DEPARTMENT OF

COMPUTATIONAL AND DATA SCIENCE

NATIONAL INSTITUTE OF TECHNOLOGY WARANGAL

Department Profile • Academic Programs • Research & Activities

C D S 2 0 2 6



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VISION AND MISSION OF THE DEPARTMENT

VISION

To build an international reputation as a center of excellence in Computational & Data Science research, training, and education, and to inculcate scientific thinking to meet the challenges and growth of science and technology as well as the needs of industry and society, with moral and ethical responsibility.

MISSION

1 QUALITY EDUCATION

Imparting quality education through well-designed curriculum in tune with the challenging formal models and software system needs of the industry.

2 RESEARCH FACILITIES

Providing state-of-art research facilities to generate knowledge and develop technologies in the thrust areas of Computational and Data Science.

3 INDUSTRY-ACADEMIA LINKAGES

Developing linkages with world class organizations to strengthen industry-academia relationships for mutual benefit

MAJOR MILESTONES

A new department built on strong academic roots



ESTABLISHED

2025

Department of Computational And Data Science

UG PROGRAM

2023

B.Tech Mathematics & Computing

PG PROGRAM

1986

MCA program

EVOLUTION OF ACADEMIC OWNERSHIP

1986

1

MCA started by CSE

2023

2

B.Tech M&C started by Mathematics

2025

3

CDS formed; both programs offered by CDS

PROGRAMMES OFFERED

Department of Computational & Data Science

1 B.TECH MATHEMATICS & COMPUTING

STARTED	CURRENT INTAKE	
2023	60	Started by Mathematics; now offered by CDS

LEARNING FOCUS

- Mathematical and Computation Foundation
- Algorithm Design and Complexity Analysis
- Large Scale Data Analysis and Knowledge Discovery
- Interdisciplinary Research and Innovation

DEPARTMENT OF
COMPUTATIONAL AND DATA SCIENCE
ESTD. 2025

2 MASTER OF COMPUTER APPLICATIONS (MCA)

STARTED	CURRENT INTAKE	
1986	58	Started by CSE; now offered by CDS

LEARNING FOCUS

- Computing Models for Real-Life Problems
- Solutions for Complex Business Scenarios
- Modern Computing Tools for Software Innovation
- Professional Skills and Effective Communication

CURRICULUM STRENGTHS: B.TECH MATHEMATICS & COMPUTING



1 MATHEMATICS CORE

Linear algebra, calculus, probability, optimization, algebraic structures

2 COMPUTING CORE

Programming, DSA, OS, DBMS, networks, software engineering

3 AI & DATA SCIENCE

Machine learning, deep learning, social media analytics, computer vision, data mining

4 SYSTEMS & SECURITY

Cloud computing, distributed systems, blockchain, cryptography, cybersecurity

5 PRACTICE ORIENTATION

Labs, design thinking, product development, seminar, internship and projects

CURRICULUM STRENGTHS: MCA

MASTER OF COMPUTER APPLICATIONS

1 PROGRAMMING & SOFTWARE CORE

Programming, OOP, data structures, algorithms, software engineering, design patterns

2 COMPUTING SYSTEMS & NETWORKS

Operating systems, computer organization, DBMS, computer networks

3 DATA & INTELLIGENT TECHNOLOGIES

Data warehousing, data mining, big data technologies, artificial intelligence

4 SECURITY & EMERGING COMPUTING

Information security, cryptography, network security, digital forensics, IoT

5 PRACTICE & PROJECT ORIENTATION

Programming labs, web programming labs, seminar, internships, project work, software deployment, technical writing

FACULTY

Faculty members and areas of expertise



Prof. Manish Kumar Bajpai

Associate Professor

HEAD OF DEPARTMENT

Specializations

Augmented Intelligence, Engineering Applications of Fractional Calculus, High Performance Computing, Image Reconstruction, Machine Vision, Mesh Free Computations



Prof. Devidas S

Assistant Professor

Specializations

Blockchain, Cryptography, Cybersecurity



Prof. Geet Sahu

Assistant Professor

Specializations

Biomedical Signal Processing, Brain-Computer Interface, Computer Vision, Machine Learning/Deep Learning



Prof. Jyoti Prakash Meher

Assistant Professor

Specializations

AI for Software Engineering, Natural Language Processing

FACULTY

Faculty members and areas of expertise



Prof. Pavani Meesala

Assistant Professor

Specializations

Image Hashing, Cryptography, Image Security, Multimedia Security, Zero-watermarking



Prof. Pranesh Das

Assistant Professor

Specializations

Computational Intelligence, Computer Vision, Data Mining, Data Science, Machine Learning



Prof. Vinay Raj

Assistant Professor

Specializations

Software Engineering, Microservices, Quantum Computing

RESEARCH DIRECTIONS

AI & INTELLIGENT SYSTEMS

Research Themes

- Machine Learning
- AI for Software Engineering
- Computer Vision
- Biomedical Signal Processing
- Pattern Recognition
- Computational Intelligence
- Data Mining & Data Science
- Deep Learning

Faculty • Prof. Geet Sahu • Prof. Jyoti Prakash Meher • Prof. Pranesh Das

Applications Healthcare AI • Smart Vision • Human-AI Interaction • Intelligent Software Development • Remote sensing

COMPUTATIONAL & DATA SCIENCE

• Mathematics • Computing • Data Science

ADVANCED COMPUTING & SOFTWARE SYSTEMS

Research Themes

- High Performance Computing
- Quantum Computing
- Fractional Calculus Applications
- Microservices
- Mesh Free Computations
- Software Engineering

Faculty • Prof. Manish Kumar Bajpai • Prof. Vinay Raj Prof. Devidas S

Applications • Engineering Computation • Scientific Computing • Scalable Software • Emerging Computing

CYBERSECURITY & DIGITAL TRUST

Research Themes

• Blockchain • Cryptography • Image Hashing • Cybersecurity • Zero Watermarking • Image Security • Multimedia Security

Faculty Prof. Devidas S • Prof. Pavani Meesala

Applications Digital Trust • Privacy Preservation • Digital Forensics • Secure Multimedia Communication

TEACHING AND STUDENT ACTIVITIES

Core academic practices supporting student learning and development

1

CURRICULUM DELIVERY

Theory courses, laboratory courses, continuous assessment and tutorial support

2

HANDS-ON LEARNING

Programming labs, data science experiments, software development and computing practice

3

PROJECTS & RESEARCH EXPOSURE

Minor projects, major projects, internship/research experience

4

ETHICS & RESPONSIBILITY

Privacy, security, professional ethics and social impact of computing

RESEARCH, COLLABORATION & OUTREACH

Four complementary areas of departmental activity

1

FACULTY RESEARCH

Research publications, project proposals, supervised student research

2

LABORATORIES

Hands-on experimentation in AI, data science, systems, security and vision

3

INDUSTRY CONNECT

Invited talks, internships, real time problem solving and practical case studies

4

ACADEMIC EVENTS

Workshops, FDPs, seminars, student technical talks and expert lectures

WORKSHOP & INVITED TALK





ROADMAP FOR GROWTH

Strengthening the department for future growth



NIT WARANGAL

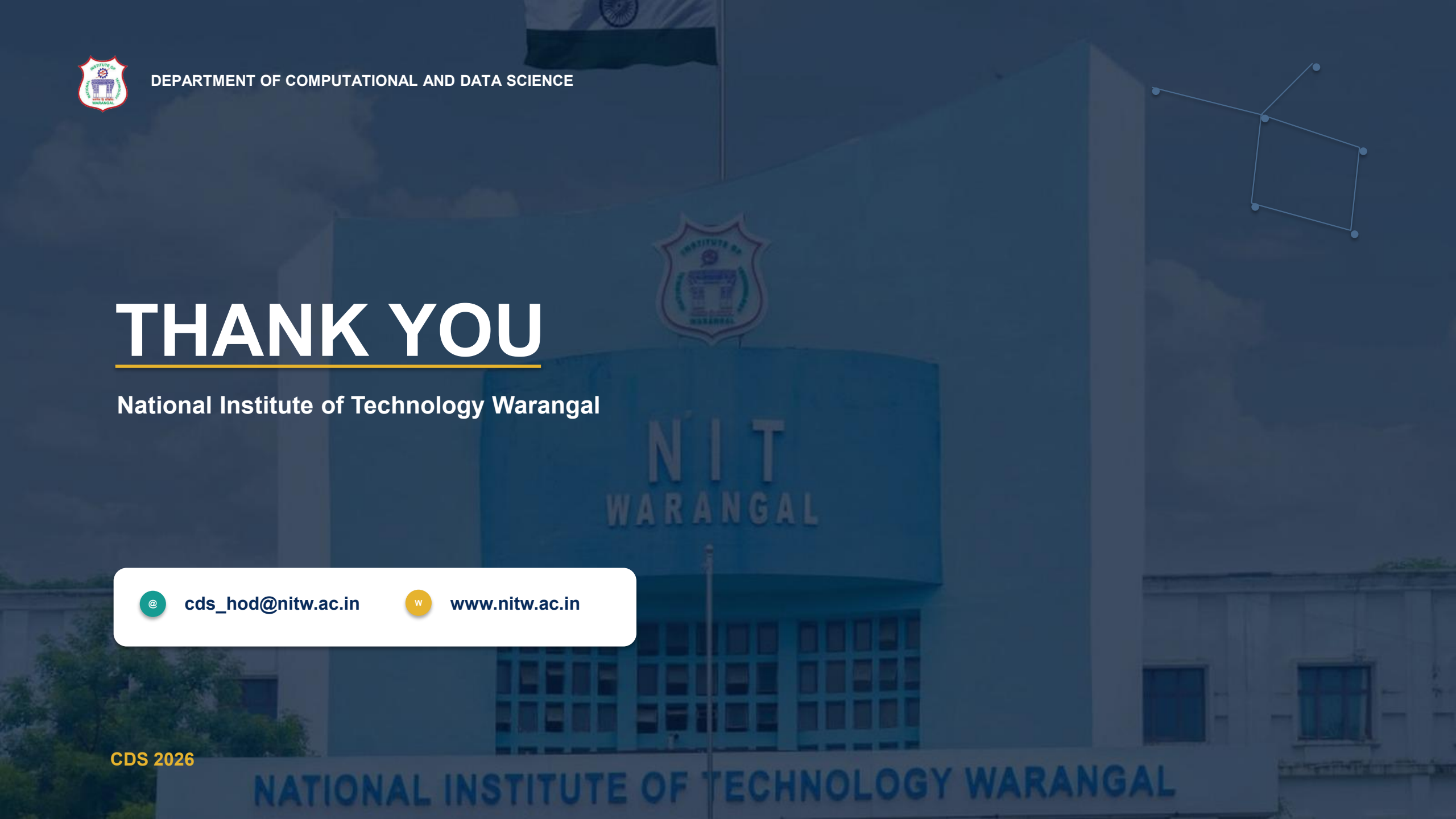
1 Strengthen Curriculum
Regular updates in AI, data science, security, cloud and mathematical computing.

2 Build Research Ecosystem
Focused groups, labs, funded projects and publication-driven outcomes.

3 Enhance Industry Interface
Internships, expert lectures, real-world problems and collaborative projects.

4 Create Student Innovation Culture
Hackathons, technical clubs, seminars, coding and research showcases.

Goal: Excellence in education, research, innovation and ethical technology development.



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THANK YOU

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