



**J.B. INSTITUTE OF ENGINEERING & TECHNOLOGY**

**UGC Autonomous**

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Bhaskar Nagar, Yenkapally (V), Moinabad (M), P.O. Himayathnagar, R.R. District, Hyderabad-5000075.

**Department of Information Technology**

**Guest Lecture on**

**“Advancements in Compiler Design”**

**Date: 18/06/2025**

**Venue: MNR Auditorium**

**B.Tech – III Year – II Sem**

**A.Y: 2024 – 2025**

**Coordinators**

**Mr. V. Krishna Reddy, Assistant Professor**

**Convener**

**Dr. Ramesh Babu**

**Associate Professor & Head of the Department**

## Circular



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**DEPARTMENT OF INFORMATION TECHNOLOGY**

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**DATE: 11 – 06 – 2025**

### CIRCULAR

This is to inform all **III Year students** that the Department of **Information Technology** is organizing a Guest Lecture on “**Advancements in Compiler Design**” on 18-06-2025 (Wednesday). The Expert Lecture will be conducted in **MNR Auditorium** from 9:30 am onwards.

**Dr. U Chaitanya** will be the resource person for the Guest Lecture, and is aimed at enhancing students' understanding of Advanced Compilers.

All Students are requested to attend and make the event a grand success.

**Signature of Coordinator**

**Signature of HOD**

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## **PREAMBLE**

As technology rapidly evolves, so do the tools and techniques that underpin the software development process. Compilers play a crucial role in bridging human-readable programming languages and machine-executable code, ensuring that applications run efficiently and reliably.

This session will explore the latest trends and innovations in compiler technology, including improvements in optimization techniques, support for new programming paradigms, just-in-time (JIT) compilation, and the integration of artificial intelligence in compiler design. Our guest expert will also shed light on how these advancements impact software performance, security, and developer productivity.

## **A Glimpse of the Event**

The guest lecture on Advancements in Compiler Design provided a comprehensive overview of how modern compilers have evolved beyond traditional roles. The session began with a brief recap of classical compiler architecture—lexical analysis, syntax analysis, semantic analysis, optimization, and code generation.

The speaker then highlighted key advancements such as:

- **Just-in-Time (JIT) Compilation:** Allowing programs to be compiled at runtime for improved execution speed and adaptability.
- **Machine Learning Integration:** Using AI to optimize code generation and error detection dynamically.
- **Parallel and Distributed Compilation:** Techniques enabling faster compilation of large codebases by leveraging multiple cores or distributed systems.
- **Support for Modern Programming Paradigms:** Enhancements to handle functional, concurrent, and domain-specific languages efficiently.
- **Security-Oriented Compilation:** Integrating security checks and mitigations directly into the compilation process to prevent vulnerabilities.
- **Real-world examples and case studies** were shared, showcasing how these advancements lead to faster, safer, and more energy-efficient software. The lecture concluded with an interactive Q&A session, where students explored challenges and future directions in compiler research.

Overall, the session was enlightening, reinforcing the importance of continuous innovation in compiler technology to meet the demands of tomorrow's computing landscape.

## Event Poster/Banner



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# INFORMATION TECHNOLOGY

PRESENTS

## GUEST LECTURE ON

### VENUE

MNR Auditorium,  
09:30 Onwards

### ADVANCEMENTS IN COMPILER DESIGN

BY

Dr. U. CHAITANYA

JUNE 18<sup>th</sup> 2025



#### CO-CONVENER

Dr. A RAMESH BABU  
-9885203521

#### FACULTY COORDINATORS

Mr. V. KRISHNA REDDY  
Mr. B. BHARATH

#### STUDENT COORDINATORS

A. SAHASRA REDDY - 9059289780  
M. SHARANYA - 8555805117  
G. RAKESH - 9642221399

## *Resource Person Profile*



Dr. U. Chaitanya holds a Ph.D. in Computer Science and Engineering from the Department of Computer Science and Engineering, School of Technology, GITAM (Deemed to be University), Visakhapatnam. She is currently serving as an Assistant Professor at Mahatma Gandhi Institute of Technology (MGIT), Hyderabad, with 20 years of academic experience.

She is a Life Member of ISTE and IAENG and has played active roles in various institutional and departmental committees, including the Ranking and Accreditation Cell, Board of Studies, Academic Council, and Industry-Institute Interaction initiatives

She has handled numerous undergraduate and postgraduate courses such as Java, Web Technologies, Operating Systems, Cloud Computing, Cyber Security, and Software Quality Assurance. She has published over 16 journal papers in reputed journals and presented her research at international conferences. She has received several recognitions, including NPTEL Gold and Silver Medals and an Appreciation Award for her mentorship.

She has coordinated multiple Faculty Development Programs (FDPs), workshops, and guest lectures. She has also completed several professional certifications from NPTEL, Coursera, and Cisco. As a certified Oracle Academy Instructor, she has trained over 200 students in Java programming.

Her research interests include Cloud Task Scheduling, IoT Applications, Cyber Security, and Data Mining. She actively contributes to academic development through curriculum design, student mentorship, and institutional academic administration.

The Department of Information Technology, JBIET organized an insightful guest lecture on the topic "**Advancements in Compiler Design**" on 18<sup>th</sup> June 2025. The lecture was delivered by **Dr. U. Chaitanya holds a Ph.D. in Computer Science and Engineering from the Department of Computer Science and Engineering, School of**

**Technology, GITAM (Deemed to be University), Visakhapatnam. She is currently serving as an Assistant Professor at Mahatma Gandhi Institute of Technology (MGIT), Hyderabad, a renowned expert in the field of Computer Science and Engineering, with vast experience in infrastructure monitoring and maintenance.**

This guest lecture on "Advancements in Compiler Design" will explore how modern compilers have evolved from traditional syntax analyzers to intelligent systems capable of optimizing code for performance, security, and parallel execution. Students will gain insights into cutting-edge developments such as intermediate representations (like LLVM IR), just-in-time (JIT) and profile-guided optimizations, machine learning-driven compilation strategies, and secure code generation techniques. The session will also cover how compilers now target multi-core and heterogeneous systems, making them essential tools in fields like AI, embedded systems, and high-performance computing. Ideal for students interested in systems programming and emerging compiler technologies, this lecture bridges foundational theory with real-world advancements.

### **Event Outcome**

After studying Advancements in Compiler Design, students will be able to understand and analyze modern compiler architectures and optimization techniques. They will gain knowledge of recent trends such as just-in-time (JIT) compilation, parallel compilation, and advanced code optimization strategies. Students will develop the ability to design and implement efficient compilers that improve program execution speed and resource management. Additionally, they will be equipped to evaluate the impact of emerging technologies like machine learning on compiler development, preparing them for research or careers in advanced software development and systems programming.



## Photos of the Event



Fig 1:

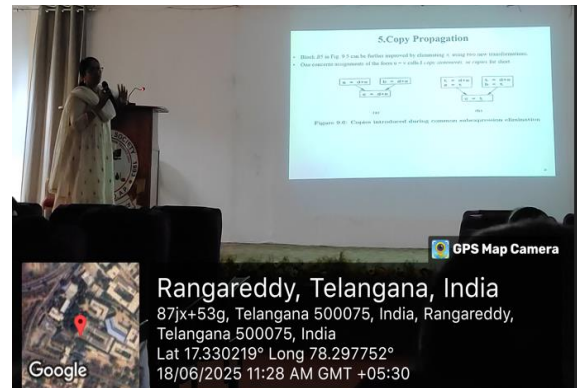


Fig 2:



Fig 3:

## Attendance Sheet

| J. B. INSTITUTE OF ENGINEERING AND TECHNOLOGY                          |            |                          |                              |
|------------------------------------------------------------------------|------------|--------------------------|------------------------------|
| UGC Autonomous                                                         |            |                          |                              |
| II B.Tech- II Sem IT(A,B,C) - 2023 Batch - (2024-25)                   |            |                          |                              |
| Information Technology (Branch code: INF)                              |            |                          |                              |
| Event: Guest Lecture on Advancement in Compiler Design Date:18.06.2025 |            |                          |                              |
| Sl.No.                                                                 | Roll No.   | Name of the Student      | Signature<br>(9.30 to 11.00) |
| 1                                                                      | 23671A1201 | AKKALDEVI LAXMAN CHANDRA | Alexman Chandra.             |
| 2                                                                      | 23671A1202 | BALAM DEEKSHA            | B. Deeksha                   |
| 3                                                                      | 23671A1203 | BALLI ABHINAV            |                              |
| 4                                                                      | 23671A1204 | BANAVATH SRIRAM          |                              |
| 5                                                                      | 23671A1205 | BANDA ABHIRAM            |                              |
| 6                                                                      | 23671A1206 | BANDI SAI SHARANYA       |                              |
| 7                                                                      | 23671A1208 | BODDUPALLY SAIBHARGAVI   | Saibhargavi                  |
| 8                                                                      | 23671A1209 | BOINA VENKAT SAI         | Venkat Sai                   |
| 9                                                                      | 23671A1210 | CHANDAKA PAVAN SAI       |                              |
| 10                                                                     | 23671A1211 | D HASINI                 |                              |
| 11                                                                     | 23671A1212 | DASARI NAVYA TEJA YADAV  |                              |
| 12                                                                     | 23671A1213 | EDLA ANIRUDH             |                              |
| 13                                                                     | 23671A1214 | ELASAGARAM RAMESH        |                              |
| 14                                                                     | 23671A1215 | ELETI SAHASRA REDDY      |                              |
| 15                                                                     | 23671A1216 | G JASWANTH VEER          |                              |
| 16                                                                     | 23671A1217 | G RAMESH                 |                              |
| 17                                                                     | 23671A1218 | GADDE CHARAN             |                              |
| 18                                                                     | 23671A1219 | INDURI PRAKASH           |                              |
| 19                                                                     | 23671A1220 | JINUGU SAMBASHIVA REDDY  |                              |
| 20                                                                     | 23671A1221 | KANJARLA PAVANI          |                              |
| 21                                                                     | 23671A1222 | KATPALLY CHARAN          |                              |
| 22                                                                     | 23671A1223 | KETHAVATH SRINIVAS       |                              |
| 23                                                                     | 23671A1225 | KONDA VARUN              |                              |
| 24                                                                     | 23671A1226 | KUMMARI SHIVA PRASAD     |                              |
| 25                                                                     | 23671A1227 | MADAGOWNI GANESH GOUD    |                              |
| 26                                                                     | 23671A1228 | MALADODDI ABHINAV BENNY  |                              |
| 27                                                                     | 23671A1229 | MEKA GOUTHAM             |                              |
| 28                                                                     | 23671A1230 | MOHAMMED AKIF UDDIN      |                              |
| 29                                                                     | 23671A1231 | MOHAMMED AQILUDDIN       |                              |
| 30                                                                     | 23671A1232 | MOHAMMED ZAIN            |                              |
| 31                                                                     | 23671A1233 | MOTHUKURI VENU           |                              |
| 32                                                                     | 23671A1234 | MULA USHASHREE           |                              |



|    |            |                                  |               |
|----|------------|----------------------------------|---------------|
|    | 23671A1235 | NARIGE ABHINAY                   | Abhinay       |
|    | 23671A1236 | ORAGANTI SRINATH                 | Srinath       |
|    | 23671A1237 | PENDEM MANISH                    | Manish        |
|    | 23671A1238 | POOLLA CHETHANANANTH             | Chethan       |
|    | 23671A1239 | POSA VISHAL                      | Vishal        |
| 38 | 23671A1240 | PULAPALLY GUNASHEKAR             | Gunasekar     |
| 39 | 23671A1241 | RAHMATH ALAM                     | Rahma         |
| 40 | 23671A1242 | RAJABOYINA KOUSHIK YADAV         |               |
| 41 | 23671A1243 | SHASHANK KASALA                  | Shank         |
| 42 | 23671A1244 | SHATTAMONI TAMESHWAR             | S. Tameshwar  |
| 43 | 23671A1245 | SHRAWAN KAVITHA                  | Kavitha       |
| 44 | 23671A1246 | THADAGAM NAVEEN                  | Naveen        |
| 45 | 23671A1247 | THOTAKURA ARJUN SHIVARAM<br>GOLD | Arjun         |
| 46 | 23671A1248 | VANGALA JANAPRIYA                | Janapriya     |
| 47 | 23671A1249 | VUPPALA ANJANI                   | Anjan         |
| 48 | 23671A1250 | ZAFIRA FATIMA NAYEEM             | Fatima        |
| 49 | 23671A1251 | AGIRISHETTY SHIVA KUMAR          | Shiva         |
| 50 | 23671A1252 | BAI SRAVANI                      | Sravani       |
| 51 | 23671A1253 | BANDARAM BINDHU                  | Bindhu        |
| 52 | 23671A1254 | BANOTHU GANESH                   |               |
| 53 | 23671A1255 | BATHULA SHESHADRI                | Sheshadri     |
| 54 | 23671A1256 | BATTU TARUN                      |               |
| 55 | 23671A1257 | BHUKYA VINOD KUMAR               |               |
| 56 | 23671A1258 | BONTHA VASUDEVA                  | B. Vasudeva   |
| 57 | 23671A1259 | BORRA VARUN DARAM TEJ            | Varun         |
| 58 | 23671A1260 | CHELLAM BHAVYA JYOTHI            | Bhavya        |
| 59 | 23671A1261 | CHENAMONI SAICHARAN              | Ch. Saicharan |
| 60 | 23671A1262 | CODDA MURALI                     | Murali        |
| 61 | 23671A1263 | DAHMAN BIN MOOSA                 | B. Moosa      |
| 62 | 23671A1264 | DODDIKINDI SHREYA                | Shreya        |
| 63 | 23671A1265 | ETIKALA KARISHMA                 |               |
| 64 | 23671A1266 | GADDAMIDA JYOTHIKA               | G. Jyothika   |
| 65 | 23671A1267 | GANDHASIRI SURYA PRAKASH         |               |
| 66 | 23671A1268 | GUNDEDI SRAVYA REDDY             | G. Sravya     |
| 67 | 23671A1269 | HANUMANTHU VAMSI                 |               |
| 68 | 23671A1270 | INDROJU SRI VAMSHI KUMAR         | Vamshi        |
| 69 | 23671A1271 | J EVANGEELINA                    | J. Evangelina |
| 70 | 23671A1272 | JAIDEEP REDDY ETIKALA            | J. Jaideep    |