INFORMATION BROCHURE

2019-20

Dr. Shyama Prasad Mukherjee
INTERNATIONAL INSTITUTE OF
INFORMATION TECHNOLOGY
Naya Raipur
Chattisgarh, India 493661

CONTENTS

MESSAGE FROM CHAIRMAN (BOARD-IIIT NR)

Four years ago, a young bright IAS officer of Chhattisgarh Government called me and invited me to help set up an IIIT in the new Smart City of Naya Raipur. He said that their vision was to create a University of global standards, complimenting a hub of education institutions - IIT, AIIMS, IIM, National Law University. They were keen to utilize my experience and expertise in IT for helping them to start the IIIT at Naya Raipur.

 I took up the challenge to Chair the Board of the University and our vision was to create an institute that could go beyond the traditional way of teaching and research. The University infrastructure was funded to the tune of Rs. 200 crores through the CSR contribution of NTPC. NTPC had created sufficient infrastructure by 2015 to start the institute in a sprawling 50-acre campus.

Chairman (Board)

I decided to put together an eminent Board that will guide the University. I brought in the famous Dr. Paulraj from Stanford University, Mr. Sujit Baksi who had more than 30 years of experience of HR and Business Management in IT Sector, Dr. Gairola who headed the e-Governance initiatives of the Central Government, and Mr. Steven Pinto who had experience of running a Global Bank. In addition, we had the benefit of some young IAS officers of State Government who ran their IT and Technical Education portfolio. NTPC also brought in experienced managers to be part of the Board.

Under the mentorship of the Board members, IIIT-Naya Raipur has been able to quickly establish itself and is known today as one of the fastest upcoming premier academic institutions of the country. This is very obvious from the placements of the first batch of students of the institute and the growing competition for seats in the institute during its admission process. I invite you to experience the academic and professional environment of IIIT Naya Raipur, which started its journey of fostering knowledge, creativity and innovation with an aim to make a difference to our society.

Mr. Ajai Chowdhary
Founder-HCL

MESSAGE FROM CHAIRMAN-IACA

Understanding the importance of healthy interaction between Institutions and Industry as critical for growth of any institution, IIIT-Naya Raipur has constituted Industry Academia Collaboration Cum Advisory Committee (IACA). Since its inception, IACA has been instrumental in guiding corporate interface through intense industry connects and practices.

Our students are highly encouraged to undertake industry projects, presentations, case studies, research work and working as trainees to gain practical experience of industrial working environment. Making them ready for a successful professional career, we has undertaken special initiatives such as Pre-placement Training, Industry-Academia Meet, Workshops and Seminars.

Chairman (IACA)

We are in the process of building significant international associations with renowned International Universities for internship and training, giving our students the much required global exposure.

From the moment of its inception, IIIT-Naya Raipur has witnessed an enthralling elevation in the field of technical excellence, research, development and industrial collaboration. We received an overwhelming response from the organizations where our students underwent internships and during the placements of the pioneer batch. The certification of our students as highly productive and industry ready assures us that the quality of the students coming out of the institute is as par with those from the best of academic institutes.

Being a new institute, IIIT-Naya Raipur is nimble and aggressively pursuing opportunities to collaborate with leading Indian & Multinational companies, Public sector organizations, Financial institutions and others. We highly value our partnership with the industry and remain committed to make your association with IIIT-Naya Raipur productive and positive. Our IACA team takes this opportunity to invite your esteemed organization to visit our campus for recruitment of our students. It will be a great privilege for us to welcome you at IIIT-Naya Raipur.

Mr. Sujit Bakshi
President-Corporate Affairs and Head India Business
Tech Mahindra

INDUSTRY ACADEMIA COLLABORATION CUM ADVISORY COMMITTEE (IACA)

SUJIT BAKSI PRESIDENT-CORPORATE AFFAIRS AND HEAD INDIA BUSINESS, TECH MAHINDRA)

Sujit Baksi is an accomplished business leader with over 30 years of experience in the IT industry. A stalwart in the areas of people management, operations management and corporate strategy, Mr. Baksi is the President, Corporate Affairs Tech Mahindra. His track record includes being President - Global Operations, Customer Services and CEO, HCL Technologies (BPO Solutions and Services).
Mr. Baksi is a graduate of Presidency College, Kolkata and holds a Master's Degree in Personnel Management from XLRI, Jamshedpur.

R S THAKUR (CHAIRMAN, TAL MANUFACTURING SOLUTIONS LTD)

R S Thakur started his career in Union Carbide India Limited as Management Accountant but quickly moved to TATA Motors Limited (Then TELCO) as Officer Trainee (Finance) in the plant at Jamshedpur where he spent 28 years heading the Finance function and then heading the Manufacturing Engineering function before moving to the Corporate office in Mumbai to head the Finance function concentrating on Financial restructuring, M & A, Treasury and Business Planning. Then he moved to Tata Autocomp Systems Limited as MD and CEO where he turned around the company decisively. He retired from this position at the age of 65 in 2013. His first love is teaching and he has taught MBA classes in various institutes for thirty years.

AQUIL BUSRAI (CEO, AQUIL BUSRAI CONSULTING)

Aquil Busrai has 45 plus years of industry experience in various HR roles. He was Executive Director-HR at Motorola, Director-Human Resources at Shell Malaysia, Managing Director of Shell People Services Asia Sdn Bhd, and Executive Director-Human Resources at IBM India Ltd. He is currently CEO of Aquil Busrai Consulting. A Gold Medallist from XLRI, Dr. Busrai is on the National Council of CII, ASSOCHAM, SHRM, and on the board of several education institutes and Corporate. He is a visiting faculty at Berkeley EMP, UCLA PGPX, and IIMs in India. He is a fellow of All India Management Association and Past National President of HRD Network.
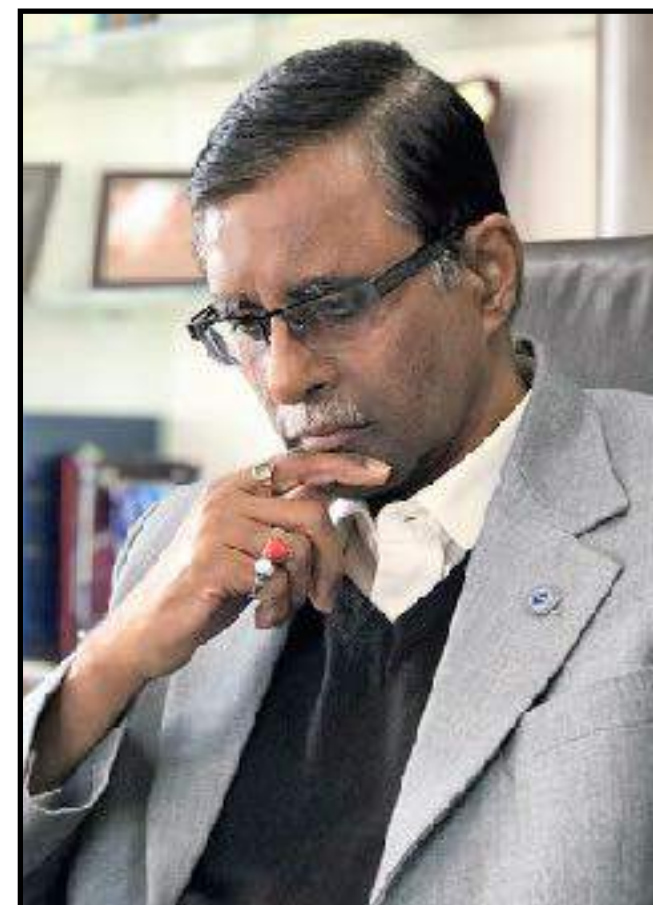
RAVI VIJ (ENTREPRENEUR AND ANGEL INVESTOR)

Ravi Vij has 22 years of experience in Indian and Multinational Companies across Automotive and Technology Sector. He is a Fulbright Nehru Research Fellowship Scholar from Carnegie Mellon University. He has completed his Bachelor of Mechanical Engineering from Nagpur University and Advanced Accelerated Management Program from Harvard Business Publishing. Mr. Vij is currently engaged in incubation of a new business venture in healthcare manufacturing and services area as an entrepreneur. In his last corporate role, he was working with Tech Mahindra for 7.3 years and globally lead the P&L for Business Transformation Services functions which included Automation, Analytics & Consulting (AAC) portfolios.

MESSAGE FROM DIRECTOR

Director

IIIT-Naya Raipur, a recent addition to the IIITs of India, is committed to pursue excellence in creating highly successful professionals in IT and associated disciplines. In a short span of two years of its existence, it has created a respectful position for itself, which is obvious from the year-on-year improvement in the quality of students admitted to this institute.

The institute firmly believes and strives hard to impart knowledge and entrepreneurial skills to its students to enable them to address real-world problems with ease. To empower this vision, in addition to one of the best academic cultures, we nurture a campus culture that fosters highest standard of professionalism in the students. The institute offers high academic standards through unique knowledge dissemination pedagogy, creative projects, industry interactions and innovation at all levels. Every UG student goes through a process of assimilating theory with experimental learning by undertaking five research/design projects during the UG programme.

Additionally, we create a competitive environment by encouraging our students to actively participate in national and international level events such as, ACM-ICPC, HULT Prize, CodeChef, HackerRank, etc. Students develop requisite soft skills that are necessary to excel in industry work culture, by participating in various extra-curricular activities. They are kept updated on the latest technology trends through regular Industry-Academia Meet and Corporate Lecture series. All these avenues help in developing our students as confident professionals, who are bound to succeed wherever they go.

> **The institute firmly believes and strives hard to impart knowledge and entrepreneurial skills to its students to enable them to address real-world problems with ease.**

Dr. P. K. Sinha
Director
International Institute of Information Technology, Naya Raipur

THE INSTITUTE
IIIT NAYA RAIPUR

VISION

To Create an Institute of Excellence in IT Education and Research for Meeting the Emerging and Challenging needs of the Society.

- Established as a University by the Govt. of Chhattisgarh.
- Recognised by UGC as State University.
- Guided by a highly eminent Board.
- Located in the capital of Chhattisgarh with good connectivity.

Dr. Shyama Prasad Mukherjee International Institute of Information Technology Naya Raipur (IIIT-NR), established by the International Institute of Information Technology University Act, 2013 of the Government of Chhattisgarh, is a joint venture by Chhattisgarh State Government and National Thermal Power Corporation (NTPC).

The institute is committed to pursue excellence in higher education, research and development in Information Technology (IT) and associated disciplines. It firmly believes in bestowing knowledge dissemination and imparting entrepreneurial skills to the students to enable them to address real world problems. To empower this vision, IIIT-NR fosters state-of-the-art research and product development laboratories to carry out interdisciplinary research and product development endeavours.

Dr. SPM IIIT-NR's fifty-acres residential campus is located in the newly developed smart city of Naya Raipur, approximately 23 kms from the city of Raipur. The vibrant lush green campus of IIIT-NR is enabled with Wi-Fi connectivity, CCTV surveillance and excellent amenities for sports and other recreational activities.

- Fully residential campus with state-of-the-art infrastructure.
- Industry driven curriculum with focus on fostering innovation and entrepreneurship among students.
- Focus on teaching, research and consultancy.
- Equipped with e-enabled teaching and learning facilities.

MISSION

Produce High Quality IT Professionals and Foster Technological Innovation for Social Upliftment.

CAMPUS LIFE @IIIT

Lectures, guest lectures, assignments, tests and more lectures! A day that typically starts from 8'O clock in the morning, does not fail to keep the students on their toes throughout the day. But there's more to life at IIIT Naya Raipur than just its academic rigour. Sports competitions, cultural and literary events, movie sessions – these would-be engineers know how to unwind themselves and celebrate life as well! Located in India's first Green Smart City, the campus of IIIT Naya Raipur offers unfettered access to nature amidst which these budding engineers strive to reach the zenith. If major projects, tutorials, simulations and industry interactions serve to supplement the engaging lectures from some of the finest professors around, the various committees and the multitude of clubs and special interest groups provide ample opportunities to the students for developing and honing their skills and interests. The year-round activities that witness the involvement of all the students with tremendous zeal and gusto foster the extension of the ambit of their experiences as well as shape them into well-rounded individuals.

To be one of the newer members in the IIIT family has its own advantages. There are endless opportunities all around! As the engineers of the future transform these opportunities into realities, they discover the leader in them and learn to handle situations from an overall perspective.

ACADEMIC PROGRAMS

DSPM-IIITNR runs two undergraduate programs: B.Tech in Electronics & Communication Engineering (ECE) and B.Tech in Computer Science & Engineering (CSE). These credit-based programs are designed to foster core skills with innovation and entrepreneurship skill among students.

The dynamic structure of the curriculum orchestrates with the changing needs of industry and academia. IIIT-NR also run doctoral programs as mentioned in the table below.

Level	Program	Duration
Undergraduate	B.Tech (ESE)	4 Years
	B.Tech (CSE)	4 Years
Doctoral	Ph.D. (CSE)	-
	Ph.D. (ECE)	-
	Ph.D. (Physics)	-
	Ph.D (Mathematics)	-
	Ph.D. (English)	-
	P.hD.(Management)	-

LABORATORIES

Institute has developed modern laboratories within a short span of time. Major labs are:

Data Science Lab	VLSI & Embedded System Labs
Networks Lab	Wireless Communication Lab

KEY ACADEMIC INNOVATION

- Skill First, Theory Later, Projects Integrated
- First four semesters common to both CSE & ECE
- Fractal Academics
- Engineering courses right from First semester instead of 12th ++ courses in First year
- Industry-linkages
- Professional skills development in addition to technical skills

Projects Integrated Model

- Fosters project-based learning
- Allows learning by application of theory
- Enables development of both soft skills + technical skills required for project execution
- B. Tech. students have to do three mini projects of 2 credits each in 5th, 6th and 7th semesters and one major project of 6 credits in 8th semester
- A student can do the same project from 5th to 8th semester for increased depth, or different projects for increased breadth
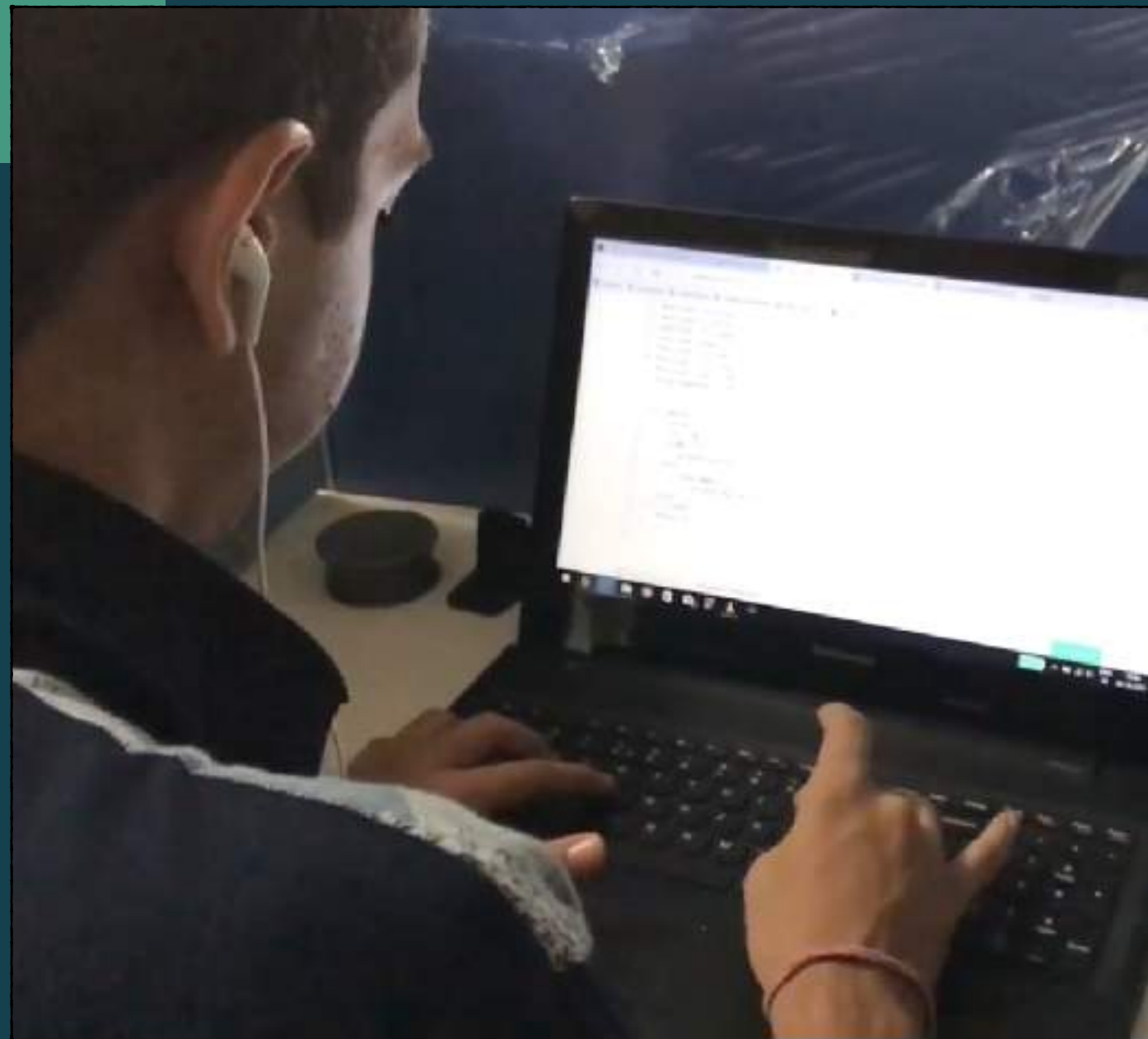
ACADEMICS

The curriculum has been designed in such a manner that it focuses on encouraging skill building, innovation and entrepreneurship among students. After 2 years i.e. from 5th semester, all the students of IIIT-NR undertake interdisciplinary research and industrial projects under the supervision of faculty or industry.

To enable 360-degree education, the courses defined comprises various elements which not only impart necessary technology skills and entrepreneurship skills but also guide the students into becoming a true professional for the connected world. The offered courses are classified under the following heads :

Base Core	Professional Core	Professional Elective	Humanities & Social Sciences
Themes	Business and Management	Product Design Project	Others

Along with the required coursework, all B. Tech. students have to undertake at least one Product Design Project (PDP). This is project work equivalent to 3 courses, spread over 1 to 3 semesters as chosen by the student and shall begin after the 4th semester. The project work may be carried out off-campus in an industry or R&D institution, in an in-house research lab, in an incubator (on or off campus) among others.

COMPUTER SCIENCE AND ENGINEERING

60 Students
in Batch of 2016

60 Students
in Batch of 2017

COURSE STRUCTURE

1st Semester

- Mathematics-I
- Programming Languages
- Business Law
- Digital Design
- Engineering Physics
- Professional Communication

2nd Semester

- Discrete Mathematics
- Data Structures & Algorithms
- Mathematics-II
- Electronic Device & Circuits
- Principles of Management & Economics
- Programming Lab in C++

3rd Semester

- Mathematics-III
- Computer Organisation & Architecture
- Environmental Engineering & Science
- Object Oriented Methodologies
- Design and Analysis of Algorithms

4th Semester

- Signal & Systems
- Operating Systems
- VSI Technology & Design
- Communication System
- Database Management System-I
- Sensor & Actuators

COURSE STRUCTURE

5th Semester

- CSE-Core Data Communication & Computer Networks
- CSE-Core Formal Languages & Automata Theory
- CSE-Core Software Engineering
- CSE-Core Data Mining & Warehouse
- Elective-I: Artificial Intelligence
- Elective I: Database Management System 2
- Minor Projet-1

6th Semester

- CSE-Core Compiler Design
- CSE-Core Computer Systems Security
- Elective II: Machine Learning
- Elective III: Computer Vision
- Elective IV: Distributed Parallel Algorithm
- Minor Project-2
- Digital Marketing

8th Semester

- Major Project

7th Semester

- Open Elective- V
- Open Elective- VI
- Open Elective -VII
- Industry Track Elective I
- HSS Elective: Entrepreneurship or Professional Ethics
- Minor Project-3
- Special Elective VII

ELECTIVES

- Parallel Distributed Systems
- Advanced Database Management
- Distributed Algorithms
- Advanced Computer Architecture
- Advanced Operating Systems
- Data Science Systems Cloud Computing
- Advanced Database Management Systems
- Machine Learning
- Applied Artificial Intelligence
- Computer Vision
- Game Theory
- Internet of Things
- Cyber Security and IT Laws
- Adhoc and Sensor Networks
- Green Computing
- Software Defined Networking
- Principles of Cryptography

- Natural Language Processing
- Simulation and Modeling
- Data Analytics and Visualisation
- Social Media Analytics
- Service Oriented Architecture
- Neural Networks
- Robotics
- Image Processing
- Pattern Recognition
- Computer Graphics and Multimedia
- Advanced Computer Networks
- Mobile Computing

COMPUTER SCIENCE & ENGINEERING

ELECTRONICS AND COMMUNICATION ENGINEERING

60 Students in Batch of 2016

60 Students in Batch of 2017

1st Semester

- Mathematics-I
- Programming Languages
- Business Law
- Digital Design
- Engineering Physics
- Professional Communication

2nd Semester

- Discrete Mathematics
- Data Structures & Algorithms
- Mathematics-II
- Electronic Device & Circuits
- Principles of Management & Economics
- Programming Lab in C++

3rd Semester

- Mathematics-III
- Computer Organisation & Architecture
- Environmental Engineering & Science
- Microprocessors & Microcontrollers
- Network Analysis & Synthesis

4th Semester

- Signal & Systems
- Operating Systems
- VSI Technology & Design
- Communication System
- Database Management System-I
- Sensor & Actuators

COURSE STRUCTURE

5th Semester

- Data Communication & Computer Networks
- Electromagnetic Theory
- Digital Signal Processing
- Analog Integrated Circuits
- Elective I: Information Theory & Coding, Artificial Intelligent
- Minor Project-1

6th Semester

- ECE-Core Wireless Communication
- ECE Core-Control Systems
- Elective II: Microwave and Radar Theory
- Elective III: Device Circuit and Simulation
- Elective IV: Optical Fiber Communication
- Digital Marketing
- Minor Project- 2

7th Semester

- Open Elective- V
- Open Elective- VI
- Open Elective -VII
- Industry Track Elective I
- HSS Elective: Entrepreneurship or Professional Ethics
- Minor Project-3
- Special Elective VII

8th Semester

- Major Project

ELECTIVES

- Digital System Design with FPGAs and CPLDs
- Semiconductor Device Modelling for Circuit Simulation
- Advanced CMOS and Beyond CMOS
- Digital IC Design
- Analog and Mixed Signal IC Design
- 3D IC Design
- Fibre-Optic Communication
- Wireless Sensor Networks
- Optical Communication
- Advanced Communication
- Integrated Circuits for Communication
- Optoelectronics and Photonics
- Digital Image Processing
- Pattern Recognition
- Multimedia Information System
- Biomedical Signal and Image Processing

- DSP System Design
- Adaptive Signal Processing
- SOC Design
- System Design For IOT
- Computer Aided Design for VLSI System
- Real Time System
- HW/SW Co-design
- Dynamics of Linear Systems
- Medical Devices and MicroSystems
- Mechatronics
- Biomedical Instrumentation
- Nonlinear Control Engineering
- Robotics
- Advanced EMFT
- RFIC Design and Testing
- Smart Antennas
- Millimeter Wave Technology
- Introduction to Radar Technology

ELECTRONICS & COMMUNICATION ENGINEERING

FACULTY

Computer Science & Engineering

- **Dr. Vivek Tiwari,** Assistant Professor**,** *Ph.D, NIT Bhopal*
- **Dr. Venkanna U.,** Assistant Professor, *Ph.D, NIT Trichy*
- **Dr. Muneendra Ojha**, Assistant Professor, *Ph.D, IIIT Allahabad*
- **Dr. Santosh Kumar,** Assistant Professor, *Ph.D, IIT BHU*
- **Dr Satyanarayana Vollala,** Assistant Professor, *Ph.D, NIT Trichy*
- **Dr. Ruhul Amin**, Assistant Professor, *Ph.D, IIT Dhanbad*
- **Dr. Srinivas Naik,** Assistant Professor, *Ph.D, CUH*

Electronics & Communication Engineering

- **Dr. Subhendu K. Sahoo,** Associate Professor, *Ph.D, BITS Pilani*
- **Dr. Rajarshi Mahapatra,** Associate Professor, *Ph.D, IIT Kharagpur*
- **Dr. Maifuz Ali,** Assistant Professor, *Ph.D, IIT Kharagpur*
- **Dr. Shrivishal Tripathi,** Assistant Professor, *Ph.D, IIT Jodhpur*
- **Dr. Manoj Majumdar,** Assistant Professor, *Ph.D, IIT Roorkee*
- **Dr. Debanjan Das,** Assistant Professor, *Ph.D, IIT Kharagpur*
- **Dr. Anurag Singh,** Assistant Professor, *Ph.D, IIT Guwahati*
- **Dr Bipin Chand Mandi,** Assistant Professor, *Ph.D, IIT Kharagpur*

Management

- **Dr. Amit Kr. Agrawal,** Assistant Professor, *Ph.D, IIT Roorkee*

Physics

- **Dr. Punya P. Paltani,** Assistant Professor**,** *Ph.D, BIT Mesra*

English

- **Dr. Sresha Yadav, Assistant Professor,** *Ph.D, IIT Roorkee*

Mathematics

- **Dr. Mithilesh Chaube,** Assistant Professor, *Ph.D, IIT BHU*
- **Dr. Ramakrishna Bandi,** Assistant Professor, *Ph.D, IIT Roorkee*

Visiting Faculty

- **Dr S.V. Raghvan,** Professor, *IIT Madras*
- **Dr. S.K. Gupta,** Professor, *IIT Delhi*
- **Dr. L.M. Patnaik,** Professor, *IISc Bangalore*
- **Dr. Summet Gupta,** Associate Professor, *IIM Raipur*
- **Dr. Ashish Kumar Maurya,** Assistant Professor, *Ph.D, IIT BHU*
- **Dr. Amrita Mishra,** Assistant Professor, *Ph.D, IIT Kanpur*
- **Dr. Dilip Singh Sisodia,** Assistant Professor, *NIT Raipur*
- **Dr. Rajiv Dey,** Assistant Professor, *NIT Raipur*
- **Dr. Ashish Kumar Srivastava,** Professor, *Pt.RSSU*
- **Dr. Jaya Rathor,** *Assistant Professor, Pt. RSSU*

ACADEMIC INTERNSHIPS

IIM Lucknow

NUS National University of Singapore

IIT Bombay

UNIVERSITY OF MALAYA

IIT Kanpur

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

National Taiwan University

National Chung Cheng University

IIST

UNIVERSITY OF ABERDEEN

IIT Kharagpur

IIT Guwahati

NIT Nagpur

IIT Indore

IIIT Allahabad

INDUSTRY INTERNSHIPS

HAL

Honeywell

BHEL

NTPC

Mitsubishi

BHARAT ELECTRONICS

सेल SAIL

CDAC

CRIS

INKERS

Stratagem INTERNATIONAL

investosure solutions for everyone

biztime Enhance Business Productivity

LTT GLOBAL COMMUNICATIONS

WES CONSULTANCY AND SERVICES PVT. LTD.

CLUBS AND SOCIETIES

AppetIIIT
App-Development Society

Antardhwani
Literary Society

Sankalp
Social Development Society

Caprpriccio Music Club

Ignis Dance Club

Editorial Committee

Dramatics Society

Atharv Sports Club

Buzz-Technica
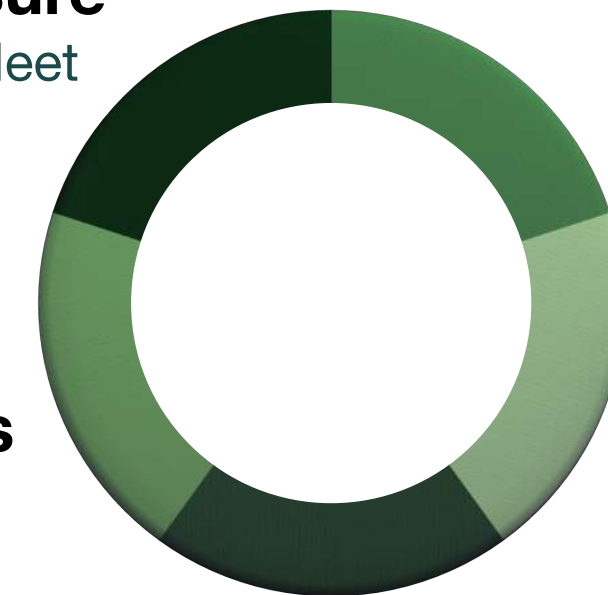### Computing Society

Robotics Club

QUICK LOOK

Corporate Exposure
Industry Academia Meet

14:1
Student Faculty Ratio

Admission Process
JoSAA (GFTI)

15%
Foreign Internships

CDAC
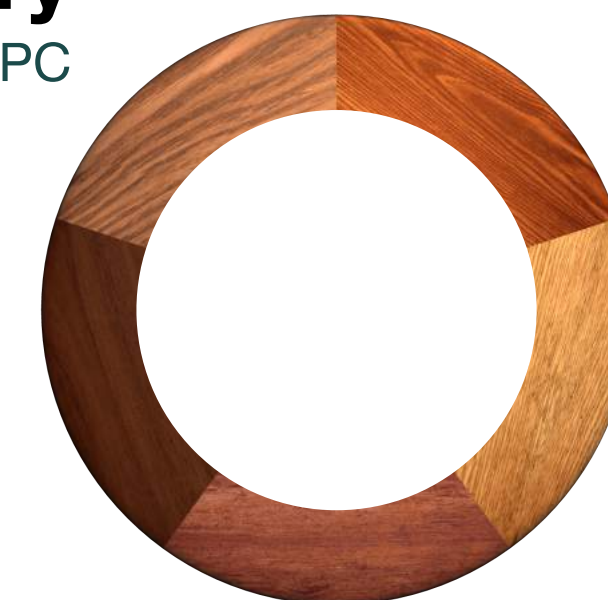Industry MoU

COLLABORATIONS

Industry
NTPC

Academic
IIIT Bangalore

Ecosystem
Muktangan

Government
Naya Raipur
Development Authority

International
Malaysian Global Innovation
and Creativity Centre