COURSE FILE

ON

PRINCIPLES OF PROGRAMMING LANGUAGES

Course Code – CS515PE

III B.Tech I-SEMESTER

A.Y.: 2022-2023

Prepared by

Mrs.E.RUPA
Assistant Professor

Computer Science & Engg. Dept.
SRI INDU INSTITUTE OF ENGG & TECH.
Sheriguda(V), Ibrahimpatnam(M), R.R.Dist-501 1C.

PRINCIPAL
Sri Indu Institute of Engineering & Tech.
Sheriguda(Vill), Ibrahimpatnam
R.R. Dist. Telangana-501 510.

Sri Indu Institute of Engineering & Technology

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Affiliated to JNTUH, Hyderabad.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Academic Year	2022-2023
Course Title	PRINCIPLES OF PROGRAMMING LANGUAGES
Course Code	CS515PE
Programme	B.Tech
Year & Semester	III year I-semester
Branch & Section	CSE-A
Regulation	R18
Course Faculty	Mrs. E. RUPA, Assistant Professor

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Main Road, Sheriguda, Ibrahimpatnam, R.R. Dist. 501 510.
Campus Ph:9640590999, 9347187999, 8096951507.

https://siiet.ac.in

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

INSTITUTE VISION AND MISSION

Vision:

To become a premier institute of academic excellence by providing the world class education that transforms individuals into high intellectuals, by evolving them as empathetic and responsible citizens through continuous improvement.

Mission:

IM1: To offer outcome-based education and enhancement of technical and practical skills.

IM2: To continuous assess of teaching-learning process through institute-industry

collaboration..

IM3: To be a centre of excellence for innovative and emerging fields in technology

development with state-of-art facilities to faculty and students fraternity.

IM4: To create an enterprising environment to ensure culture, ethics and social responsibility

among the stakeholders

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DEPARTMENT VISION AND MISSION

Vision:

To become a prominent knowledge hub for learners, strive for educational excellence with innovative and industrial techniques so as to meet the global needs.

Mission:

DM1 : To provide ambience that enhances innovations, problem solving skills, leadership qualities, decision making, team-spirit and ethical responsibilities.

DM2 : To impart quality education with professional and personal ethics, so as to meet the challenging technological needs of the industry and society.

DM3 : To provide academic infrastructure and develop linkage with the world class organizations to strengthen industry-academia relationships for learners.

DM4 : To provide and strengthen new concepts of research in the thrust area of Computer Science and Engineering to reach the needs of Government and Society.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROGRAM EDUCATIONAL OBJECTIVES

PEO1: To develop trained graduates with strong academic and technical skills of modern computer science and engineering.

PEO2: To promote trained graduates with leadership qualities and the ability to solve real time problems using current techniques and tools in interdisciplinary environment.

PEO3: To motivate the graduates towards lifelong learning through continuing education and professional development.

PROGRAM SPECIFIC OUTCOMES

PSO1 : **Professional Skills:** To implement computer programs of varying complexity in the areas related to Web Design, Cloud Computing, Network Security and Artificial Intelligence.

PSO2: **Problem-Solving Skills**: To develop quality products using open ended programming environment.

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PROGRAMME OUTCOMES (POs)

PO1: **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: **Problem analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: **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.

PO4: **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.

PO5: **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6: **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.

PO7: **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.

PO8: **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: **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.

PO11: **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.

PO12: **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.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech in COMPUTER SCIENCE AND ENGINEERING
III YEAR COURSE STRUCTURE AND SYLLABUS (R18)

Applicable From 2018-19 Admitted Batch

III YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	CS501PC	Formal Languages & Automata Theory	3	0	0	3
2	CS502PC	Software Engineering	3	0	0	3
3	CS503PC	Computer Networks	3	0	0	3
4	CS504PC	Web Technologies	3	0	0	3
5	**CS515PE**	**Principles of Programming Languages(PE-I)**	**3**	**0**	**0**	**3**
6		Professional Elective -II	3	0	0	3
7	CS505PC	Software Engineering Lab	0	0	3	1.5
8	CS506PC	Computer Networks & Web Technologies Lab	0	0	3	1.5
9	EN508HS	Advanced Communication Skills Lab	0	0	2	1
10	*MC510	Intellectual Property Rights	3	0	0	0
		Total Credits	**21**	**0**	**8**	**22**

III YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	CS601PC	Machine Learning	3	1	0	4
2	CS602PC	Compiler Design	3	1	0	4
3	CS603PC	Design and Analysis of Algorithms	3	1	0	4
4		Professional Elective – III	3	0	0	3
5		Open Elective-I	3	0	0	3
6	CS604PC	Machine Learning Lab	0	0	3	1.5
7	CS605PC	Compiler Design Lab	0	0	3	1.5
8		Professional Elective-III Lab	0	0	2	1
9	*MC609	Environmental Science	3	0	0	0
		Total Credits	**18**	**3**	**8**	**22**

*MC - Environmental Science – Should be Registered by Lateral Entry Students Only.

Note: Industrial Oriented Mini Project/ Summer Internship is to be carried out during the summer vacation between 6th and 7th semesters. Students should submit report of Industrial Oriented Mini Project/ Summer Internship for evaluation.

Professional Elective-I

CS511PE	Information Theory & Coding
CS512PE	Advanced Computer Architecture
CS513PE	Data Analytics
CS514PE	Image Processing
CS515PE	**Principles of Programming Languages**

Professional Elective - II

CS521PE	Computer Graphics
CS522PE	Advanced Operating Systems
CS523PE	Informational Retrieval Systems
CS524PE	Distributed Databases
CS525PE	Natural Language Processing

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

(CS515PE) PRINCIPLES OF PROGRAMMING LANGUAGES(Professional Elective - I)

B.Tech. III Year I Sem   **L T P C**

                                                                          4 0 0 4

Course Objectives:

- To introduce the various programming paradigms.
- To understand the evolution of programming languages.
- To understand the concepts of OO languages, functional languages, logical and

scripting languages.

- To introduce the principles and techniques involved in design and implementation of

modern programming languages.

- To introduce the notations to describe the syntax and semantics of programming

languages.

- To introduce the concepts of concurrency control and exception handling.
- To introduce the concepts of ADT and OOP for software development.

Course Outcomes:

- Ability to express syntax and semantics in formal notation.
- Ability to apply suitable programming paradigm for the application.
- Ability to compare the features of various programming languages.
- Able to understand the programming paradigms of modern programming languages.
- Able to understand the concepts of ADT and OOP.
- Ability to program in different language paradigms and evaluate their relative benefits.

UNIT-I

Preliminary Concepts: Reasons for studying concepts of programming languages, programming domains, language evaluation criteria, influences on language design, language categories, language design trade-offs, implementation methods, programming environments, Evolution of Major Programming Languages.

Syntax and Semantics: General problem of describing syntax, formal methods of describing syntax, attribute grammars, describing the meanings of programs

UNIT-II

Names, Bindings, and Scopes: Introduction, names, variables, concept of binding, scope,scope and lifetime, referencing environments, named constants

Data types: Introduction, primitive, character, string types, user defined ordinal types, array,associative arrays, record, tuple types, list types, union types, pointer and reference types,type checking, strong typing, type equivalence

Expressions and Statements: Arithmetic expressions, overloaded operators, type conversions, relational and boolean expressions, short- circuit evaluation, assignment statements, mixed-mode assignment.

Control Structures – introduction, selection statements, iterative statements, unconditional branching, guarded commands**.**

UNIT-III

Subprograms: Fundamentals of subprograms, design issues for subprograms, local referencing environments, parameter passing methods, parameters that are subprograms, calling subprograms indirectly, overloaded subprograms, generic subprograms, design issues for functions, user defined overloaded operators, closures, co routines

Implementing subprograms: General semantics of calls and returns, implementing simple subprograms, implementing subprograms with stack-dynamic local variables, nested subprograms, blocks, implementing dynamic scoping

Abstract Data types: The concept of abstraction, introductions to data abstraction, design issues, language examples, parameterized ADT, encapsulation constructs, naming encapsulations

UNIT-IV

Object Oriented Programming: Design issues for OOP, OOP in Smalltalk, C++, Java, Ada95, Ruby, Implementation of Object-Oriented constructs.

Concurrency: introduction, introduction to subprogram level concurrency, semaphores, monitors, message passing, Ada support for concurrency, Java threads, concurrency in functional languages, statement level concurrency.

Exception Handling and Event Handling: Introduction, exception handling in Ada, C++,Java, introduction to event handling, event handling with Java and C#.

UNIT-V

Functional Programming Languages: Introduction, mathematical functions, fundamentals of functional programming language, LISP, support for functional programming in primarily imperative languages, comparison of functional and imperative languages

Logic Programming Language: Introduction, an overview of logic programming, basic elements of prolog, deficiencies of prolog, applications of logic programming.

Scripting Language: Pragmatics, Key Concepts, Case Study: Python – Values and Types, Variables, Storage and Control, Bindings and Scope, Procedural Abstraction, Data Abstraction, Separate Compilation, Module Library.

TEXT BOOKS:

1. Concepts of Programming Languages, Robert .W. Sebesta 10th edition, Pearson

Education.

2. Programming Language Design Concepts, D. A. Watt, Wiley India Edition.

REFERENCE BOOK:

1. Programming Languages, A.B. Tucker, R.E. Noonan, TMH.

2. Programming Languages, K. C. Louden and K A Lambert., 3rd edition, CengageLearning.

3. Programming Language Concepts, C Ghezzi and M Jazayeri, Wiley India.

4. Programming Languages 2nd Edition Ravi Sethi Pearson.

5. Introduction to Programming Languages Arvind Kumar Bansal CRC Press.

Department of Computer Science and Engineering
Course Outcomes

Course: PRINCEPLES OF PROGRAMMING LANGUAGES
Class: III – I SEM – A - Section

After completing this course the student will be able to:

C315.1   Express syntax and semantics in formal notation. (Comprehension)

C315.2   Identify appropriate primitive /User defined data types for increasing program efficiency.   (Comprehension)

C315.3   Apply sub program concepts to improve the readability of the program. (Application)

C315.4   Understand the concepts of ADT and OOP.   (Knowledge)

C315.5   Apply exception handling techniques to develop robust programs to sustain against all runtime exceptions. (Application)

C315.6   Describe functional programming languages like LISP, ML, Haskell. (Knowledge)

Mapping of course outcomes with program outcomes:

High -3   Medium -2   Low-1

PO/PSO/ CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C315.1	3	2	2	2	-	-	-	-	-	-	-	-	2	
C315.2	3	2	2	2	-	-	-	-	-	-	-	2	1	2
C315.3	3	2	2	2	-	-	-	-	-	-	-	-	2	
C315.4	3	1	2	2	-	-	-	-	-	-	-	-	1	2
C315.5	2	1	1	2	-	-	-	-	-	-	-	-	2	1
C315.6	3	2	2	2	-	-	-	-	-	-	-	-	-	2
C315	2.8	1.6	1.8	2	-	-	-	-	-	-	-	-	1.6	1.75

CO-PO Mapping Justification

C315.1 Express syntax and semantics in formal notation. (Comprehension)

	Justification
PO1	Knowledge of Engineering Fundamentals by using syntax and Semantics.
PO2	Identify and formulate the engineering problems by using basic notations & grammars.
PO3	Design solutions for complex problems by using different formal notations.
PO4	Define the complex problems course content and the need for formal notation.
PSO1	Importance of integrating professional skills within the context of syntax and semantics.

C315.2 Identify appropriate primitive /User defined data types for increasing program efficiency.(Comprehension)

	Justification
PO1	Improve the Knowledge by using various fundamentals.
PO2	Problem analysis is done by programming languages.
PO3	Design the solutions by using different programming languages.
PO4	Define the complex problems associated with program for increasing program efficiency.
PO12	Learning of data types which are used in developed programs.
PSO1	Emphasize the integration of professional skills within the context of data type selection.
PSO2	Explain the ability to choose appropriate data types directly contributes to the development of these problem-solving skills

C315.3 Apply sub program concepts to improve the readability of the program.(Application)

	Justification
PO1	Knowledge is gained by using different types of data types.
PO2	Problem analysis applying sub program concepts.
PO3	Developing the solutions by taking programming concepts.
PO4	Complex problem to improve the readability of the program.
PSO1	Explain the use of subprograms directly contributes to the development of these professional skills.

C315.4   Understand the concepts of ADT and OOP.(Knowledge)

	Justification
PO1	Apply the knowledge of programming concepts.
PO2	Problem analysis understand the concepts of OOPs.
PO3	Development of solutions by using sub program concepts.
PO4	Complex problem are identified by using ADT.
PSO1	Explain a solid understanding of ADT and OOP contributes to the development of these professional skills.
PSO2	Discuss real-world situations where understanding ADT and OOP facilitated effective problem-solving and design solutions.

C315.5   Apply exception handling techniques to develop robust programs to sustain against all runtime exceptions.(Application)

	Justification
PO1	Apply the knowledge of exception handling techniques.
PO2	Analyze the concepts of runtime exceptions.
PO3	Develop the solutions by using Java Threads.
PO4	Define the complex problems associated with runtime exceptions that will be investigated.
PSO1	Explain the proficiency in exception handling contributes to the development of these professional skills
PSO2	Emphasize the integration of problem-solving skills within the context of exception handling

C315.6   Describe functional programming languages like LISP, ML, Haskell.(Knowledge)

	Justification
PO1	Knowledge is gained by using logic and scripting programming.
PO2	Describe the functional programming languages are essential for problem analysis and design solutions.
PO3	Design the solutions by using Functional Programming languages.
PO4	Discuss key features of functional languages that make them well-suited for solving complex problems, such as immutability, higher-order functions, and strong type systems.
PSO2	Discuss the knowledge of different programming paradigms, including functional programming, expands problem-solving approaches.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

ACADEMIC CALENDAR 2022-23

B. Tech./B. Pharm. III YEAR I & II SEMESTERS

I SEM

S. No	Description	Duration	
		From	**To**
1	Commencement of I Semester classwork	**09.09.2022**	
2	1st Spell of Instructions (including Dussehra Recess)	09.09.2022	10.11.2022 (9 Weeks)
3	Dussehra Recess	03.10.2022	08.10.2022 (1 Week)
4	First Mid Term Examinations	11.11.2022	17.11.2022 (1 Week)
5	Submission of First Mid Term Exam Marks to the University on or before	24.11.2022	
6	2nd Spell of Instructions	18.11.2022	12.01.2023 (8 Weeks)
7	Second Mid Term Examinations	16.01.2023	21.01.2023 (1 Week)
8	Preparation Holidays and Practical Examinations	23.01.2023	28.01.2023 (1 Week)
9	Submission of Second Mid Term Exam Marks to the University on or before	30.01.2023	
10	End Semester Examinations	30.01.2023	11.02.2023 (2 Weeks)

Note: No. of Working/ instructional days: 92

II SEM

S. No	Description	Duration	
		From	**To**
1	Commencement of II Semester classwork	**13.02.2023**	
2	1st Spell of Instructions	13.02.2023	08.04.2023 (8 Weeks)
3	First Mid Term Examinations	10.04.2023	15.04.2023 (1 Week)
4	Submission of First Mid Term Exam Marks to the University on or before	22.04.2023	
5	2nd Spell of Instructions (including Summer Vacation)	17.04.2023	24.06.2023 (10 Weeks)
6	**Summer Vacation**	15.05.2023	27.05.2023 (2 Weeks)
7	Second Mid Term Examinations	26.06.2023	01.07.2023 (1 Week)
8	Preparation Holidays and Practical Examinations	03.07.2023	08.07.2023 (1 Week)
9	Submission of Second Mid Term Exam Marks to the University on or before	08.07.2023	
10	End Semester Examinations	10.07.2023	22.07.2023 (2 Weeks)

Note: No. of Working/ instructional days: 90

REGISTRAR
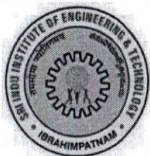
SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution under UGC)
Accredited by NAAC with A+ Grade, Recognized under 2(f) of UGC Act 1956
(Approved by AICTE, New Delhi and Affiliated to JNTUH, Hyderabad)
Khalsa Ibrahimpatnam, Sheriguda (V), Ibrahimpatnam (M), Ranga Reddy Dist., Telangana – 501 510
Website: https://siiet.ac.in/

TIME TABLE FOR A.Y 2022-23

Class: III-B. Tech CSE -A **Semester: I** **LH. NO: A-201** **W.E.F:09-09-2022**

Period/ Day	1	2	3	4	1:00-1:30	5	6	7
	9:40-10:30	10:30-11:20	11:20-12:10	12:10-1:00		1:30-2:20	2:20-3:10	3:10-4:00
Monday	WT	CN&WT LAB(BATCH-I)/ACS LAB(BATCH-II)			L U N C H	SE	CO-C/SS/DAA	
Tuesday	DDB	PPL	WT	LIB		FLAT	SE	IPR
Wednesday	PPL	COUN	DDB	CN		ACS LAB(BATCH-I) /SE LAB(BATCH-II)		
Thursday	SE	PPL	CN	FLAT		WT	IPR	SPORTS
Friday	CN	SE	FLAT	DDB		PPL	WT	IPR
Saturday	FLAT	CN	WT			CN&WT LAB(BATCH-II)/SE LAB(BATCH-I)		

(T) – Tutorial (concern faculty)

Subject Code	Subject Name	Name of the Faculty	Subject Code	Subject Name	Name of the Faculty
CS501PC	Formal Language & Automata Theory	Mrs.R.Sravanthi	EN508HS	Advanced Communication Skills Lab	Mrs E Prarthana
CS502PC	Software Engineering	Mrs P Sowjanya	MC510	Intellectual Property Rights	Mr Sannala Srinivas
CS503PC	Computer Networks	Dr. Bapathu Gangadhara Obula Reddy		CO-C/SS/DAA/Fundamentals of AI	Mrs.R.Sravanthi
CS504PC	Web Technologies	Mrs.M Sruthi	Sports	Sports	Mr.K.Veera Kishore
CS505PC	Software Engineering Lab	Mrs P Souwjanya / Mrs.R.Sravanthi/ Mr. Jalli Anandarao	Internet	Internet	Mrs P Souwjanya
CS506PC	Computer Networks& Web Technologies Lab	Dr. Bapathu Gangadhara Obula Reddy / Mrs./M.Sruthi	LIB	Library	Mrs.M Sruthi
CS515PE	Principal of Programming languages	Mrs.E.Rupa	COUN	Counselling	Mrs.A.Sudha
CS524PE	Distributed Databases	Mrs.A.Sudha	CS504PC	Web Technologies	Mr M Dattatreya Goud(Adjunct)
Class In-Charge : Mrs P Sowjanya		Mentor 1 : Mrs P Sowjanya		Mentor 2: Mrs.M Sruthi	

Class In-Charge **HOD** **PRINCIPAL**

LESSON PLAN

Course Title	Principles of Programming Languages
Course Code	CS515PE
Programme	B.Tech
Year & Semester	III-year I-semester
Regulation	R18
Course Faculty	Mrs.E.RUPA, Assistant Professor , CSE

S.NO	Unit	TOPIC	Number of Sessions Planned	Teaching method/Aids	REFERENCE
1		Reasons for studying concepts of programming languages	1	Black Board	T1
2		programming domains	1	Black Board	T1
3		language evaluation criteria	1	Black Board	T1
4		influences on language design	1	Black Board	T1
5		Language categories	1	Black Board	T1
6		language design trade-offs	1	Black Board	T1
7	I	implementation methods	1	Black Board	T1
8		programming environments	1	Black Board	T1
9		Evolution of Major Programming Languages	1	Black Board	T1
10		General problem of describing syntax	1	Black Board	T1
11		formal methods of describing syntax	1	Black Board	T1
12		attribute grammars	1	Black Board	T1
13		describing the meanings of programs	1	Black Board	T1
14		formal methods of describing syntax	1	Black Board	T1
15		formal methods of describing semantics	1	Black Board	T1
16		**Names, Bindings, and Scopes:** Introduction	1	Black Board	T1
17		names, variables	1	Black Board	T1

18		concept of binding	1	Black Board	T1
19		scope, scope and lifetime	1	Black Board	T1
20		referencing environments	1	Black Board	T1
21		named constants	1	Black Board	T1
22		**Data types:** Introduction primitive, character, string types	1	Black Board	T1
23		user defined ordinal types array, associative arrays	1	Black Board	T1
24		primitive, character, string types primitive, character, string types	1	Black Board	T1
25		record, tuple types list types, union types	1	Black Board	T1
26	II	pointer and reference types,type checking	1	Black Board	T1
27		strong typing, type equivalence	1	Black Board	T1
28		**Expressions and Statements:** Arithmetic expressions	1	Black Board	T1
29		overloaded operators, type conversions	1	Black Board	T1
30		Relational and boolean expressions, short- circuit evaluation,	1	Black Board	T1
31		Assignment statements, mixed-mode assignment.	1	Black Board	T1
32		Unconditional branching, guarded commands**.**	1	Black Board	T1
33		selection statements, iterative statements	1	Black Board	T1
34		**Subprograms:** Fundamentals of subprograms	1	Black Board	T1
35		design issues for subprograms, local referencing environments	1	Black Board	T1
36		parameter passing methods, parameters that are subprograms	1	Black Board	T1
37	III	calling subprograms indirectly, overloaded subprograms	1	Black Board	T1
38		generic subprograms, design issues for functions	1	Black Board	T1
39		user defined overloaded operators	1	Black Board	T1
40		closures, co routines **Implementing subprograms:**	1	Black Board	T1
41		implementing subprograms with stack-dynamic local variables	1	Black Board	T1
42		Nested subprograms, blocks, implementing dynamic scoping	1	Black Board	T1
43		**Abstract Data types:** The concept of abstraction	1	Black Board	T1

44		introductions to data abstraction, design issues	1	Black Board	T1
45	III	language examples, parameterized ADT	1	Black Board	T1
46		encapsulation constructs	1	Black Board	T1
47		naming encapsulations	1	Black Board	T1
48		**Object Oriented Programming:** Design issues for OOP	1	Black Board	T1
49		Ada95, Ruby, Implementation of Object-Oriented constructs.	1	Black Board	T1
50		**Concurrency:** introduction, introduction to subprogram level concurrency	1	Black Board	T1
51	IV	semaphores, monitors	1	Black Board	T1
52		message passing, Ada support for concurrency	1	Black Board	T1
53		Java threads, concurrency in functional languages, statement level concurrency.	1	Black Board	T1
54		exception handling in Ada	1	Black Board	T1
55		exception handling in C++, Java	1	Black Board	T1
56		Introduction to event handling	1	Black Board	T1
57		event handling with Java and C#.	1	Black Board	T1
58		**FunctionalProgramming Languages:** Introduction	1	Black Board	T1
59		Mathematical functions, fundamentalsof functional programming language	1	Black Board	T1
60	V	LISP, support for functional programming in primarilyimperative languages	1	Black Board	T1
61		comparison of functional and imperative languages	1	Black Board	T1
62		overview of logic programming, basicelements of prolog, deficiencies of prolog,	1	Black Board	T1
63		applications of logic programming.	1	Black Board	T1
64		**Scripting Language:** Pragmatics, Key Concepts	1	Black Board	T1
65		Python – Values and Types,Variables, Storage and Control, Bindings and Scope		Black Board	
66		Procedural Abstraction, Data Abstraction	1	Black Board	T1

TEXT BOOKS

1. Concepts of Programming Languages, Robert .W. Sebesta 10th edition, Pearson

Education
2. Programming Language Design Concepts, D. A. Watt, Wiley India Edition.

REFERENCE BOOKS

1. Programming Languages, A.B. Tucker, R.E. Noonan, TMH.

2. Programming Languages, K. C. Louden and K A Lambert., 3rd edition, CengageLearning.

3. Programming Language Concepts, C Ghezzi and M Jazayeri, Wiley India.

WEB REFERENCE

S.No	Web Link
1	https://archive.nptel.ac.in/courses/106/102/106102067/
2	https://www.youtube.com/watch?v=ZJcxGkMuOMo
3	https://www.youtube.com/watch?v=27DvDMjl_bA

LECTURE NOTES

UNIT-1 Link:

https://drive.google.com/file/d/1apWdFPmV0M-Qqda0DwEp54hg0z2bArff/view?usp=sharing

UNIT-2 Link:

https://drive.google.com/file/d/13rJ1JqAznxvfQiXzhF5X80wIHynvaipb/view?usp=sharing

UNIT-3 Link:

https://drive.google.com/file/d/1xTHuPc-uybB3PV9-26jftclj08b2OpId/view?usp=sharing

UNIT-4 Link:

https://drive.google.com/file/d/1l6S_P0q7Eux9gJ9HmS5PUO4LiCF5k2a2/view?usp=sharing

UNIT-5 Link:

https://drive.google.com/file/d/1XX2g2mnK7t321FaSP8Uglr8wnTkfOYpa/view?usp=sharing

List of Power point presentations

Unit-1 Link :

https://docs.google.com/presentation/d/1RZQDiRc8q-rOGF1hm5eQ6GItWgIJ0-S7/edit?usp=sharing&ouid=11674026725789858224&rtpof=true&sd=true

Unit-2 Link :

https://docs.google.com/presentation/d/1FWU1N1EZwV8ixGiYnQiBpCKjvL4HI7Ta/edit?usp=sharing&ouid=11674026725789858224&rtpof=true&sd=true

R18

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, January/February – 2023

PRINCIPLES OF PROGRAMMING LANGUAGES

(Common to CSE, IT)

Time: 3 Hours   **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
     ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
     iii) In Part B, Answer any one question from each unit. Each question carries 10 marksand
       may have a, b as sub questions.

PART – A

(25 Marks)

Define syntax and semantics. [2]
b) What is derivation and a parse tree? Write their significance with examples. [3]
c) What are the problems with case sensitive names? Explain. [2]
d) What is the scope and life time of a variable? Explain. [3]
e) What is a Co-routine? Explain. [2]
f) What is generic subprogram? [3]
g) Explain about message passing. [2]
h) What advantages do monitors have over semaphores? Discuss. [3]
i) What are the data types supported in Python? [2]
j) Differentiate between procedural and data abstraction. [3]

PART – B

(50 Marks)

2.a) What are the three general methods of implementing a programming language?
  b) Explain with an example how operator associativity can be incorporated in grammars.
                                     [5+5]

OR

3.a) The levels of acceptance of any language depend on the language description.Comment on this.
  b) In what fundamental way do operational semantics and denotational semantics differ?
                                       [5+5]

4.a) What are the design issues for character string types? Discuss.
  b) Describe the process of Array initialization. [5+5]

OR

5.a) What are the problems associated with Unconditional Branching? Explain.
  b) Explain the differences between subtypes and derived types. [5+5]

6.a) What are the design issues that are involved in functions? Discuss.

b)   Explain how subprogram names are passed as parameters. Illustrate with examples.

[5+5]

OR

7.a   What are the advantages and disadvantages of dynamic type binding? Discuss.

b)   Explain how subprogram is overloaded? Give examples.   [5+5]

8.a   Discuss about concurrency in Functional languages.

[5+5]

b)   What is a semaphore? What are the operations on semaphores?

OR

9.a)   Explain in detail about Exception handling in Ada.

 b)   Write a detailed note on C# threads.   [5+5]

10.a)   What are the differences between Imperative and functional languages? Explain.

 b)   Explain the Basic primitives of LISP. Give suitable examples.   [5+5]

OR

11.a)   What are the applications of functional languages? Explain.

 b)   Write a detail note on Scripting languages.   [5+5]

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, August - 2022
PRINCIPLES OF PROGRAMMING LANGUAGES
(Common to CSE, IT)

Time: 3 Hours   Max. Marks: 75

Answer any five questions
All questions carry equal marks
- - -

1.a)   Describe the criteria of success for a good programming language.
  b)   What is the difference between a phase and a pass of a compiler? Under what
        circumstances do a compiler have multiple phases?   [7+8]

2.a)   Exception handling is very important, but often neglected by programming languages.
        Comment on it.
  b)   Give the attribute grammar for a simple assignment statement.
  c)   Write a denotation semantics mapping function for "for" statement in Ada.   [5+5+5]

3.a)   Explain about static binding and dynamic binding with its relative merits and demerits.
  b)   What are the design issues of logically controlled loop statements? Explain briefly.
                                                                                              [8+7]

4.a)   What is meant by type compatibility? Explain with an example.
  b)   Discuss the design and implementation issues of pointer data types.   [7+8]

5.a)   Describe pass-by-value and pass-by-result parameter passing methods with examples.
  b)   What are the distinct semantic models for formal parameters? Explain.   [8+7]

6.   List and explain various functional characteristics of OOP in Small Talk and C++. [15]

7.   Explain exception propagation and exception handling in C++ with illustrative
        examples.   [15]

8.a)   Write down the applications of logic programming.
  b)   Explain the pragmatics of scripting languages.   [7+8]

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Sri Indu Institute of Engineering & Technology

Sheriguda (V), Ibrahimpatnam (M), R.R.Dist-501 510
I- Mid Examinations, NOV-2022

Year & Branch: III-CSE(A,B,C)   Date: 14-11-2022(FN)

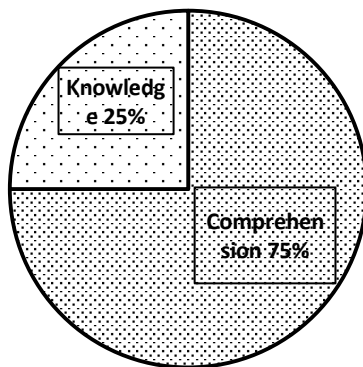Subject: PPL   Marks: 10   Time: 60 min

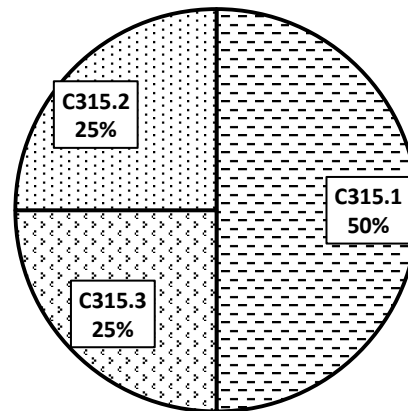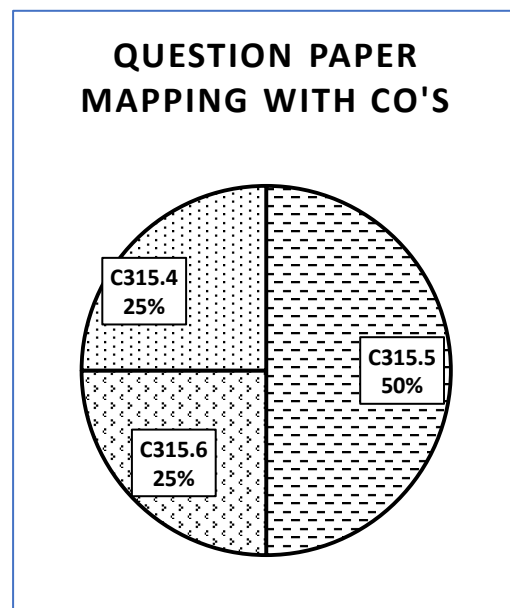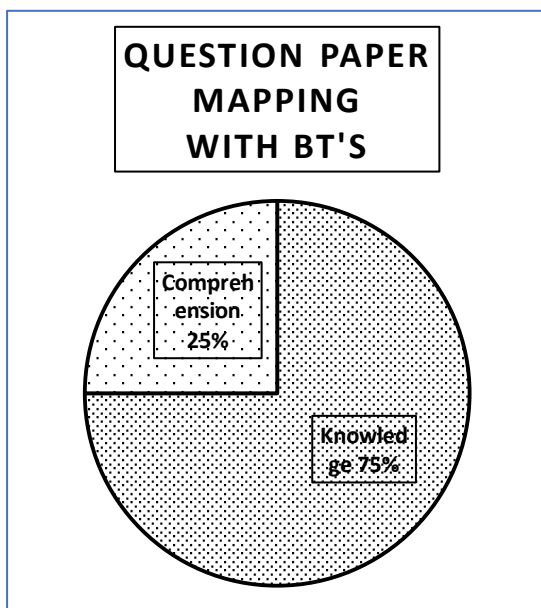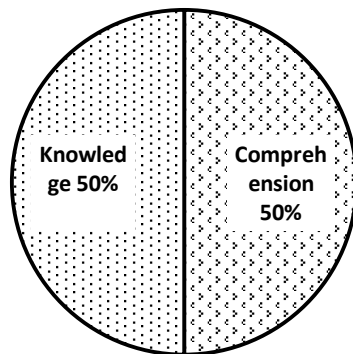Answer any **TWO** Questions. All Question Carry Equal Marks   2*5=10 marks
(This question paper is prepared with Course Outcome and BT's mapping)

1.What are the significant characteristics of programming language ? (Synthesis)(C315.1)(5M)

2.Discuss the additional features of an attribute grammar .   (Knowledge)(C315.1)(5M)

3.What is a variable and what are the attributes of variable ?Elaborate on address of a variable.
(Synthesis)(C315.2)(5M)
4.Describe the three semantic models of parameter passing.   (Knowledge)(C315.3)(5M)

QUESTION PAPER MAPPING WITH BT'S — Knowledge 50%, Synthesis 50%

QUESTION PAPER MAPPING WITH CO'S — C315.2 25%, C315.3 25%, C315.1 50%
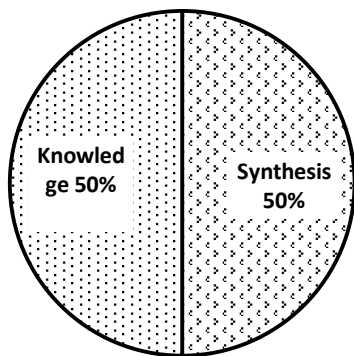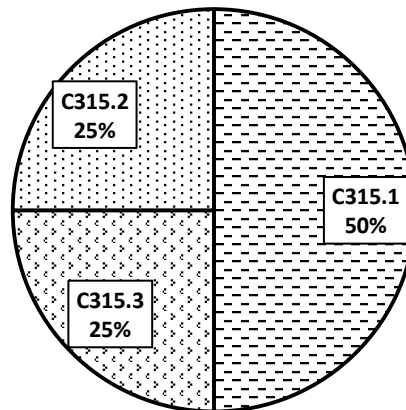
Sri Indu Institute of Engineering & Technology

Sheriguda (V), Ibrahimpatnam (M), R.R.Dist-501 510
I- Mid Examinations, NOV-2022

Set – II

Year & Branch: III-CSE(A,B,C)   Date: 14-11-2022(FN)

Subject: **PPL**   Marks: 10   Time: 60 min
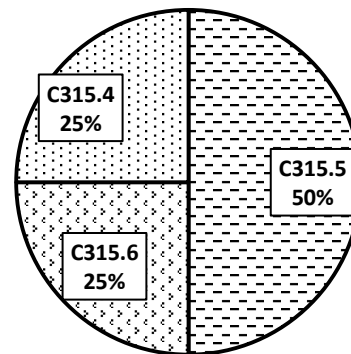
Answer any **TWO** Questions. All Question Carry Equal Marks   2*5=10 marks
(This question paper is prepared with Course Outcome and BT's mapping)

1. Explain the three methods of implementing a programming language.   (Comprehension)(C315.1)(5M)

2. Explain with an example BNF and EBNF notations.   (Comprehension)(C315.1)(5M)

3. Explain with an example Free Union and Discriminated Union.   (Comprehension)(C315.2)(5M)

4.Describe the three semantic models of parameter passing.   (Knowledge)(C315.3)(5M)

QUESTION PAPER MAPPING WITH BT'S — Knowledge 25%, Comprehension 75%

QUESTION PAPER MAPPING WITH CO'S — C315.2 25%, C315.1 50%, C315.3 25%

Sri Indu Institute of Engineering & Technology

Sheriguda (V), Ibrahimpatnam (M), R.R.Dist-501 510
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
B.TECH. IIIYEAR I SEM., I Mid Term Examinations,November – 2022
PRINCIPLES OF PROGRAMMING LANGUAGES
Objective Exam

Name:_____Hall Ticket No.

Answer All Questions. All Questions Carry Equal Marks.   **Time: 20**   **Min. Marks: 10.**

I.   Choose the correct alternative:

1. If a single operator symbol has more than one meaning, then it is called _____ [   ]
   a)Operator Overloading   b) Operator Loading
   c)Information Hiding   d)Encapsulation

2. Languages designed around the Von Neumann architecture are called as_____ [   ]
   a)Imperative Languages   b)OOPL
   c)Explicit Languages   d)Prolog Language

3. COBOL is generally used for the development of _____ systems   [   ]
   a)Artificial Intelligence   b)Business   c)Multimedia   d)Scientific

4.The first language to provide support for data abstraction is   _____   [   ]
   a)Small talk   b)Ada   c)SIMULA67   d)Java

5.Requirement of _____ is to detect all the type errors.   [   ]
   a)Strong typing   b)Weak typingc)Type checking   d)Typing

6. An _____ declaration relate variables with types through default conventions. [   ]
   a)Explicit   b)Implicit   c)Import   d)Imperative

7.The variable _____ gives the range of values it can store.   [   ]
   a)Name   b)Address   c)Type   d)Value

8. The language which does not include goto statement.   [   ]
   a)C   b)C++   c)C#   d)Java

9. Multiple selector statement in C is   [   ]
   a)Case   b)Switch   c)goto   d)Continue

10. loop…. End loop is used in _____   [   ]
    a)FORTRAN   b)PASCAL   c)Ada   d)C

II. Fill in the blanks:

11. A _____ refers to a collection of tools used in the development of software Programs.

12. The UNIX operating system is written almost entirely in _____ language.

13. BNF stands for _____

14. The lowest syntactic units of a program are called _____

15. _____ supports functional and imperative programming.

16. _____ is bound to a value only once.

17. A _____ is a compound statement that can define a new scope with local variables.

18. Block concept was introduced by _____

19. Parameters in subprogram header are called _____

20. Elseif is used in _____

Sri Indu Institute of Engineering & Technology

Sheriguda (V), Ibrahimpatnam (M), R.R.Dist-501 510

II- Mid Examinations, JAN-2023

Year &Branch: III-CSE(A,B,C)   Date:21 -1-2023(FN)

Subject: PPL   Marks: 10   Time: 60 min

Answer any **TWO** Questions. All Question Carry Equal Marks   2*5=10 marks

(This question paper is prepared with Course Outcome and BT's mapping)

1. Define Parameterized ADT Using C++.   (Knowledge)(C315.4)(5M)

2. Define Semaphore, how Cooperation synchronization and Competition synchronization are implemented using semaphores.   (Knowledge)(C315.5)(5M)

3. Explain Exception Handling in C++ with suitable example. (Comprehension)(C315.5)(5M)

4. Write about simple functions in mathematical functions and Primitive functions.
                    (Knowledge)(C315.6)(5M)

QUESTION PAPER MAPPING WITH BT'S — Comprehension 25%, Knowledge 75%

QUESTION PAPER MAPPING WITH CO'S — C315.4 25%, C315.5 50%, C315.6 25%

Sri Indu Institute of Engineering & Technology

Sheriguda (V), Ibrahimpatnam (M), R.R.Dist-501 510
II- Mid Examinations, JAN-2023

Year & Branch: III-CSE(A,B,C)   Date: 21-1-2023(FN)

Subject:PPL   Marks: 10   Time: 60 min

Answer any **TWO** Questions. All Question Carry Equal Marks   2*5=10 marks

(This question paper is prepared with Course Outcome and BT's mapping)

1. Define Abstract Data Type in Ada and Design issues for Abstract Data Type.
    (Knowledge)(C315.4)(5M)

2. Explain Event Handling in Java.   (Comprehension)(C315.5)(5M)

3. Explain Subprogram level Concurrency with suitable example .   (Comprehension)(C315.5)(5M)

4. Write about simple functions in mathematical functions and Primitive functions.
    (Knowledge)(C315.6)(5M)

QUESTION PAPER MAPPING WITH BT'S

Knowledge 50%

Comprehension 50%

QUESTION PAPER MAPPING WITH CO'S

C315.4 25%

C315.5 50%

C315.6 25%

Sri Indu Institute of Engineering & Technology

Sheriguda (V), Ibrahimpatnam (M), R.R.Dist-501 510

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

B.TECH. III YEAR I SEM., II Mid Term Examinations, January – 2023

PRINCIPLES OF PROGRAMMING LANGUAGES

Objective Exam

Name:_____Hall Ticket No.

Answer All Questions. All Questions Carry Equal Marks.Time: 20   Min. Marks: 10.

I.   Choose the correct alternative:

1. In java, object parameters are passed using   [   ]
   a)Call by value   b)Call by name
   c)Call by result   d)Call by reference

2. A _____ refers to the complex structure in programming languages
   that can perform some specific task for the main program.   [   ]
   a)Subprogram b)Program   c)Function   d)Language

3. Java threads are scheduled by _____   [   ]
   a)JVM   b)JTM   c)Thread   d)Semaphore

4. Monitors are _____ entities   [   ]
   a)Active   b)Passive   c)Positive   d)Negative

5. _____ is an abstract data type for shared data   [   ]
   a)Monitor   b)Semaphore   c)Queue   d)Stack

6. _____ type represent integer as symbolic constant .   [   ]
   a)enumeration b)record   d)set   d)function

7. In the original LISP the number of data types available was   [   ]
   a)1   b)2   c)3   d)4

8. For logic programming ,following symbolic logic is used   [   ]
   a)Integration   b)Relational Algebra
     c) Relational Calculus   d)Predicate Calculus

9. ____differentiates between pointer to a list word or pointer to an atom   [   ]
   a)atom b)numberp   c)eq   d)None

10.CAR in LISP returns the following element of a list   [   ]
   a)first   b)last   c)tail   d)second

II. Fill in the blanks:

11. In C, arrays are passed as parameters using _____

12. A _____ is a portion of code within a larger program that performs a specific task and is relatively independent of the remaining code.

13. _____ concurrency consists multiple independent processors.

14. To specify code that is to be executed, regardless of exception raised or not _____ block is used.

15. The catch block can have _____ number of parameters .

16. _____ has two predefined sub classes, I_0 exception and runtime exception.

17. CDR in LISP returns the _____ element of a list.

18. _____ is a test to determine whether two literal atom are equal or not.

19. _____ function returns the ith component of a tuple.

20. _____ adds an atom to the object list.

Sri Indu Institute of Engineering & Technology

Sheriguda (V), Ibrahimpatnam (M), R.R.Dist-501 510
I- Mid Examinations, NOV-2022

Set – I

Year & Branch: III-CSE(A,B,C)   Date: 14-11-2022(FN)

Subject: PPL

ANSWER KEY
Descriptive paper key link:

https://docs.google.com/document/d/1ZarPkSMj0CY2-JOvwktIGG7YOg7cf4Cq/edit?usp=sharing&ouid=116740267257898588224&rtpof=true&sd=true
Objective/Quiz Key Paper

I.   Multiple Choice Questions

1.b) Operator Loading
2.a)Imperative Languages
3.b)Business
4.c)SIMULA67
5.a)Strong typing
6.b)Implicit
7.c)Type
8.d)Java
9.a)Case
10.c)Ada

II.   Fill in the blanks

11. Programming
12. C
13. Backus-Naur Form
14. Lexemes
15. ML
16. Named Constant
17. Block
18. ALGOL60
19. Formal Parameters
20. Ada

SriIndu Institute of Engineering & Technology

Sheriguda (V), Ibrahimpatnam (M), R.R.Dist-501 510

II- Mid Examinations, JAN-2023

Set – I

Year & Branch: III-CSE(A,B,C)   Date:21 -1-2023(FN)

Subject: PPL

Answer Key
Descriptive paper key link:

https://docs.google.com/document/d/1rrsIwUoI4ATJHMDPlYWwflfrfV92JtWS/edit?usp=sharing&ouid=116740267257898588224&rtpof=true&sd=true

Objective/Quiz Key Paper

I . Multiple Choice Questions

1. Call by reference
2. subprogram
3. JVM
4. passive
5. Monitor
6. Enumeration
7. 2
8. predicate values
9. atom
10. first

II.   Fill in the blanks

11. Call by reference
12. subprogram
13. Physical
14. finally
15. one
16. exception
17. remainder of a given list after CAR is removed
18. eq
19. #i
20. **intern**

Assignment Questions-I

(Assignment Questions are mapped with CO's, BT)

1.Explain the three methods of implementing a programming language.**(Comprehension)(C315.1)**

2.What are the significant characteristics of programming languages.   **(Synthesis) (C315.1)**

3.Define Union. What is the deference between record and Union ? Explain how Union is

   supported by different programming languages.   **(Knowledge)(C315.2)**

4. Explain in detail counter controlled loops.   **(Comprehension)(C315.2)**

5. Describe the three semantic models of parameter passing.   **(Knowledge)(C315.3)**

Assignment Questions-II

(Assignment Questions are mapped with CO's, BT)
1. Write about parameterized abstract data types with an example in C++.

   (Knowledge)((C315.3)
2. Define Semaphores. Explain how Cooperation Synchronization & Competition
   Synchronization are implemented using semaphores.   (Knowledge)(C315.4)
3. Discuss about exception handling in Ada.   (Comprehension)(C315.4)
4. Write about simple functions in mathematical functions.   (Knowledge)(C315.5)
5. Give a brief account on the history of Python language.   (Comprehension)(C315.6)

Result Analysis:

Course Title	PRINCIPLES OF PROGRAMMING LANGUAGES
Course Code	CS515PE
Programme	B.Tech
Year & Semester	III year I-semester, A sec
Regulation	R18
Course Faculty	Mrs.E.Rupa, Assistant Professor , CSE

Slow learners:

S No	Roll no	No of backlogs	Internal-I Status	Internal-II Status
1	20X31A0503	5	16	16
2	20X31A0507	4	18	18
3	20X31A0511	5	14	14
4	20X31A0530	4	20	14
5	20X31A0531	3	23	19
6	20X31A0532	4	20	19
7	20X31A0533	5	19	18
8	20X31A0541	3	19	20
9	20X31A0550	3	20	17
10	20X31A0556	4	20	19
11	20X31A0558	4	18	14
12	20X31A0559	3	19	20
13	21X35A0504	4	15	17

Advanced learners:

S No	Roll No	GATE MATERIAL
1	20X31A0502	Linked List Notes ; Binary Heaps · Heap Sort ; Graph & Its Applications ; Multistage Graph ; Lexical analysis, parsing, syntax-directed translation Runtime environments Intermediate code generation Local optimisation, Data flow analyses: constant propagation System calls, processes, threads, inter-process communication, concurrency and synchronization. DeadlockCPU and I/O scheduling Memory management and virtual memory File systems
2	20X31A0504	
3	20X31A0515	
4	20X31A0523	
5	20X31A0529	
6	20X31A0537	
7	20X31A0539	
8	20X31A0542	
9	20X31A0543	
10	20X31A0544	
11	20X31A0545	
12	20X31A0555	
13	20X31A0560	
14	21X35A0503	

BATCH CSE-III BTECH I- SEM CSE - A RESULT ANALYSIS

ACADAMIC YEAR	COURSE NAME	NUMBER OF STUDENTS		QUESTION PAPER SETTING		PASS%
		APPEARED	PASSED	INTERNAL	EXTERNAL	
2022-23	Principles of Programming Languages	63	38	COURSE FACULTY	EXTERNAL	60.3%

Principles of Programming Languages(C315) Result Analysis
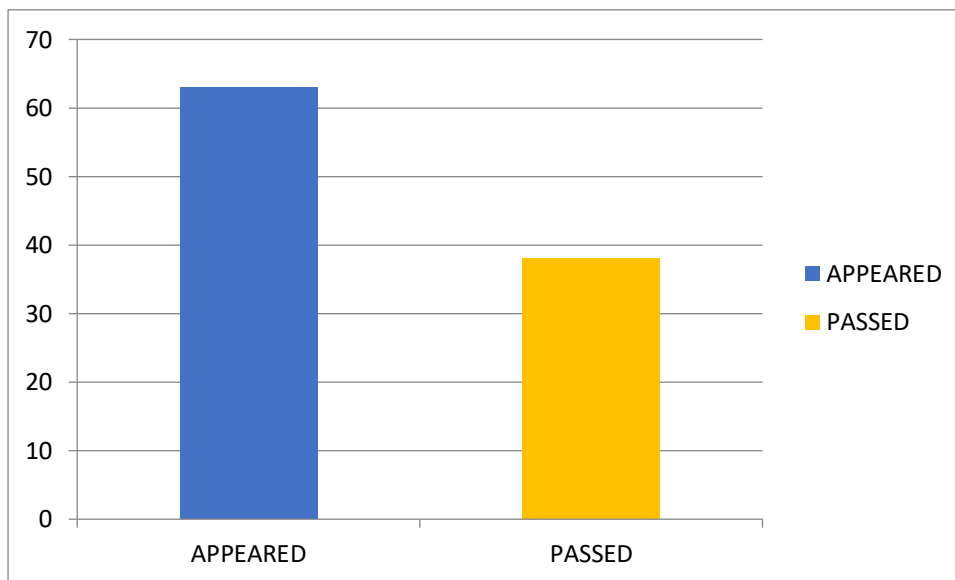
SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution under UGC)
Accredited by NAAC with A+ Grade, Recognized under 2(f) of UGC Act 1956
(Approved by AICTE, New Delhi and Affiliated to JNTUH, Hyderabad)
Khalsa Ibrahimpatnam, Sheriguda (V), Ibrahimpatnam (M), Ranga Reddy Dist., Telangana – 501 510
Website: https://siiet.ac.in/

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

REMEDIAL CLASSES TIME TABLE
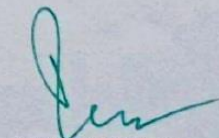
A.Y 2022-23   SEMESTER-I

BRANCH/ SEC	MON 4.00 PM- 5.00 PM	TUE 4.00 PM-5.00 PM	WED 4.00 PM- 5.00 PM	THUR 4.00 PM- 5.00 PM	FRI 4.00 PM- 5.00 PM
II CSE-A	A&DE	DS	C++	COA	COSM
II CSE-B	DS	A&DE	COSM	C++	COA
II CSE-C	COSM	COA	A&DE	DS	C++
III CSE-A	SE	FLAT	CN	WT	PPL
III CSE-B	WT	CN	SE	PPL	FLAT
III CSE-C	FLAT	WT	PPL	CN	SE
IVCSE-A	C&NS	DM	CC	POE	RTS
IV CSE-B	CC	RTS	C&NS	DM	POE
IV CSE-C	RTS	CC	POE	C&NS	DM

HOD
Computer Science & Engg. Dept,
SRI INDU INSTITUTE OF ENGG & TECH,
Sheriguda(V), Ibrahimnatnam(M), R.R.Dist-501 1C

PRINCIPAL
PRINCIPAL
Sri Indu Institute of Engineering & Tech
Sheriguda(Vill), Ibrahimpatnam,
Dist Telangana -501 510

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Computer Science and Engineering

Course Outcome Attainment (Internal Examination-1)

Name of the faculty: **E.RUPA**		Academic Year:	**2022-23**
Branch & Section: CSE- A		Examination:	**I Internal**
Course Name:	**PRINCIPLES OF PROGRAMMING LANGUAGES**	Year: **III**	Semester: I

S.No	HT No.	Q1a	Q1b	Q1c	Q2a	Q2b	Q2C	Q3A	Q3b	Q3c	Q4a	Q4b	Q4c	Obj1	A1
Max. Marks ==>		5			5			5			5			10	5
1	20X31A0501							2			2			9	5
2	20X31A0502							4			2			9	5
3	20X31A0503										3			8	5
4	20X31A0504							5			3			7	5
5	20X31A0506	4									2			7	5
6	20X31A0507										4			9	5
7	20X31A0508							2			5			9	5
8	20X31A0509							2			4			8	5
9	20X31A0510							1			2			8	5
10	20X31A0511							1			2			6	5
11	20X31A0512							4			4			7	5
12	20X31A0513							2			4			8	5
13	20X31A0514							2			4			8	5
14	20X31A0515							3			4			8	5
15	20X31A0516							5			4			8	5
16	20X31A0517							5			4			7	5
17	20X31A0518							2			4			8	5
18	20X31A0519							3			3			9	5
19	20X31A0520							2			4			9	5
20	20X31A0521							3			4			9	5
21	20X31A0522							5			4			8	5
22	20X31A0523							5			5			9	5
23	20X31A0524	3									4			8	5
24	20X31A0525							4			4			9	5
25	20X31A0526	3									3			9	5
26	20X31A0527							3			2			8	5
27	20X31A0528							3			4			9	5
28	20X31A0529							3			5			9	5
29	20X31A0530							3			3			9	5
30	20X31A0531							5			4			9	5
31	20X31A0532	3									3			9	5
32	20X31A0533	3									3			8	5
33	20X31A0534							4			4			9	5
34	20X31A0535							3			5			8	5
35	20X31A0536							3			3			9	5
36	20X31A0537							4			4			8	5
37	20X31A0538	5									3			9	5
38	20X31A0539							4			4			9	5
39	20X31A0540							2			4			9	5

No	Roll No	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
40	20X31A0541										5			9	**5**
41	20X31A0542							3			5			9	**5**
42	20X31A0543	5									4			9	**5**
43	20X31A0544							5			5			9	**5**
44	20X31A0545							5			4			9	**5**
45	20X31A0546	3						4						8	**5**
46	20X31A0547							5			3			9	**5**
47	20X31A0548							5			3			8	**5**
48	20X31A0549	5						3						8	**5**
49	20X31A0550	5									3			7	**5**
50	20X31A0551	5									5			6	**5**
51	20X31A0552							4			5			7	**5**
52	20X31A0553							4			4			8	**5**
53	20X31A0554	5												8	**5**
54	20X31A0555	5									3			8	**5**
55	20X31A0556	4									3			8	**5**
56	20X31A0557	5									4			9	**5**
57	20X31A0558							1			4			8	**5**
58	20X31A0559							1			5			8	**5**
59	20X31A0560							5			5			8	**5**
60	21X35A0501							2			4			8	**5**
61	21X35A0502							2			4			6	**5**
62	21X35A0503							2			4			8	**5**
63	21X35A0504										4			5	**5**
64															
65															
66															
67															
68															
69															
70															
71															
72															
73															
Target set by the faculty / HoD		2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	4.00	2.00
Number of students performed above		15	0	0	0	0	0	42	0	0	60	0	0	63	63
Number of students attempted		15	0	0	0	0	0	47	0	0	60	0	0	63	63
Percentage of students scored more than target		100%						89%			100%			100%	100%

CO Mapping with Exam Questions:

		C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
	CO - 1	**Y**			**Y**	**Y**								y	y
	CO - 2							**Y**	**Y**					y	y

CO - 3									Y			y	y
CO - 4													
CO - 5													
CO - 6													

CO Attainment based on Exam Questions:

CO - 1	100%											100%	100%
CO - 2						89%						100%	100%
CO - 3								100%				100%	100%
CO - 4													
CO - 5													
CO - 6													

CO	Subj	obj		Asgn	Overall	Level
CO-1	100%	100%		100%	100%	3.00
CO-2	89%	100%		100%	96%	3.00
CO-3	100%	100%		100%	100%	3.00
CO-4						
CO-5						
CO-6						

Attainment Level	
1	40%
2	50%
3	60%

Attainment (Internal 1 Examination) =   **3.00**

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Computer Science and Engineering
Course Outcome Attainment (Internal Examination-2)

Name of the faculty :   **E.RUPA**   Academic Year: **2022-23**

Branch & Section: **CSE- A**   Examination: II Internal

Course Name: **PRINCIPLES OF PROGRAMMING LANGUAGES**   Year: III   Semester: I

S.No	HT No.	Q1a	Q1b	Q1c	Q2a	Q2b	Q2c	Q3a	Q3b	Q3c	Q4a	Q4b	Q4c	Obj4	A4
Max. Marks ==>		5			5			5			5			10	5
1	20X31A0501	2									2			7	5
2	20X31A0502	4									4			7	5
3	20X31A0503										4			7	5
4	20X31A0504	4									5			6	5
5	20X31A0506							3			5			7	5
6	20X31A0507							3			3			7	5
7	20X31A0508							3			5			7	5
8	20X31A0509				2						4			6	5
9	20X31A0510							3			4			7	5
10	20X31A0511													5	5
11	20X31A0512	5									3			7	5
12	20X31A0513							3			2			7	5
13	20X31A0514							3			3			6	5
14	20X31A0515							3			4			7	5
15	20X31A0516							4			3			7	5
16	20X31A0517							4			3			7	5
17	20X31A0518							3			4			7	5
18	20X31A0519							3			3			6	5
19	20X31A0520	2						3						8	5
20	20X31A0521	2						4						8	5
21	20X31A0522							3			4			8	5
22	20X31A0523				5			4						8	5
23	20X31A0524	3									2			8	5
24	20X31A0525							4			4			8	5
25	20X31A0526							2			2			7	5
26	20X31A0527							2			2			8	5
27	20X31A0528	3						3						9	5
28	20X31A0529	4									5			8	5
29	20X31A0530										2			7	5
30	20X31A0531							4			3			7	5
31	20X31A0532				3						3			8	5
32	20X31A0533										5			8	5
33	20X31A0534							4			5			6	5
34	20X31A0535	4									5			8	5
35	20X31A0536							4			4			7	5
36	20X31A0537	4									4			9	5
37	20X31A0538										5			8	5
38	20X31A0539	4									5			8	5
39	20X31A0540	4												8	5
40	20X31A0541	3									4			8	5
41	20X31A0542				3			4						7	5
42	20X31A0543							4			5			8	5
43	20X31A0544							5			5			9	5

#	Roll No																
44	20X31A0545	5										5			8	**5**
45	20X31A0546	4						2							7	**5**
46	20X31A0547	3						3							8	**5**
47	20X31A0548							3			4				8	**5**
48	20X31A0549				5						5				7	**5**
49	20X31A0550										5				7	**5**
50	20X31A0551							3			5				8	**5**
51	20X31A0552	3						5							6	**5**
52	20X31A0553							2			5				8	**5**
53	20X31A0554							4			2				7	**5**
54	20X31A0555	4									5				8	**5**
55	20X31A0556							2			4				8	**5**
56	20X31A0557							3			5				8	**5**
57	20X31A0558	1						3			4				8	**5**
58	20X31A0559							4			5				8	**5**
59	20X31A0560							3			3				8	**5**
60	21X35A0501	3						3							8	**5**
61	21X35A0502	3						3							7	**5**
62	21X35A0503							2			5				8	**5**
63	21X35A0504							3			3				7	**5**
64																
65																
66																
67																
68																
69																
70																
71																
72																
73																
Target set by the faculty / HoD		2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	4.00	2.00
Number of students performed above the target		21	0	0	5	0	0	41	0	0	51	0	0	63	63
Number of students attempted		22	0	0	5	0	0	41	0	0	51	0	0	63	63
Percentage of students scored more than target		95%			100%			100%			100%			100%	100%

CO Mapping with Exam Questions:

CO - 1													
CO - 2													
CO - 3													
CO - 4	Y											y	y
CO - 5				Y								y	y
CO - 6							Y			Y		y	y

% Students Scored >Target %	95%			100%			100%			100%			100%	100%

CO Attainment based on Exam Questions:

CO - 1														
CO - 2														
CO - 3														
CO - 4	95%												100%	100%
CO - 5				100%									100%	100%
CO - 6							100%			100%			100%	100%

CO	Subj	obj		Asgn	Overall	Level
CO-1						
CO-2						
CO-3						
CO-4	95%	100%		100%	98%	3
CO-5	100%	100%		100%	100%	3
CO-6	100%	100%		100%	100%	3

Attainment Level	
1	40%
2	50%
3	60%

Attainment (Internal Examination-2) =   **3.00**

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Computer Science and Engineering
Course Outcome Attainment (University Examinations)

Name of the faculty : **E.RUPA**   Academic Year: **2022-23**

Branch & Section: **CSE- A**   Year / Semester: III/I

Course Name: **PRINCIPLES OF PROGRAMMING LANGUAGES**

S.No	Roll Number	Marks Secured	S.No	Roll Number	Marks Secured
1	20X31A0501	10	36	20X31A0537	32
2	20X31A0502	28	37	20X31A0538	26
3	20X31A0503	13	38	20X31A0539	27
4	20X31A0504	28	39	20X31A0540	19
5	20X31A0506	5	40	20X31A0541	26
6	20X31A0507	1	41	20X31A0542	27
7	20X31A0508	13	42	20X31A0543	26
8	20X31A0509	27	43	20X31A0544	37
9	20X31A0510	27	44	20X31A0545	26
10	20X31A0511	4	45	20X31A0546	13
11	20X31A0512	28	46	20X31A0547	26
12	20X31A0513	30	47	20X31A0548	12
13	20X31A0514	30	48	20X31A0549	41
14	20X31A0515	26	49	20X31A0550	43
15	20X31A0516	26	50	20X31A0551	27
16	20X31A0517	17	51	20X31A0552	10
17	20X31A0518	30	52	20X31A0553	32
18	20X31A0519	28	53	20X31A0554	26
19	20X31A0520	8	54	20X31A0555	27
20	20X31A0521	13	55	20X31A0556	7
21	20X31A0522	26	56	20X31A0557	13
22	20X31A0523	26	57	20X31A0558	1
23	20X31A0524	7	58	20X31A0559	1
24	20X31A0525	15	59	20X31A0560	26
25	20X31A0526	2	60	21X35A0501	44
26	20X31A0527	9	61	21X35A0502	28
27	20X31A0528	17	62	21X35A0503	49
28	20X31A0529	37	63	21X35A0504	27
29	20X31A0530	4	64		
30	20X31A0531	4	65		
31	20X31A0532	26	66		
32	20X31A0533	9	67		
33	20X31A0534	28	68		
34	20X31A0535	38	69		
35	20X31A0536	13	70		

Max Marks	75

Class Average mark	21
Number of students performed above the target	37
Number of successful students	63

Attainment Level	% students
1	40%
2	50%

Percentage of students scored more than target	59%		3	60%
Attainment level	**2**			

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Computer Science and Engineering

Course Outcome Attainment

Name of the faculty : **E.RUPA**　　　　　　　　　　Academic Year: 2022-23

Branch & Section: **CSE- A**　　　　　　　　　　　　Examination: I Internal

Course Name: **PRINCIPLES OF PROGRAMMING LANGUAGES**　　Year: III

　　　　　　　　　　　　　　　　　　　　　　　　　　Semester: I

Course Outcomes	1st Internal Exam	2nd Internal Exam	Internal Exam	University Exam	Attainment Level
CO1	3.00		3.00	2.00	2.25
CO2	3.00		3.00	2.00	2.25
CO3	3.00		3.00	2.00	2.25
CO4		3.00	3.00	2.00	2.25
CO5		3.00	3.00	2.00	2.25
CO6		3.00	3.00	2.00	2.25
Internal & University Attainment:			3.00	2.00	
Weightage			25%	75%	
CO Attainment for the course (Internal, University)			0.75	1.50	
CO Attainment for the course (Direct Method)			2.25		

Overall course attainment level　　　　　**2.25**

SRI INDU INSTITUTE OF ENGINEERING & TECHNOLOG
Department of Computer Science and Engineering
Program Outcome Attainment (from Course)

Name of Faculty:	**E.RUPA**	Academic Year:	2022-23
Branch & Section:	**CSE- A**	Year:	III
Course Name:	**PRINCIPLES OF PROGRAMMING LANGUAGES**	Semester:	I

CO-PO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	2									2	
CO2	3	2	2	2									1	2
CO3	3	2	2	2								2	2	
CO4	3	1	2	2									1	2
CO5	2	1	1	2									2	1
CO6	3	2	2	2										2
Course	2.8	1.6	2.6	2								2	1.6	1.75

CO	Course Outcome Attainment
CO1	2.25
CO2	2.25
CO3	2.25
CO4	2.25
CO5	2.25
CO6	2.25
Overall course attainment level	**2.25**

PO-ATTAINMENT

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO Attainment	2.10	1.20	1.95	1.50								1.50

CO contribution to PO - 33%, 67%, 100% (Level 1/2/3)

ASSIGNMENTS AND ATTENDANCE REGISTER

Assignment-1 Script link:

https://drive.google.com/file/d/1kYVqBJsEJRGOykY2dYfZZf5ME8YgdvXx/view?usp=sharing

Assignment-2 Script link:

https://drive.google.com/file/d/1kYVqBJsEJRGOykY2dYfZZf5ME8YgdvXx/view?usp=sharing

Attendance Register Link:

https://drive.google.com/file/d/1wdBRAmHPXKK3dkthDOZhP1YBp-mCG8c1/view?usp=sharing