VIGNAN'S NIRULA
INSTITUTE OF TECHNOLOGY & SCIENCE FOR WOMEN
(Approved by AICTE, New Delhi & Affiliated to JNTU Kakinada)
Vignan Avenue, Peda Palakaluru, Guntur - 522009

Department of Information Technology

Innovative Practices

Faculty Name	**:**	Dr. K. V. S. S. Rama Krishna, Dr. K. Venkateswara Rao
Course Name	:	Automata Theory and Compiler Design
Class	**:**	II B. Tech II Semester
Academic Year	**:**	2022-2023
Title of the Topic	**:**	Context-free languages
Activity Name	**:**	Blended Learning

Objective

To combine the strengths of both in-person and online learning to create a more flexible, personalized, and effective learning experience. It allows students to engage with content through various formats (e.g., face-to-face, digital resources) while promoting self-directed learning and collaboration. The goal is to optimize learning by leveraging technology while maintaining the benefits of traditional teaching methods.

Method to Implement

1. Pre-Class Learning (Online Phase)

- **Pre-recorded Lectures:** Videos on context-free grammars (CFGs), pushdown automata (PDA), and language recognition.
- **Reading Material:** Chapters on CFGs, parsing techniques, and real-world parsing examples.

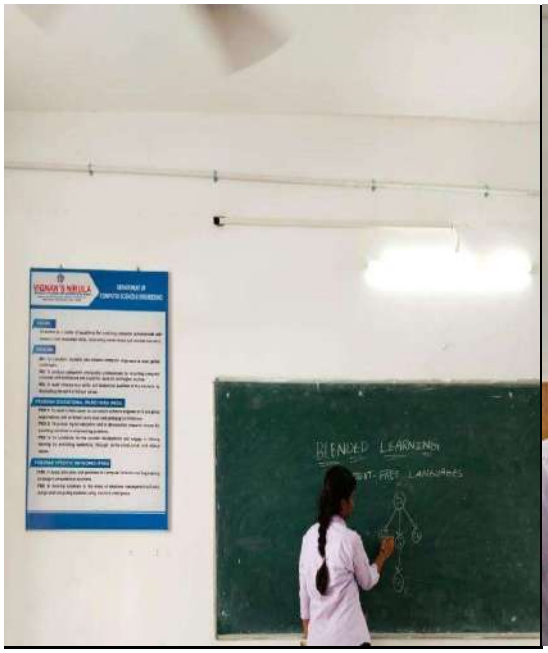
In-Class Learning (Face-to-Face Phase)

- **Discussion Sessions:** Review and discuss CFGs, parsing methods (LL, LR), and language properties.
- **Hands-on Exercises:** Practice writing CFGs and building parsers for context-free languages.

Post-Class Learning (Reinforcement Phase)

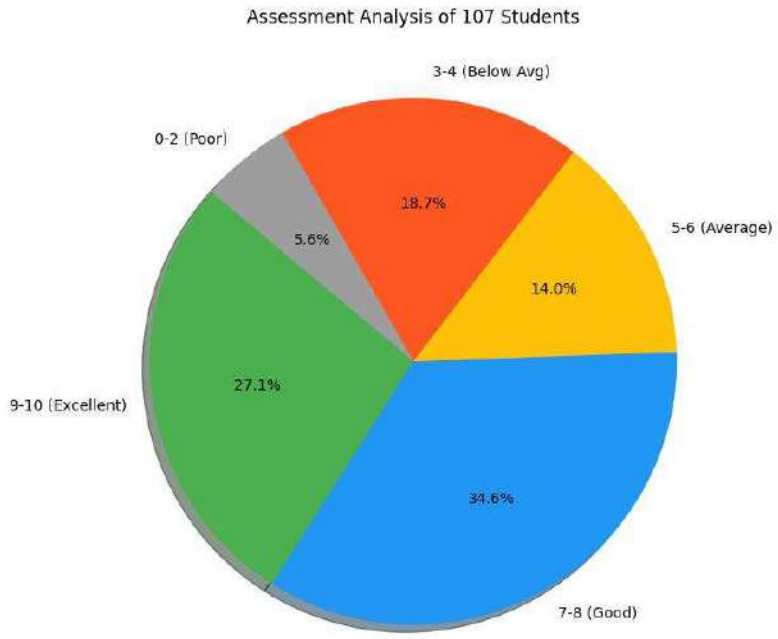
- **Follow-up Videos:** Advanced content on parsing algorithms (SLL, LALR).
- **Assignments:** Solve problems on CFGs and parsing to solidify concepts

Screenshot of the Practice



Assessment Analysis

Marks Range	**Number of Students**	**Percentage**
9-10 (Excellent)	29	27.103%
7-8 (Good)	37	34.58%
5-6 (Average)	15	14.02%
3-4 (Below Avg)	20	18.69%
0-2 (Poor)	6	5.61%
Total	107	100%



Conclusion

Context-free languages (CFLs) are fundamental in compiler design and language parsing. With context-free grammars (CFGs) and pushdown automata (PDA), CFLs are efficiently recognized, and parsing methods like LL and LR parsing enable effective language analysis.

Signature of the Faculty **Head of the Department**