					
<b>CO2</b>	Apply the different linear data structures to problem solutions.					
<b>CO3</b>	Critically analyze the various algorithms					
<b>CO4</b>	Have a comprehensive knowledge of Trees and their implementations					
<b>CO5</b>	Learn advanced data structures like Graphs and their implementation					
<b>REFERENCES:</b>						
1. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C", 2nd Edition, Pearson Education, 2011						
2. Seymour Lipschutz, "Data Structures with C", McGraw Hill Education, Special Indian Edition, 2014.						
3. A.V.Aho, J.E Hopcroft and J.D.Ullman, "Data structures and Algorithms", Pearson Education, First Edition Reprint 2003.						
4. R.F.Gilberg, B.A.Forouzan, "Data Structures", Second Edition, Thomson India Edition, 2005.						
5. ReemaThareja, "Data Structures Using C", Oxford Higher Education , First Edition, 2011.						
6. <a href="http://nptel.ac.in/courses/106102064/1">http://nptel.ac.in/courses/106102064/1</a>						

1902CS302	OBJECT ORIENTED PROGRAMMING	L	T	P	C	
		3	0	0	3	
<b>PREREQUISITES:</b>						
1. Programming in C 2. Introduction to Computer						
<b>COURSE OBJECTIVES:</b>						
1. To demonstrate adeptness of object oriented programming in developing solutions to problems demonstrating usage of data abstraction, encapsulation, and inheritance. 2. To understand the concepts behind object-oriented programming using C++ 3. To analyze and understand the functionality of program code written in Java.						
<b>Module I</b>	<b>INTRODUCTION TO C++</b>	<b>9 Hours</b>				
Introduction to C++ – classes – access specifiers – function and data members – default arguments – function overloading – friend functions – const and volatile functions – static members – Objects – pointers and objects – constant objects – nested classes – local classes						
<b>Module II</b>	<b>CONSTRUCTORS</b>	<b>9 Hours</b>				
Constructors – default constructor – Parameterized constructors – Constructor with dynamic allocation – copy constructor – destructors – operator overloading – overloading through friend functions – overloading the assignment operator – type conversion – explicit constructor						
<b>Module III</b>	<b>INTRODUCTION TO JAVA</b>	<b>9 Hours</b>				
Overview of java-data types-variables-operators-arrays-control statements-object and classes- methods-access specifiers-static members-finalize methods-constructors-exception handling						
<b>Module IV</b>	<b>INHERITANCE AND POLYMORPHISM</b>	<b>9 Hours</b>				
Inheritance-super keyword-types of inheritance – polymorphism- method overriding-method overloading- abstract class-inner class-interfaces-reflections						
<b>Module V</b>	<b>STRING HANDLING</b>	<b>9 Hours</b>				
String methods-special string operation-string buffer-collection framework: collection interfaces and classes-utility classes: string utility-file utility-I/O utility-entity utility-array utility						
					<b>Total</b>	<b>45 Hours</b>
<b>FURTHER READING / SEMINAR :</b>						
RTTI Function templates ANSI String Objects						
<b>COURSE OUTCOMES:</b>						
After completion of the course, Student will be able to						
<b>CO1</b>	Define the features of C++ supporting object oriented programming					
<b>CO2</b>	Understand the major object-oriented concepts such that constructor and operator overloading in C++					
<b>CO3</b>	Define the features of Java supporting object oriented programming					
<b>CO4</b>	Understand the concepts for Java Inheritance, Polymorphism and Java Reflection.					
<b>CO5</b>	Demonstrate the working of string builder and string buffer in String handling					
<b>REFERENCES:</b>						
1. B. Trivedi, “Programming with ANSI C++”, Oxford University Press, 2007						
2.H.M.Deitel, P.J.Deitel, “Java how to program”, Fifth edition, Prentice Hall of India private limited,2003.						
3. Ira Pohl, “Object-Oriented Programming Using C++”, Pearson Education Asia, 2003.						
4.K.R.Venugopal, Rajkumar Buyya, T.Ravishankar, “Mastering C++”, TMH, 2003.						
5.Herbert Schildt, “The Java 2: Complete Reference”, Fourth edition, TMH, 2002						
6. <a href="https://nptel.ac.in/courses/106/105/106105151/">https://nptel.ac.in/courses/106/105/106105151/</a>						
7. <a href="https://nptel.ac.in/courses/106105191/">https://nptel.ac.in/courses/106105191/</a>						

1902CS303	COMPUTER ORGANIZATION AND ARCHITECTURE	L	T	P	C	
		3	0	0	3	
<b>PREREQUISITES :</b> Introduction to Computer, Programming in C						
<b>COURSE OBJECTIVES:</b>						
	1. To make students understand the basic structure and operation of digital computer.					
	2. To study the concepts of pipelining.					
	3. To expose the students to the concept of parallelism					
	4. To familiarize the students with hierarchical memory system including cache Memories and virtual memory.					
<b>Module I</b>	<b>STRUCTURE OF COMPUTERS &amp; MACHINE INSTRUCTION</b>	<b>9 Hours</b>				
Functional Modules - Basic operational concepts - Bus structures - Software - performance – Technology– Instruction and instruction sequencing – Addressing modes – operations and operands-Basic I/O operations. ALU design – Fixed point and floating point operations						
<b>Module II</b>	<b>BASIC PROCESSING MODULE</b>	<b>9 Hours</b>				
Fundamental concepts – Execution of a complete instruction – Multiple bus organization – Hardwired control – Micro programmed control – Nano programming.						
<b>Module III</b>	<b>PIPELINING</b>	<b>9 Hours</b>				
Basic concepts – Data hazards – Instruction hazards – Influence on instruction sets –Data path and control considerations – Performance considerations – Exception handling.						
<b>Module IV</b>	<b>PARALLELISM</b>	<b>9 Hours</b>				
Instruction-level-parallelism – Parallel processing challenges – Flynn's classification – Hardware multithreading – Multicore processors						
<b>Module V</b>	<b>MEMORY AND I/O SYSTEMS</b>	<b>9 Hours</b>				
Memory hierarchy - Memory technologies – Cache basics – Measuring and improving cache performance - Virtual memory - Input/output system, programmed I/O, DMA and interrupts, I/O processors.						
					<b>Total:</b>	<b>45 Hours</b>
<b>FURTHER READING / SEMINAR :</b>						
	ALU operations-MIPS-VLIW-How the processors are made from silicon mud-Creating Data path					
<b>COURSE OUTCOMES:</b>						
	After completion of the course, Student will be able to					
<b>CO1</b>	Understand basic operations and instructions					
<b>CO2</b>	Design arithmetic and logic Module .					
<b>CO3</b>	Design and analyze pipelined control Modules					
<b>CO4</b>	Understand parallel processing architectures.					
<b>CO5</b>	Evaluate performance of memory systems.					
<b>REFERENCES:</b>						
1. William Stallings “Computer Organization and Architecture” , Seventh Edition Reprint, Pearson Education, 2016						
2. Vincent P. Heuring, Harry F. Jordan, “Computer System Architecture”, Second Edition, Pearson Education, 2005.						
3. Govindarajalu, “Computer Architecture and Organization, Design Principles and Applications”, first edition, Tata McGraw Hill, New Delhi, 2012.						
4.V.P. Heuring, H.F. Jordan, “Computer Systems Design and Architecture”, 2nd Edition,Pearson Education, 2012.						
5. <a href="https://onlinecourses.nptel.ac.in/noc18_cs29/preview">https://onlinecourses.nptel.ac.in/noc18_cs29/preview</a>						

1902CS304	DIGITAL LOGIC AND MICROPROCESSORS	L	T	P	C	
		3	0	2	4	
<b>PREREQUISITES:</b>						
1. Basic electronics						
<b>COURSE OBJECTIVES:</b>						
1. Learn the basics of digital functions.						
2. Become familiar in combinational and sequential logic circuits.						
3. Understand the basics of microprocessor and assembly language programming.						
<b>MODULE I</b>	<b>BOOLEAN ALGEBRA AND LOGIC GATES</b>	<b>12 Hours</b>				
<b>Boolean algebra:</b> Boolean postulates and laws – SOP and POS – k-map – Quine Mc-Cluskey method.						
<b>Logic gates:</b> AND, OR, NOT, NAND, NOR and XOR gates.						
<b>MODULE II</b>	<b>COMBINATIONAL LOGIC CIRCUITS</b>	<b>12 Hours</b>				
Introduction – adder – subtractor – code converter – multiplexer and de-multiplexer – parity checker and generator – magnitude comparator.						
<b>MODULE III</b>	<b>SEQUENTIAL CIRCUITS</b>	<b>12 Hours</b>				
<b>Synchronous sequential circuits:</b> Latches – flip flops – characteristic table and equation – realization of one flip flop using other flip flop – synchronous counter design.						
<b>Asynchronous sequential circuits:</b> Difference between synchronous and asynchronous circuits – asynchronous counter design – static and dynamic hazards.						
<b>MODULE IV</b>	<b>MICROPROCESSOR 8085 AND 8086</b>	<b>12 Hours</b>				
<b>8085:</b> Introduction – pin diagram – architecture – addressing modes – instruction set – assembly language programming.						
<b>8086:</b> Pin diagram – architecture – addressing modes – instruction set – assembly language programming.						
<b>MODULE V</b>	<b>8051 MICROCONTROLLER AND I/O INTERFACING</b>	<b>12 Hours</b>				
<b>8051:</b> Pin diagram – architecture – addressing modes – instruction set – assembly language programming.						
<b>I/O interfacing:</b> Serial and parallel interfacing – D/A and A/D converter.						
<b>Experiments:</b>						
<b>Digital:</b>						
1. Study of logic gates.						
2. Design of adder and subtractor.						
3. Design of code converters.						
4. Implementation of MUX and DEMUX.						
5. Implementation of parity checker and generator.						
6. Design of synchronous and asynchronous counter.						
<b>Microprocessor:</b>						
1. Basic arithmetic operations – 8085.						
2. Sorting of an array in ascending and descending order – 8085.						
3. Stepper motor interfacing – 8085.						
4. Basic arithmetic operations – 8086.						
5. Floating point operations – 8086.						
6. Arithmetic operations – 8051.						
				<b>TOTAL:</b>	<b>60 HOURS</b>	
<b>FURTHER READING / CONTENT BEYOND SYLLABUS / SEMINAR :</b>						
VHDL programming for combinational and sequential circuits.						
<b>COURSE OUTCOMES:</b>						
After completion of the course, Student will be able to						
<b>CO1</b>	Use different methods to simplify Boolean functions.					
<b>CO2</b>	Demonstrate different types of combinational circuits using logic gates.					
<b>CO3</b>	Implement various synchronous and asynchronous sequential circuits using logic gates and flip flops.					
<b>CO4</b>	Summarize architecture, instructions and addressing modes of 8085, 8085 and 8051.					
<b>CO5</b>	Apply programming concepts to make assembly language programs.					

<b>REFERENCES:</b>	
1.	John F. Wakerly, "Digital design", Fourth edition, Pearson/PHI, 2008.
2.	Thomas L. Floyd, "Digital fundamentals", 10 <sup>th</sup> edition, Pearson Education Inc, 2011.
3.	Donald D. Givone, "Digital Principles and Design", TMH, 2003.
4.	Ramesh Gaonkar, "Microprocessor architecture, programming and applications with 8085", 5 <sup>th</sup> edition, Penram International Publishing, 2000.
5.	Barry B. Brey, "The intel microprocessors, 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, Pentium pro processor, Pentium II, Pentium III, Pentium IV, architecture, programming interfacing", 6 <sup>th</sup> edition, Pearson education/PHI, 2002.
6.	Mohamed Ali Mazidi, Janice GillispieMazidi, RolinMcKinlay, "The 8051 Microcontroller and Embedded systems: Using Assembly and C", Second edition, Pearson education, 2011.

1901MCX02	CONSTITUTION OF INDIA	L	T	P	C
		2	0	0	0
<b>COURSE OBJECTIVES:</b>					
	1.To create awareness among students about the Indian Constitution.				
	2.To acquaint the working conditions of union, state, local levels, their powers and functions.				
	3.To create consciousness in the students on democratic values and principles articulated in the constitution.				
	4.To expose the students on the relations between federal and provincial units.				
	5.To divulge the students about the statutory institutions.				
<b>MODULE I</b>	<b>EVOLUTION OF THE INDIAN CONSTITUTION</b>				<b>6 Hours</b>
1909 Act, 1919 Act and 1935 Act. Constituent Assembly: Composition and Functions; Fundamental features of the Indian Constitution.					
<b>MODULE II</b>	<b>GOVERNMENT</b>				<b>6 Hours</b>
<b>Union Government:</b> Executive-President, Prime Minister, Council of Minister <b>State Government:</b> Executive: Governor, Chief Minister, Council of Minister <b>Local Government:</b> Panchayat Raj Institutions, Urban Government					
<b>MODULE III</b>	<b>RIGHTS AND DUTIES</b>				<b>6 Hours</b>
Fundamental Rights, Directive principles, Fundamental Duties					
<b>MODULE IV</b>	<b>RELATION BETWEEN FEDERAL AND PROVINCIAL UNITS</b>				<b>6 Hours</b>
Union-State relations, Administrative, legislative and Financial, Inter State council, NITI Ayog, Finance Commission of India					
<b>MODULE V</b>	<b>STATUTORY INSTITUTIONS</b>				<b>6 Hours</b>
Elections-Election Commission of India, National Human Rights Commission, National Commission for Women					
				<b>Total:</b>	<b>30 Hours</b>
<b>COURSE OUTCOMES</b>	After completion of the course, Student will be able to				
<b>CO1:</b> Know the background of the present constitution of India.					
<b>CO2:</b> Understand the working of the union, state and local levels.					
<b>CO3:</b> Gain consciousness on the fundamental rights and duties.					
<b>CO4:</b> Be able to understand the functioning and distribution of financial resources between the centre and states.					
<b>CO5:</b> Be exposed to the reality of hierarchical Indian social structure and the ways the grievances of the deprived sections can be addressed to raise human dignity in a democratic way.					
<b>References:</b>					
1.Durga Das Basli 'Introduction to the Constitution of India " Prentice Hall of India, New Delhi.					
2.Subhash Kashyap, Our Parliament, National Book Trust, New Delhi					
3.Peu Ghosh, Indian Government & Politics, Prentice Hall of India, New Delhi					
4. B.Z. Fadia & Kuldeep Fadia, Indian Government & Politics, Lexis Nexis, New Delhi					



1902CS351	DATA STRUCTURES LABORATORY	L	T	P	C	
		0	0	2	1	
<b>PREREQUISITES:</b>						
1. Basic Computer knowledge.						
2. C Programming.						
<b>COURSE OBJECTIVES:</b>						
1. Be exposed to implementing abstract data types						
2. Learn to implement sorting and searching algorithms.						
3. Getting exposure in implementing the different data structures						
<b>List of Experiments:</b>						
1. Write a program to implement Singly Linked List						
2. Write a program to implement Stack using Array and Linked List						
3. Write a program to implement Queue using Array and Linked List						
4. Write a program to implement conversion of Infix Expression to Postfix Expression.						
5. Write a program to sort a set of elements using bubble sort, insertion sort, shell sort, merge sort and quick sort						
6. Write a program to implement searching using linear search and binary Search.						
7. Write a program to Implement Binary Search Tree						
8. Write a program to Implement Tree traversal Techniques						
9. Write a program to Implement Minimum Spanning Tree using Prims and Kruskal Algorithm.						
10. Write a program to Implement Shortest Path using Dijkstra's algorithm.						
					<b>Total:</b>	<b>45 Hours</b>
<b>Additional Experiments:</b>						
1. Program to construct an expression tree for a given tree						
2. Implementation of Bellman-Ford algorithm and Floyd - Warshall algorithm.						
<b>COURSE OUTCOMES:</b>						
<b>After completion of the course, Student will be able to</b>						
<b>CO1</b>	Design and implement C programs for implementing stacks, queues, linked lists.					
<b>CO2</b>	Implement stack applications.					
<b>CO3</b>	Develop searching and sorting programs.					
<b>CO4</b>	Apply the different data structures for implementing solutions to practical problems.					
<b>CO5</b>	Develop recursive programs using trees and graphs					
<b>REFERENCES:</b>						
1. <a href="http://www.cs.cf.ac.uk/Dave/C/">www.cs.cf.ac.uk/Dave/C/</a>						
2. <a href="http://www.lysator.liu.se/c/bwk-tutor.html">http://www.lysator.liu.se/c/bwk-tutor.html</a>						
3. <a href="http://en.wikibooks.org/wiki/Data_Structures/Introduction">http://en.wikibooks.org/wiki/Data_Structures/Introduction</a>						
4. <a href="http://www.eskimo.com/~scs/cclass/notes/top.html">http://www.eskimo.com/~scs/cclass/notes/top.html</a>						

1902CS352	OBJECT ORIENTED PROGRAMMING LABORATORY	L	T	P	C
		0	0	2	1
<b>PREREQUISITE :</b> 1.Basic Computer knowledge. 2.Programming in C Lab					
<b>COURSE OBJECTIVES:</b>					
<ol style="list-style-type: none"> <li>Justify the philosophy of object-oriented programming and the concepts of encapsulation, abstraction, inheritance, and Polymorphism.</li> <li>To make the student learn an object oriented way of solving problems using java.</li> <li>To make the students to write programs using multi-threading concepts and handle exceptions.</li> </ol>					
<b>LIST OF EXPERIMENTS:</b>					
1. Write a C++ program using Static Data Members					
2. Write a C++ program to implement the Multiple constructor in a class					
3. Write a C++ program to implement Operator overloading for Unary and binary operator					
4. Write a C++ program to implement Constructor in derived classes					
5. Write a Java program to implement Control Statements					
6. Write a Java program to implement Multi-threaded programming					
7. Write a Java program to implement Multiple Inheritance					
8. Write a Java program to implement Polymorphism					
9. Write a Java program to implement Exception handling in various cases					
10. Write a program to implement various String methods in Java					
				<b>Total:</b>	<b>45 Hours</b>
<b>ADDITIONAL EXPERIMENTS:</b>					
<ol style="list-style-type: none"> <li>Program to overload unary and binary operator as Nonmember function.</li> <li>Write a Java program to develop simple application(project) using OOP's concept.</li> </ol>					
<b>COURSE OUTCOMES</b>   After completion of the course, Student will be able to					
<b>CO1</b>	Implement basic C++ programs				
<b>CO2</b>	Implement major object-oriented concepts such that constructor and operator overloading in C++				
<b>CO3</b>	Implement Java programs with basic features				
<b>CO4</b>	Implement the concepts for Java Inheritance, Polymorphism and Java Reflection.				
<b>CO5</b>	Demonstrate the working of string builder and string buffer in String handling				
<b>REFERENCES:</b>					
1. <a href="https://lecturenotes.in/practicals/19363-lab-manuals-for-object-oriented-programming">https://lecturenotes.in/practicals/19363-lab-manuals-for-object-oriented-programming</a>					
2. <a href="http://studentsfocus.com/cs6461-object-oriented-programming-lab-manual">http://studentsfocus.com/cs6461-object-oriented-programming-lab-manual</a>					
3. <a href="http://bietbvrm.ac.in/public/testimonia">http://bietbvrm.ac.in/public/testimonia</a>					
4. <a href="http://www.srmuniv.ac.in/sites/default/files">http://www.srmuniv.ac.in/sites/default/files</a>					

1904GE351	LIFE SKILLS: SOFT SKILL			L	T	P	C
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<b>COURSE OBJECTIVES:</b>	The student should be made to:						
	1. To develop the students basic soft skills and enable them to get a job.						
	2. To develop the students' interpersonal skills and to enable them to respond effectively.						
	3. To develop the students selling skills and to enable them to apply in their interview process.						
	4. To develop the students' Corporate Etiquette and enable them to respond effectively.						
	5. To develop the students' learning by practice of giving different situations.						
<b>Module I</b>	<b>Introduction to Soft Skills</b>					<b>6 Hours</b>	
Soft Skills an Overview - Basics of Communication – Body Language – Positive attitude –Improving Perception and forming values – Communicating with others.							
<b>Module II</b>	<b>Team vs Trust</b>					<b>6 Hours</b>	
Interpersonal skills – Understanding others – Art of Listening - Group Dynamics –Essential of an effective team - Individual and group presentations - Group interactions – Improved work Relationship .							
<b>Module III</b>	<b>Selling Oneself</b>					<b>6 Hours</b>	
How to brand oneself – social media – job hunting – Resume writing – Group Discussion – Mock G.D - .Interview skills – Mock Interview							
<b>Module IV</b>	<b>Corporate Etiquette</b>					<b>6 Hours</b>	
What is Etiquette – Key Factors – Greetings – Meeting etiquette – Telephone etiquette – email etiquette – Dining etiquette – Dressing etiquette .							
<b>Module V</b>	<b>Learning by Practice</b>					<b>6 Hours</b>	
My family-Myself-Meeting people-Making Contacts.-A city-Getting about town-Our flat-Home life- Travelling - Going abroad- Going through Customs-At a hotel-Shopping- Eating out- Making a phone call- A modern office- Discussing business.							
						<b>Total:</b>	<b>30 Hours</b>
<b>COURSE OUTCOMES:</b>							
	After completion of the course, Student will be able to						
<b>CO1</b>	Communicate effectively in their business environment.						
<b>CO2</b>	Improve their interpersonal skills which are mandatory in a corporate world.						
<b>CO3</b>	Brand themselves to acquire a job.						
<b>CO4</b>	Involve in corporate etiquette.						
<b>CO5</b>	Survive in the different situations.						
<b>REFERENCES:</b>							
1. Dr.k.Alex, “soft skills “Third Edition, S.Chand& Publishing Pvt Limited, 2009							
2. Arunakoneru, ‘Professional Communication’ Second Edition, Tata McGraw-Hill Education, 2008							
3. D.K.Sarma,’You & Your Career ‘First Edition Wheeler Publishing & Co Ltd, 1999							
4. Shiv Khera ‘You Can Win’ Third Edition Mac Millan Publisher India Pvt Limited, 2005							