



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

### PROGRAM OUTCOMES (POS) AND PROGRAM SPECIFIC OUTCOMES (PSOS) - COMPUTER SCIENCE AND ENGINEERING

Engineering Graduates will be able to

1. **Engineering knowledge** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.



  
PRINCIPAL  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur - 631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

8. **Ethics** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

## 2. PROGRAM SPECIFIC OUTCOMES (PSOS)

At the end of BE program Computer Science and Engineering graduates will be able to

- PS01** The students will be able to Exhibit design and programming skills to build and computerize business solutions using cutting edge technologies.
- PS02** Strong theoretical foundation leading to excellence and excitement towards research, to provide elegant solutions to complex problems.
- PS03** Ability to work effectively with various engineering fields as a team to design, build and develop system applications.



PRINCIPAL  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203



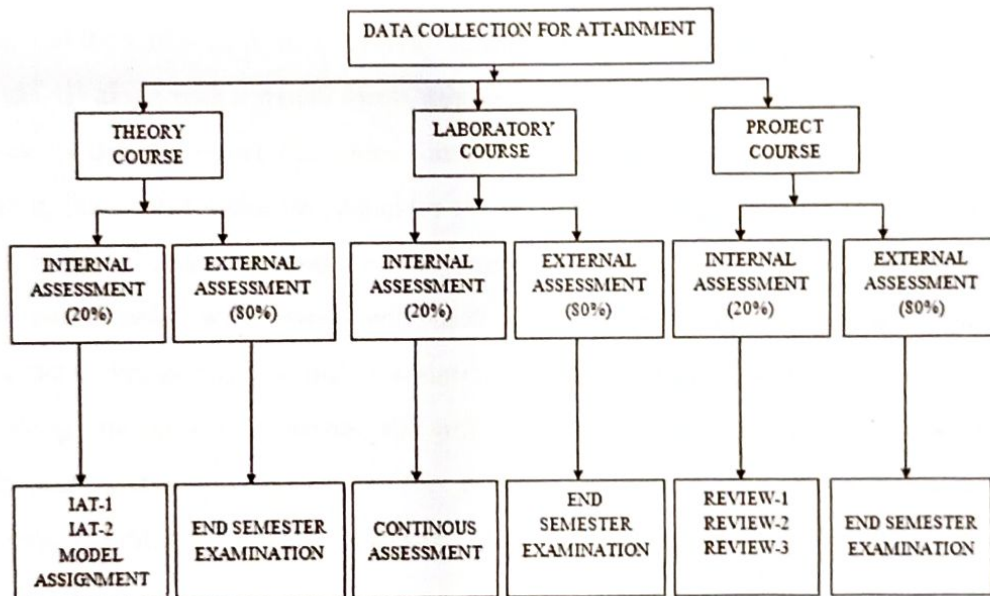
# SRI VENKATESWARA


## COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

### ATTAINMENT OF COURSE FOR THE COMPUTER SCIENCE AND ENGINEERING ASSESSMENT PROCESSOR.

Assessment is carried out by the department periodically to identify, collect, analyze and evaluate the data towards the achievement of course outcomes (CO), for the calculation of CO attainment, data from various theory and lab course and project course are taken in to consideration. For the entire course, 20% weightage is given for internal assessment and 80% weightage for external assessment.



  
PRINCIPAL  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

### THE END SEMESTER EXAMINATIONS:

The examination, administered by Anna University, spans three hours and is graded out of 100 marks. Evaluation is overseen by the Controller of Examinations at Anna University, with students' performance grades being made available online. These grades serve as a metric for assessing the comprehensive Course Outcome (CO) achievement across all courses.

### THEORY COURSE:

Throughout the semester, Anna University schedules two internal assessment tests (IAT-I and IAT-II) along with a model exam, aligning with their designated duration. These assessments directly target the course outcomes. Following the completion of each test/exam, the course instructor evaluates the performance and computes the level of attainment for all course outcomes by semester's end. Additionally, students undertake course-related tasks, with assessment based on their task-solving innovation. This assignment serves as a performance evaluation tool aimed at gauging students' grasp of engineering practices, frameworks, and problem-solving abilities. The end semester examination grades contribute to the overall assessment of course outcome achievement. Amid the pandemic, all exams are conducted online.

### LABORATORY COURSE:

In all laboratory courses, students are required to participate in a Viva Voce session, where their comprehension and practical skills in design or programming are orally assessed. Performance in these sessions determines their marks. At the conclusion of the semester, a model exam is held, and marks from both the model exam and the end-of-semester exams are factored into the overall assessment of Course Outcome (CO) attainment.



  
PRINCIPAL  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

### PROJECT COURSE:

In the final semester, a project course is provided, comprising three reviews. Assessment during these reviews is factored in, and the overall level of Course Outcome (CO) attainment is determined at the semester's end. Additionally, grades achieved in the end-of-semester examination contribute to measuring the overall CO attainment.

### ATTAINMENT OF COURSE OUTCOMES OF ALL COURSES WITH RESPECT TO SET ATTAINMENT LEVELS

CO attainment is calculated by allocating 80% weightage to university examination and 20% weightage to internal assessment process.

### THEORY COURSE CO ATTAINMENT CALCULATION CO ATTAINMENT:

ASSESSMENT TOOL	WEIGHTAGE	OVERALL WEIGHTAGE
Internal assessment test, model examination, Assignment, course end Survey	20%	100%
End semester	80%	

LABORATORY COURSE CO ATTAINMENT CALCULATION		
ASSESSMENT TOOL	WEIGHTAGE	OVERALL WEIGHTAGE
Lab exercise+viva+record work	20%	100%
End semester practical examination	80%	



  
PRINCIPAL  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur



**SRI VENKATESWARA**  
**COLLEGE OF ENGINEERING AND TECHNOLOGY**  
Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

PROJECT WORK CO ATTAINMENT CALCULATION		
ASSESSMENT TOOL	WEIGHTAGE	OVERALL WEIGHTAGE
lab exercise+viva+record work	20%	100%
end semester practical examination	80%	

The attainment levels are framed as per the following rules.

For both internal and university examination

Level 1	If 50% of students more than threshold
Level2	If 60% of students more than threshold
Level 3	If 70% of students more than threshold

**ASSESSMENT TOOLS AND PROCESSES USED FOR MEASURING THE  
ATTAINMENT OF EACH OF THE PROGRAM OUTCOMES AND PROGRAM  
SPECIFIC OUTCOMES.**

**DIRECT METHOD:** Direct method involves the direct assessment of students through end semester examinations, internal assessments, seminars/ presentation, viva voce ,Mini project and project reviews.

**INDIRECT METHOD:** Indirect method of assessment is done by conducting survey among students.



  
**PRINCIPAL**  
Sri Venkateswara College of  
Engineering and Technology.  
Thirupachur, Tiruvallur - 631 203

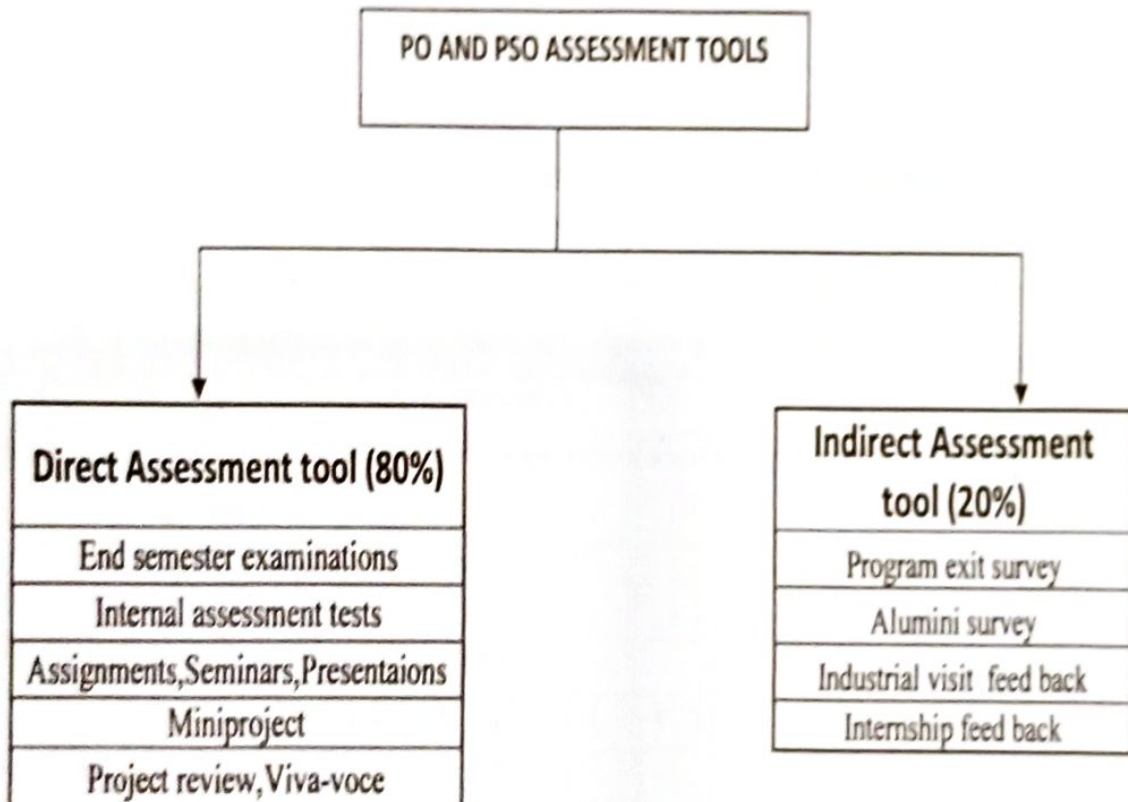


# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur -631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

### ASSESSMENT TOOL



  
PRINCIPAL  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY


Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

YEAR	II	SEM	III	SUBJECT CODE	MA3354
SUBJECT	DISCRETE MATHEMATICS				

<b>C101</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>C101.1</b>	Have knowledge of the concepts needed to test the logic of a program.
<b>C101.2</b>	Have an understanding in identifying structures on many levels.
<b>C101.3</b>	Be aware of a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science.
<b>C101.4</b>	Be aware of the counting principles.
<b>C101.5</b>	Be exposed to concepts and properties of algebraic structures such as groups, rings and fields.

CO'S	PO'S												PSO'S		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>C101.1</b>	3	3	2	-	-	-	-	-	-	-	-	2	-	-	-
<b>C101.2</b>	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>C101.3</b>	-	3	2	-	-	2	-	-	-	3	-	-	-	-	-
<b>C101.4</b>	-	2	2	2	-	-	-	-	-	-	-	-	-	-	-
<b>C101.5</b>	-	2	2	2	-	-	-	-	-	2	-	-	-	-	-
<b>AVG</b>	1	3	2	1	-	-	-	-	-	1	-	-	-	-	-



  
**PRINCIPAL**  
Sri Venkateswara College of  
Engineering and Technology  
Thirupachur, Tiruvallur - 631 203





# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

<b>YEAR</b>	II	<b>SEM</b>	III	<b>SUBJECT CODE</b>	CS3351
<b>SUBJECT</b>	DIGITAL PRINCIPLES AND COMPUTER ORGANIZATION				

<b>C102</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>C102.1</b>	Design various combinational digital circuits using logic gates
<b>C102.2</b>	Design sequential circuits and analyze the design procedures
<b>C102.3</b>	State the fundamentals of computer systems and analyze the execution of an instruction
<b>C102.4</b>	Analyze different types of control design and identify hazards
<b>C102.5</b>	Identify the characteristics of various memory systems and I/O communication

CO'S	PO'S												PSO'S		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>C102.1</b>	3	3	3	3	3	2	1	1	1	1	2	3	2	3	3
<b>C102.2</b>	3	3	3	3	2	1	1	1	1	1	2	3	1	2	2
<b>C102.3</b>	3	3	3	3	2	2	1	1	1	1	2	3	2	3	1
<b>C102.4</b>	3	3	3	3	1	1	1	1	1	1	1	2	1	3	1
<b>C102.5</b>	3	3	3	3	1	2	1	1	1	1	1	2	1	2	1
<b>AVG</b>	3	3	3	3	1.8	1.6	1	1	1	1	1.6	2.6	1.4	2.6	1.6



  
**PRINCIPAL**  
 Sri Venkateswara College of  
 Engineering and Technology,  
 Thirupachur, Tiruvallur - 631 203




**SRI VENKATESWARA**  
**COLLEGE OF ENGINEERING AND TECHNOLOGY**  
Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

<b>YEAR</b>	II	<b>SEM</b>	III	<b>SUBJECT CODE</b>	CS3352
<b>SUBJECT</b>	FOUNDATIONS OF DATA SCIENCE				

<b>C103</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>C103.1</b>	Define the data science process
<b>C103.2</b>	Understand different types of data description for data science process
<b>C103.3</b>	Gain knowledge on relationships between data
<b>C103.4</b>	Use the Python Libraries for Data Wrangling
<b>C103.5</b>	Apply visualization Libraries in Python to interpret and explore data

<b>CO'S</b>	<b>PO'S</b>												<b>PSO'S</b>		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>C103.1</b>	2	2	1	2	2	-	-	-	1	1	1	2	2	2	2
<b>C103.2</b>	2	1	-	1	1	-	-	-	2	1	1	2	2	3	1
<b>C103.3</b>	2	2	1	2	2	1	1	-	1	2	1	3	2	2	3
<b>C103.4</b>	3	2	2	1	2	-	-	-	1	1	2	2	3	3	2
<b>C103.5</b>	2	2	1	2	2	-	-	-	1	1	1	2	2	2	2
<b>AVG</b>	2	2	1	2	2	1	1	-	1	1	1	2	2	2	2



  
**PRINCIPAL**  
Sri Venkateswara College  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

YEAR	II	SEM	III	SUBJECT CODE	CS3301
SUBJECT	DATA STRUCTURES				

<b>C104</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>C104.1</b>	Define linear and non-linear data structures.
<b>C104.2</b>	Implement linear and non-linear data structure operations.
<b>C104.3</b>	Use appropriate linear/non-linear data structure operations for solving a given problem.
<b>C104.4</b>	Apply appropriate graph algorithms for graph applications.
<b>C104.5</b>	Analyze the various searching and sorting algorithms.

CO'S	PO'S												PSO'S		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>C104.1</b>	2	3	1	2	2	1	1	-	1	2	1	3	2	1	3
<b>C104.2</b>	1	2	1	2	2	-	-	-	1	1	1	2	2	2	2
<b>C104.3</b>	2	3	1	2	3	-	-	-	1	1	1	2	2	1	2
<b>C104.4</b>	2	1	-	1	1	-	-	-	2	1	1	2	2	3	1
<b>C104.5</b>	1	2	1	2	2	1	1	-	1	2	1	3	2	2	3
<b>AVG</b>	2	2	1	2	2	1	1	-	1	1	1	2	2	2	2



  
**PRINCIPAL**  
Sri Venkateswara College of  
Engineering and Technology  
Thirupachur, Thiruvallur - 631 203



**SRI VENKATESWARA**  
**COLLEGE OF ENGINEERING AND TECHNOLOGY**  
Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

<b>YEAR</b>	II	<b>SEM</b>	III	<b>SUBJECT CODE</b>	CS3391
<b>SUBJECT</b>	OBJECT ORIENTED PROGRAMMING				

<b>C105</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>C105.1</b>	Apply the concepts of classes and objects to solve simple problems
<b>C105.2</b>	Develop programs using inheritance, packages and interfaces
<b>C105.3</b>	Make use of exception handling mechanisms and multithreaded model to solve real world problems
<b>C105.4</b>	Build Java applications with I/O packages, string classes, Collections and generics concepts
<b>C105.5</b>	Integrate the concepts of event handling and JavaFX components and controls for developing GUI based applications

<b>CO'S</b>	<b>PO'S</b>												<b>PSO'S</b>		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>C105.1</b>	1	1	3	1	3	-	-	-	3	2	2	2	3	1	2
<b>C105.2</b>	2	1	3	2	1	-	-	-	2	1	1	3	3	3	2
<b>C105.3</b>	3	3	1	2	2	-	-	-	3	2	1	2	3	1	3
<b>C105.4</b>	3	1	2	2	2	-	-	-	1	2	1	3	3	1	1
<b>C105.5</b>	1	1	2	3	2	-	-	-	3	2	1	2	3	3	3
<b>AVG</b>	2	1	2	2	2	-	-	-	2	2	1	2	3	2	2



  
**PRINCIPAL**  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY


Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

YEAR	II	SEM	III	SUBJECT CODE	CS3311
SUBJECT	DATA STRUCTURES LABORATORY				

<b>L106</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>L106.1</b>	Implement Linear data structure algorithms.
<b>L106.2</b>	Implement applications using Stacks and Linked lists
<b>L106.3</b>	Implement Binary Search tree and AVL tree operations.
<b>L106.4</b>	Implement graph algorithms.
<b>L106.5</b>	Analyze the various searching and sorting algorithms.

CO'S	PO'S												PSO'S		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>L106.1</b>	1	2	2	1	-	-	-	-	2	1	2	2	2	2	3
<b>L106.2</b>	3	3	1	1	-	-	-	-	1	1	1	3	1	2	2
<b>L106.3</b>	2	1	3	1	-	-	-	-	1	1	2	3	3	3	3
<b>L106.4</b>	3	1	3	3	-	-	-	-	1	2	3	3	2	1	2
<b>L106.5</b>	3	2	1	1	2	-	-	-	3	3	3	1	3	1	3
<b>AVG</b>	2	2	2	1	2	-	-	-	2	2	2	2	2	2	3



  
PRINCIPAL  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

<b>YEAR</b>	II	<b>SEM</b>	III	<b>SUBJECT CODE</b>	CS3381
<b>SUBJECT</b>	OBJECT ORIENTED PROGRAMMING LABORATORY				

<b>L107</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>L107.1</b>	Design and develop java programs using object oriented programming concepts
<b>L107.2</b>	Develop simple applications using object oriented concepts such as package, exceptions
<b>L107.3</b>	Implement multithreading, and generics concepts
<b>L107.4</b>	Create GUIs and event driven programming applications for real world problems
<b>L107.5</b>	Implement and deploy web applications using Java

CO'S	PO'S												PSO'S		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>L107.1</b>	2	1	2	1	-	-	-	-	1	2	2	2	1	2	3
<b>L107.2</b>	2	1	3	1	-	-	-	-	2	3	3	2	1	3	1
<b>L107.3</b>	2	2	1	2	1	-	-	-	1	2	1	3	2	3	2
<b>L107.4</b>	2	2	1	3	-	-	-	-	3	1	1	1	2	1	2
<b>L107.5</b>	1	3	3	1	3	-	-	-	1	1	1	1	2	1	2
<b>AVG</b>	2	2	2	2	2	-	-	-	2	2	2	2	2	2	2



  
**PRINCIPAL**

Sri Venkateswara College of  
Engineering and Technology  
Thirupachur, Tiruvallur - 631203



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

YEAR	II	SEM	III	SUBJECT CODE	CS3361
SUBJECT	DATA SCIENCE LABORATORY				

<b>L108</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>L108.1</b>	Make use of the python libraries for data science
<b>L108.2</b>	Make use of the basic Statistical and Probability measures for data science.
<b>L108.3</b>	Perform descriptive analytics on the benchmark data sets.
<b>L108.4</b>	Perform correlation and regression analytics on standard data sets
<b>L108.5</b>	Present and interpret data using visualization packages in Python.

CO'S	PO'S												PSO'S		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>L108.1</b>	3	2	1	1	-	-	-	-	1	3	3	3	1	3	2
<b>L108.2</b>	3	2	2	3	1	-	-	-	3	1	3	2	1	3	3
<b>L108.3</b>	3	2	1	3	1	-	-	-	2	1	1	1	3	2	3
<b>L108.4</b>	2	3	1	3	-	-	-	-	2	3	2	3	3	3	1
<b>L108.5</b>	1	2	3	1	1	-	-	-	2	1	3	1	1	3	3
<b>AVG</b>	2	2	2	2	1	-	-	-	2	2	2	2	2	3	2



**PRINCIPAL**  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Thiruvallur - 631 203



**SRI VENKATESWARA**  
**COLLEGE OF ENGINEERING AND TECHNOLOGY**  
Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

<b>YEAR</b>	II	<b>SEM</b>	III	<b>SUBJECT CODE</b>	GE3361
<b>SUBJECT</b>	PROFESSIONAL DEVELOPMENT				

<b>C109</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>L109.1</b>	Use MS Word to create quality documents, by structuring and organizing content for their day to day technical and academic requirements
<b>L109.2</b>	Use MS EXCEL to perform data operations and analytics, record, retrieve data as per requirements and visualize data for ease of understanding
<b>L109.3</b>	Use MS PowerPoint to create high quality academic presentations by including common tables, charts, graphs, interlinking other elements, and using media objects.



  
**PRINCIPAL**  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203





**SRI VENKATESWARA**  
**COLLEGE OF ENGINEERING AND TECHNOLOGY**  
Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

<b>YEAR</b>	<b>II</b>	<b>SEM</b>	<b>IV</b>	<b>SUBJECT CODE</b>	<b>CS3452</b>
<b>SUBJECT</b>	<b>THEORY OF COMPUTATION</b>				

<b>C110</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>C110.1</b>	Construct automata theory using Finite Automata
<b>C110.2</b>	Write regular expressions for any pattern
<b>C110.3</b>	Design context free grammar and Pushdown Automata
<b>C110.4</b>	Design Turing machine for computational functions
<b>C110.5</b>	Differentiate between decidable and undecidable problems

<b>CO'S</b>	<b>PO'S</b>												<b>PSO'S</b>		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>C110.1</b>	1	3	2	3	-	-	-	-	1	1	2	3	1	3	2
<b>C110.2</b>	2	2	3	2	1	-	-	-	3	3	2	3	3	1	2
<b>C110.3</b>	2	2	3	2	1	-	-	-	1	3	1	2	1	2	2
<b>C110.4</b>	2	2	2	1	-	-	-	-	1	3	3	2	1	3	2
<b>C110.5</b>	2	2	2	1	1	-	-	-	1	1	3	2	3	1	3
<b>AVG</b>	2	2	2	2	1	-	-	-	1	2	2	2	2	2	2



**PRINCIPAL**  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203



**SRI VENKATESWARA**  
**COLLEGE OF ENGINEERING AND TECHNOLOGY**  
Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

<b>YEAR</b>	<b>II</b>	<b>SEM</b>	<b>IV</b>	<b>SUBJECT CODE</b>	<b>CS3491</b>
<b>SUBJECT</b>	<b>ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING</b>				

<b>C111</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>C111.1</b>	Use appropriate search algorithms for problem solving
<b>C111.2</b>	Apply reasoning under uncertainty
<b>C111.3</b>	Build supervised learning models
<b>C111.4</b>	Build ensembling and unsupervised models
<b>C111.5</b>	Build deep learning neural network models

<b>CO'S</b>	<b>PO'S</b>												<b>PSO'S</b>		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>C111.1</b>	3	2	3	3	-	-	-	-	1	3	3	3	1	2	2
<b>C111.2</b>	1	1	1	3	1	-	-	-	1	2	1	3	2	3	2
<b>C111.3</b>	2	1	2	1	1	-	-	-	2	1	1	3	1	1	1
<b>C111.4</b>	3	1	3	1	-	-	-	-	2	1	2	1	2	2	2
<b>C111.5</b>	3	1	1	2	2	-	-	-	3	1	2	3	2	1	2
<b>AVG</b>	2	1	2	2	1	-	-	-	2	2	2	3	2	2	2



  
**PRINCIPAL**  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203




**SRI VENKATESWARA**  
**COLLEGE OF ENGINEERING AND TECHNOLOGY**  
 Thirupachur-631203, Tiruvallur TK & DT  
 Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
 (A Telugu Minority Institution)

<b>YEAR</b>	<b>II</b>	<b>SEM</b>	<b>IV</b>	<b>SUBJECT CODE</b>	<b>CS3492</b>
<b>SUBJECT</b>	<b>DATABASE MANAGEMENT SYSTEMS</b>				

<b>C112</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>C112.1</b>	Construct SQL Queries using relational algebra
<b>C112.2</b>	Design database using ER model and normalize the database
<b>C112.3</b>	Construct queries to handle transaction processing and maintain consistency of the database
<b>C112.4</b>	Compare and contrast various indexing strategies and apply the knowledge to tune the performance of the database
<b>C112.5</b>	Appraise how advanced databases differ from Relational Databases and find a suitable database for the given requirement.

CO'S	PO'S												PSO'S		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>C112.1</b>	2	2	3	2	1	-	-	-	2	1	1	1	2	1	3
<b>C112.2</b>	3	1	1	1	1	-	-	-	2	3	3	3	3	1	2
<b>C112.3</b>	3	2	3	2	1	-	-	-	2	1	1	2	2	3	3
<b>C112.4</b>	1	2	3	2	-	-	-	-	3	2	3	3	1	2	3
<b>C112.5</b>	1	1	3	3	2	-	-	-	1	3	3	1	2	2	2
<b>AVG</b>	2	2	3	2	1	-	-	-	2	2	2	2	2	2	3



  
**PRINCIPAL**  
 Sri Venkateswara College of  
 Engineering and Technology,  
 Thirupachur, Tiruvallur - 631 203



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY


Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

<b>YEAR</b>	<b>II</b>	<b>SEM</b>	<b>IV</b>	<b>SUBJECT CODE</b>	<b>CS3401</b>
<b>SUBJECT</b>	<b>ALGORITHMS</b>				

<b>C113</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>C113.1</b>	Analyze the efficiency of algorithms using various frameworks
<b>C113.2</b>	Apply graph algorithms to solve problems and analyze their efficiency
<b>C113.3</b>	Make use of algorithm design techniques like divide and conquer, dynamic programming and greedy techniques to solve problems
<b>C113.4</b>	Use the state-space tree method for solving problems.
<b>C113.5</b>	Solve problems using approximation algorithms and randomized algorithms

<b>CO'S</b>	<b>PO'S</b>												<b>PSO'S</b>		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>C113.1</b>	3	2	-	-	-	-	1	-	-	-	-	1	-	1	-
<b>C113.2</b>	2	3	-	-	-	-	1	-	-	-	-	1	-	1	-
<b>C113.3</b>	1	2	3	1	-	-	2	-	-	-	-	-	-	1	1
<b>C113.4</b>	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>C113.5</b>	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>AVG</b>	2.67	1.8	3	1	-	-	1.33	-	-	-	-	1	-	1	1



  
**PRINCIPAL**  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203



**SRI VENKATESWARA**  
**COLLEGE OF ENGINEERING AND TECHNOLOGY**  
Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

<b>YEAR</b>	<b>II</b>	<b>SEM</b>	<b>IV</b>	<b>SUBJECT CODE</b>	<b>CS3451</b>
<b>SUBJECT</b>	<b>INTRODUCTION TO OPERATING SYSTEMS</b>				

<b>C114</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>C114.1</b>	Analyze various scheduling algorithms and process synchronization.
<b>C114.2</b>	Explain deadlock prevention and avoidance algorithms.
<b>C114.3</b>	Compare and contrast various memory management schemes.
<b>C114.4</b>	Explain the functionality of file systems, I/O systems, and Virtualization
<b>C114.5</b>	Compare iOS and Android Operating Systems.

<b>CO'S</b>	<b>PO'S</b>												<b>PSO'S</b>		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>C114.1</b>	3	1	2	2	-	-	-	-	3	2	3	1	1	2	2
<b>C114.2</b>	2	2	3	1	1	-	-	-	2	1	1	2	2	1	2
<b>C114.3</b>	1	3	2	2	1	-	-	-	2	2	1	1	1	2	2
<b>C114.4</b>	1	3	3	3	-	-	-	-	1	2	1	2	1	3	2
<b>C114.5</b>	3	1	2	1	1	-	-	-	3	2	3	2	2	2	1
<b>AVG</b>	2	2	2	2	1	-	-	-	2	2	2	2	1	2	2



  
**PRINCIPAL**  
Sri Venkateswara College of  
Engineering and Technology  
Thirupachur, Tiruvallur - 631 203



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

YEAR	II	SEM	IV	SUBJECT CODE	GE3451
SUBJECT	ENVIRONMENTAL SCIENCES AND SUSTAINABILITY				

C115	COURSE OUTCOME STATEMENT
C115.1	To recognize and understand the functions of environment, ecosystems and biodiversity and their conservation
C115.2	To identify the causes, effects of environmental pollution and natural disasters and contribute to the preventive measures in the society.
C115.3	To identify and apply the understanding of renewable and non-renewable resources and contribute to the sustainable measures to preserve them for future generations.
C115.4	To recognize the different goals of sustainable development and apply them for suitable technological advancement and societal development
C115.5	To demonstrate the knowledge of sustainability practices and identify green materials, energy cycles and the role of sustainable urbanization.

CO'S	PO'S												PSO'S		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
C115.1	2	1	-	-	-	2	3	-	-	-	-	2	-	-	-
C115.2	3	2	-	-	-	3	3	-	-	-	-	2	-	-	-
C115.3	3	-	1	-	-	2	2	-	-	-	-	2	-	-	-
C115.4	3	2	1	1	-	2	2	-	-	-	-	2	-	-	-
C115.5	3	2	1	-	-	2	2	-	-	-	-	1	-	-	-
AVG	2.8	1.8	1	1	-	2.2	2.4	-	-	-	-	1.8	-	-	-



  
PRINCIPAL  
Sri Venkateswara College of  
Engineering and Technology  
Thirupachur, Tiruvallur - 631 203



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY


Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

YEAR	II	SEM	IV	SUBJECT CODE	CS3461
SUBJECT	OPERATING SYSTEMS LABORATORY				

L116	<b>COURSE OUTCOME STATEMENT</b>
L116.1	Define and implement UNIX Commands.
L116.2	Compare the performance of various CPU Scheduling Algorithms
L116.3	Compare and contrast various Memory Allocation Methods.
L116.4	Define File Organization and File Allocation Strategies
L116.5	Implement various Disk Scheduling Algorithms.

CO'S	PO'S												PSO'S		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
L116.1	3	1	3	1	1	-	-	-	1	3	3	3	2	1	3
L116.2	3	1	1	2	2	-	-	-	3	2	1	1	3	1	2
L116.3	3	3	2	1	2	-	-	-	3	3	1	2	2	2	2
L116.4	1	2	2	3	2	-	-	-	3	1	3	1	1	2	1
L116.5	2	2	-	-	3	-	-	-	1	2	2	3	1	3	3
AVG	2	2	2	2	2	-	-	-	2	2	2	2	2	2	2



  
PRINCIPAL  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

YEAR	II	SEM	IV	SUBJECT CODE	CS3481
SUBJECT	DATABASE MANAGEMENT SYSTEMS LABORATORY				

C117	<b>COURSE OUTCOME STATEMENT</b>
L117.1	Create databases with different types of key constraints.
L117.2	Construct simple and complex SQL queries using DML and DCL commands
L117.3	Use advanced features such as stored procedures and triggers and incorporate in GUI based application development.
L117.4	Create an XML database and validate with meta-data (XML schema).
L117.5	Create and manipulate data using NOSQL database.

CO'S	PO'S												PSO'S		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
L117.1	3	3	3	3	-	-	-	-	3	1	3	2	2	3	2
L117.2	2	2	3	2	2	-	-	-	1	2	3	3	2	1	2
L117.3	3	3	2	1	1	-	-	-	1	1	1	3	2	3	3
L117.4	1	3	3	3	1	-	-	-	1	1	3	2	3	1	3
L117.5	3	2	1	1	-	-	-	-	2	2	3	1	3	1	2
AVG	2	3	2	2	1	-	-	-	2	1	3	2	2	2	2



  
PRINCIPAL  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203





# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

YEAR	II	SEM	IV	SUBJECT CODE	CCS356
SUBJECT	OBJECT ORIENTED SOFTWARE ENGINEERING				

C118	<b>COURSE OUTCOME STATEMENT</b>
C118.1	Compare various Software Development Lifecycle Models
C118.2	Evaluate project management approaches as well as cost and schedule estimation strategies
C118.3	Perform formal analysis on specifications.
C118.4	Use UML diagrams for analysis and design
C118.5	Architect and design using architectural styles and design patterns, and test the system

CO'S	PO'S												PSO'S		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
C118.1	2	2	1	2	2	-	-	-	-	1	1	2	2	2	1
C118.2	2	3	2	3	2	-	-	-	2	2	3	2	3	2	1
C118.3	2	3	2	1	1	-	-	-	2	2	3	2	2	3	1
C118.4	2	3	2	2	3	-	-	-	2	2	3	2	2	3	1
C118.5	2	3	1	2	2	-	-	-	-	-	-	1	3	2	2
AVG	2	2	1	2	2	-	-	-	-	1	1	2	2	2	1



  
PRINCIPAL  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY


Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

YEAR	III	SEM	V	SUBJECT CODE	CS3591
SUBJECT	COMPUTER NETWORKS				

C119	COURSE OUTCOME STATEMENT
C119.1	Explain the basic layers and its functions in computer networks.
C119.2	Understand the basics of how data flows from one node to another.
C119.3	Analyze routing algorithms.
C119.4	Describe protocols for various functions in the network.
C119.5	Analyze the working of various application layer protocols.

CO'S	PO'S												PSO'S		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
C119.1	-	2	-	-	-	-	-	-	-	-	-	-	3	-	-
C119.2	-	1	-	-	2	-	-	-	-	-	-	2	-	2	-
C119.3	-	2	-	-	3	-	-	-	-	-	-	-	-	3	-
C119.4	-	-	-	1	2	-	-	-	-	3	-	-	-	-	-
C119.5	-	3	2	-	-	-	-	-	-	-	-	-	-	-	3
AVG	-	1	-	-	1	-	-	-	-	1	-	-	-	1	1



  
PRINCIPAL  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203




**SRI VENKATESWARA**  
**COLLEGE OF ENGINEERING AND TECHNOLOGY**  
Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

<b>YEAR</b>	III	<b>SEM</b>	V	<b>SUBJECT CODE</b>	CS3501
<b>SUBJECT</b>	COMPILER DESIGN				

<b>C120</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>C120.1</b>	Understand the techniques in different phases of a compiler.
<b>C120.2</b>	Design a lexical analyser for a sample language and learn to use the LEX tool.
<b>C120.3</b>	Apply different parsing algorithms to develop a parser and learn to use YACC tool
<b>C120.4</b>	Understand semantics rules (SDT), intermediate code generation and run-time environment.
<b>C120.5</b>	Implement code generation and apply code optimization techniques.

<b>CO'S</b>	<b>PO'S</b>												<b>PSO'S</b>		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>C120.1</b>	3	3	3	3	-	-	-	-	3	3	1	3	2	3	2
<b>C120.2</b>	3	3	3	3	3	-	-	-	3	2	3	2	2	1	2
<b>C120.3</b>	3	3	2	2	3	-	-	-	3	1	1	1	2	2	3
<b>C120.4</b>	3	2	2	1	1	-	-	-	2	3	2	3	1	2	1
<b>C120.5</b>	3	3	3	2	1	-	-	-	2	1	1	3	2	1	2
<b>AVG</b>	3	2.8	2.6	2.2	2	-	-	-	2.6	2	1.6	2.4	1.8	1.8	2



  
**PRINCIPAL**  
Sri Venkateswara College of  
Engineering and Technology,  
Thirupachur, Tiruvallur - 631 203



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY


Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

YEAR	III	SEM	V	SUBJECT CODE	CB3491
SUBJECT	CRYPTOGRAPHY AND CYBER SECURITY				

C121	COURSE OUTCOME STATEMENT
C121.1	Understand the fundamentals of networks security, security architecture, threats and vulnerabilities
C121.2	Apply the different cryptographic operations of symmetric cryptographic algorithms
C121.3	Apply the different cryptographic operations of public key cryptography
C121.4	Apply the various Authentication schemes to simulate different applications.
C121.5	Understand various cyber crimes and cyber security.

CO'S	PO'S												PSO'S		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
C121.1	3	2	1	2	2	-	-	-	1	-	-	1	2	3	3
C121.2	3	3	3	3	3	-	-	-	2	-	-	1	3	3	3
C121.3	3	3	3	3	3	-	-	-	2	-	-	1	3	3	3
C121.4	3	3	3	3	3	-	-	-	2	-	-	1	3	3	3
C121.5	3	2	3	2	3	-	-	-	3	-	-	2	3	2	3
AVG	3	2.6	2.6	2.6	2.8	-	-	-	2	-	-	1.2	2.8	2.8	3



  
PRINCIPAL  
Sri Venkateswara College of  
Engineering and Technology  
Thirupachur, Tiruvallur - 631 203



# SRI VENKATESWARA

## COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur-631203, Tiruvallur TK & DT  
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai  
(A Telugu Minority Institution)

<b>YEAR</b>	III	<b>SEM</b>	V	<b>SUBJECT CODE</b>	CS3551
<b>SUBJECT</b>	DISTRIBUTED COMPUTING				

<b>C122</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>C122.1</b>	Explain the foundations of distributed systems (K2)
<b>C122.2</b>	Solve synchronization and state consistency problems (K3)
<b>C122.3</b>	Use resource sharing techniques in distributed systems (K3)
<b>C122.4</b>	Apply working model of consensus and reliability of distributed systems (K3)
<b>C122.5</b>	Explain the fundamentals of cloud computing (K2)

CO'S	PO'S												PSO'S		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>C122.1</b>	2	2	3	3	1	-	-	-	2	1	3	3	2	1	1
<b>C122.2</b>	1	3	2	1	2	-	-	-	2	2	2	2	1	3	2
<b>C122.3</b>	2	2	1	3	3	-	-	-	3	2	1	1	1	2	1
<b>C122.4</b>	1	2	2	3	1	-	-	-	3	3	2	1	3	1	1
<b>C122.5</b>	3	3	1	2	3	-	-	-	3	3	3	1	3	2	3
<b>AVG</b>	1.8	2.4	1.8	2.4	2	-	-	-	2.6	2.2	2.2	1.6	2	1.8	1.6



  
**PRINCIPAL**  
 Sri Venkateswara College of  
 Engineering and Technology,  
 Thirupachur, Tiruvallur - 631 203



**SRI VENKATESWARA**  
**COLLEGE OF ENGINEERING AND TECHNOLOGY**  
 Thirupachur-631203, Thiruvallur TK & DT  
 Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai  
 (A Telugu Minority Institution)

<b>YEAR</b>	<b>III</b>	<b>SEM</b>	<b>VI</b>	<b>SUBJECT CODE</b>	<b>CS3691</b>
<b>SUBJECT</b>		EMBEDDED SYSTEMS AND IOT			

<b>C123</b>	<b>COURSE OUTCOME STATEMENT</b>
<b>C123.1</b>	Explain the architecture of embedded processors
<b>C123.2</b>	Write embedded C programs.
<b>C123.3</b>	Design simple embedded applications
<b>C123.4</b>	Compare the communication models in IOT
<b>C123.5</b>	Design IoT applications using Arduino/Raspberry Pi /open platform

CO'S	PO'S												PSO'S		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>C123.1</b>	3	3	3	3	-	-	-	-	1	2	3	3	2	1	3
<b>C123.2</b>	2	1	3	2	2	-	-	-	1	2	2	3	3	1	3
<b>C123.3</b>	3	1	3	3	1	-	-	-	1	2	1	1	1	3	3
<b>C123.4</b>	3	2	3	2	1	-	-	-	1	2	2	3	2	2	1
<b>C123.5</b>	2	3	3	2	2	-	-	-	1	3	3	2	3	1	3
<b>AVG</b>	2.6	2.6	2	3	2.4	1.5	-	-	-	1	2.2	2.4	2.2	1.6	2.6



  
**PRINCIPAL**  
 Sri Venkateswara College of  
 Engineering and Technology,  
 Thirupachur Thiruvallur - 631 203