INSTITUTE PROFILE

NATIONAL INSTITUTE OF TECHNOLOGY RAIPUR

IN THIS BOOK

About the Institute

VISION

"To be a leader in technical and management education in India and to establish a unique identity for the development of high quality human and knowledge resource in diverse area of technology and management"

MISSION

"To Re-engineer the engineering education and to mould young students into rational thinking engineers who are motivated by a passion for professional excellence driven by human values and proactively engaged in betterment of society."

OBJECTIVES

- Creating an environment to make teaching more learning centric rather than curriculum centric.
- To attract and retain highly qualified, talented, motivated staff.
- To focus not only on quality education but on total quality management of NIT Raipur.
- To provide good academic support facilities (Lab, Library, Internet) on continuous basis.
- To develop industry Institute interface for collaborative research, internship and fellowship for PG program.

DIRECTOR SIR MESSAGE FOR INSTITUTE PROFILE

National institute of Technology Raipur (NIT Raipur), formerly Government Engineering Collage, Raipur has been blessed with a rich and glorious history of Sixty One years behind them. The story of this NIT Raipur is the story of its evolution from the small seed in the form of Government College of Metallurgical and Mining engineering to the Institute of national importance with 12 undergraduate, 10 Post graduate and Vibratnt PhD programme.

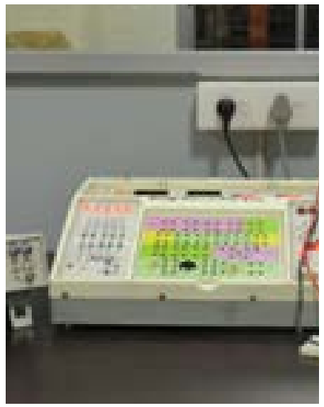
The Institute has marked its presence as a leading research and teaching Institute in of the country. In particular, we aspire to address some of the challenges that our globe faces today in the areas such as renewable energy, structural engineering, mining engineering, water technology, biomedical science, environmental science, materials science and metallurgy, transportation, wireless communication, computing and mechanical engineering and technology.

The mission of NIT Raipur is to excel in the field of technology in the backdrop of glorious intellectual and cultural life of the region making the Institute one of the most preferred destination for young students aspiring to emerge as successful technologists. In the following pages we have tried to provide a glimpse of NIT Raipur.

With the support of well qualified faculty members and excellent infrastructure I am confident that we shall be able to continue to add to the intellectual and professional development to the industries, community and the country.

The glorious history of NIT Raipur, reminds us of our responsibilities towards our future generation in ensuring a healthy, strong and self-reliant India. I am hopeful that the institute with its sustained efforts will be able to achieve greater heights and the work culture, which is unique and distinct for sincerity and commitment, will be treasured by the faculty and staff of the institute to contribute their mite in improving technical education and services to community, industries and country. With support from all stakeholders, we are determined to make our endeavour a success.

Dr. Sudarshan Tiwari
Director
NIT Raipur



DEPARTMENT DETAILS

Department of Architecture

About the Department

Incepted in the year 1984, Department of Architecture , as a part of the then Government Engineering College Raipur, was the first to impart Architectural education in Chhattisgarh Region.

Starting with a modest student strength of 20, the intake was enhanced to 40 in the year 2001. As per OBC reservation policy of GOI, the intake is increased to 62 in the year 2009.

Vision

The vision of the Department of Architecture is:

"Educating the coming generations in the art and science of making buildings, by producing architects who would be able to consciously design spaces and built forms that would not only solve the problems of built environments today but also would shape it for the future generations."

Objectives

- The objective of the department has constantly been to improve and enhance the current facilities and quality of academics in the department.
- Enhancing the infrastructure for the department.
- Developing State of the Art Laboratories for the department.
- Introducing a Two Year program for Masters Degree in Town Planning.
- Introducing a Two Year program for Masters Degree in Architecture.
- Introducing a Student/Faculty exchange program.

Academic and Research programs with area of research

The academic and research programs conducted by the Department may be summarized as follows:

1. U.G. in Architecture- 5 year program
2. Ph. D. in Architecture & Planning,
3. Short Term courses
4. Research and Consultancy projects

Ph. D. programs include areas of research such as Space Syntax, Geometry in Architecture, Pre- cast and Pre fabricated

Buildings, Climate responsive buildings, Sustainable Architecture etc.

Career prospects and course structure

The Undergraduate program includes a four year study period and one year of professional training for the students. During the tenure of the course the department also organizes educational tours for the students as a part of academic curriculum to give the students an exposure to various architectural achievements, both historical and modern, that helps them to understand the subject in a better manner. Following the B.Arch. course the students have an opportunity to pursue a Masters Degree in a wide range of topics such as Interior Design, Landscape Architecture, Architectural Conservation, Town/Urban Planning, Urban Design to name a few. Otherwise they may join as a junior Architect in any of the reputed firms in the country or abroad. The students may also start their own consultancy office immediately after their B.Arch if they wish to. However some students with an inclination towards academics can also join as faculty members in Architecture or Interior Designing institutes or the like.

Placement scenario

The students from this institute have been recruited by many eminent architectural firms around the country. Through faculty support and guidance, the students develop very impressive portfolios which, along with a strong alumni network, are key to their selection in the best architectural firms in the country and abroad. They are also updated from time to time about entrance examinations conducted by large firms hiring professionals from the field of architecture. Exceptional students are also offered jobs and internships by professionals visiting the department for external examinations and evaluations. Some of our students are also employed by Development Authorities such as RDA & NRDA and currently working on planning projects of very large scales.

Conferences, Workshop and Short Term Courses organized.

The Department organizes seminar, workshops and expert lectures from eminent academicians and practicing architects to keep pace with the changing scenario in the field. Some of them are listed below-

- Training of Earthquake engineering for Architects.
- Expert lectures on Sustainability and the built environment.
- Workshops held by professionals representing companies such as JK Cement, R K Enterprises, Ambuja Cement etc.
- International workshop on Housing.

Apart from the courses and workshops conducted in the department, the faculty has been actively participating and attending workshops and seminars held in different parts of the country as well as abroad. Senior faculties are active in paper presentations in their topic of research in institutes all over Europe and Asia.

Infrastructure laboratory and testing facilities

Active participation of the students in the various laboratories is encouraged. As the profession demands a combination of classroom teaching and field training the department emphasizes on a hands on experience of the processes of construction and visualization of their proposals in 3-D form. There are five studios/classrooms for the five batches. These studios are equipped with imperial size drafting boards for each student, Auto slide projector screens and Audio systems. The Department is equipped with the following state of the art laboratories -

List of Laboratories

Building Material Laboratory

Model Making Workshop

Computer Laboratory

Survey Laboratory

ART STUDIO

Exhibition Space

Architecture Library

Architecture Auditorium

R&D and consultancy work

The consultancy work done by the department is listed as follows

- Structure design and work drawing of Veterinary College at Angora.
- Renovation & Conservation of Guru Ghasidas Gurugaddi Gurudwara at Bhandarpuri.
- Department of Architecture building at Pt. Ravishankar Shukla University, Raipur.
- Girl's Hostel building at Pt. Ravishankar Shukla University, Raipur.
- Boy's Hostel building at Pt. Ravishankar Shukla University, Raipur.
- Mathematics & Statistics Department building Pt. Ravishankar Shukla University , Raipur.
- Extension of Arts building at Pt. Ravishankar Shukla University, Raipur.
- Extension of Science building at Pt. Ravishankar Shukla University, Raipur.
- Identification of Heritage sites of Chhattisgarh for INTACH.
- Campus Planning of AFA

Success stories

A number of our students have made it to eminent international institutes for higher education and have made our institute proud. With constant guidance and support from the faculty at our institute the students have been exposed to various opportunities around the globe. Many students return to the institute after achieving great heights and speak to the current students about their experiences. This is not only very encouraging for the students but also inspirational, as a lot of students coming to our institute are from small cities with little exposure. With exceptional performances in their thesis some of our students have been awarded the Yuva Ratna and have been given sponsorships by agencies to carry forward their research. A lot of our students clear international and national competitions such as GATE, GRE, TOEFL, IELTS etc. with excellent scores which helps them get handsome scholarships for pursuing their masters course. The participation of the students in the Annual as well as Zonal NASA(National Association of Students of Architecture) competitions has been commendable in the past few years. They have managed to secure top positions in various trophies and have been appreciated at a national level for their level of work and impressive presentations. All the consultancy work carried out by the department has been completed successfully and is in function. The faculty at the institute is actively involved in research work on Sustainable Architecture, Space Syntax, Pre fabricated construction, Climate responsive buildings to name a few areas, and has been presenting research papers on the same at National as well as International platforms.

Our alumni

The alumni network at our institute is very well connected and very well placed. Most of them are practicing architects making their mark in the field of architecture, planning and construction. Reputed firms such as Agarwal & Agarwal Associates of Kolkata, Creative Group (principal architect Charanjit Shah), Karan Grover & Associates, to name a few, hire students from our institute and come back with a very positive feedback about them. Some students also venture into joint partnerships to open up firms, such as SPECON which is a joint venture by the alumni of the institute and is running their branch offices in various cities across India. There is active involvement of the alumni in the upkeep of the departmental standards, through visiting lectures, external juries and presentations. Some alumni (like SPECON) also provide a cash prize for the BEST THESIS AWARD, which is of great encouragement to the students.

Services to be extended in form of JV, collaboration, on-site testing etc.

With the provision of the laboratories available in the department the students are able to conduct tests for live sites and projects executed by the professionals in the field. Climatic data can be analyzed for real projects through lab tests in our laboratories. The department offers its expertise in Town planning projects, Sustainable research, Pre fabricated construction, energy efficient buildings, High-rise construction, climate responsive buildings and many more such live projects.

Professional Technical Bodies

The institute has a student body called ASAR (Association of Students of Architecture Raipur) which is actively involved in organizing and hosting events, such as Archi Fest, Expert Lectures, Teachers day functions etc. , in the department. Apart form these functions the student body periodically conducts tree plantations, cleaning drives and social work initiatives. It provides the student s with exposure to handle different types of events and develop management skills, which prove effective in the professional field. Our faculty members are registered members of the Council Of Architecture (COA), Indian Institute of Architects (IIA), Institute of Indian Interior Designers (IIID), Indian Building Congress (IBC), Institute of Town Planners India (ITPI), Indian Society of Technical Education (ISTE), INTACH, CREDA and many such bodies related to our profession. An active involvement in the events hosted by the above mentioned bodies keeps our faculty members updated about field work and professional practice.

Human Resources

S.No	Name	Designation	Areas of Research	Email Id
1.	Dr. Abir Bandyopadhyay	Professor & Head	History of Architecture, Town Planning, Space Syntax Analysis, Architectural Conservation	abandyopadhyay.arch@nitrr.ac.in
2.	Debashis Sanyal	Associate Professor	Intelligent Super tall Buildings, Energy Efficient Housing, Industrialised Mass Housing, Indoor Air Quality	dsanyal.arch@nitrr.ac.in
3.	Swasti Sthapak	Associate Professor	Architecture, Climatology, Environmental Planning , Vernacular Architecture	ssthapak.arch@nitrr.ac.in
4.	Himanshu Poptani	Assistant Professor	Urban Design, Sustainable Settlements, Climatology, Shell Structure, Energy Efficient Arch., Solar Passive Arch., Environmental Planning & Management	hpoptani.arch@nitrr.ac.in,
5.	Rinku Parashar	Temporary Faculty	Shape Grammar, Fractal Geometry, Cost Effective Buildings and Sustainable Architecture	rinku_p2008@yahoo.in
6.	Mamta Dewangan	Temporary Faculty	History of Architecture, Process of Design.	mamta.dew01@gmail.com
7.	Shreya Pal Sharma	Temporary Faculty	Urban Management; Art in Architecture, Sustainable Architecture	eya_118@yahoo.co.in
8.	Shailoneil Sahu		Environmental planning, Urban planning, Graphics	shailoneil@rediffmail.com
9.	Krishna Kumar Soni	Temporary Faculty	Sculpture	krishnasoni.monkey@gmail.com
10.	Shomita Srikanth	Teaching Assistant	History of Architecture, Low Cost Buildings	sh_inba00@yahoo.com
11.	Shrutika Sharma	Part-time Faculty	Conservation, Town Planning, Landscaping	ar.shrutikasharma@gamil.com
12.	Neha Nagpure	Teaching Assistant	Design, Climatology, History of Architecture	nehapadole.28@gmail.com
13.	Huma Afrin	Teaching Assistant	Structural Engineering, Estimation and Costing	humaafrin@gmail.com
14.	Vandana Agrawal	Temporary Faculty	Graphics, Urban Renewal	vandanaagrawal28@gmail.com
15.	Ibdit Kaur Bhatia	Part-time Faculty	Climatology. Urban Design	ibditbhatia85@gmail.com
16.	Rhidul Sharma	Part-time Faculty	Modern Architecture, Architectural Design	rhidul_sharma@yahoo.co.uk
17.	Shaswat Shekhar Sarangi	Teaching Assistant	History of Architecture, Housing, Vernacular Architecture	sss.sng25@gmail.com

Department of Applied Geology

About the Department

The Department has been successfully functioning for over four decades, preparing the post-graduates for the post of Geologist / Earth Scientists to a number of Central, State, Public and Private organizations. The fact remains that the alumni of this Department are occupying key positions in leading organizations of the country. The Department has been successfully carrying out testing and consultancy projects for over three decades and now expects to play a major role in the development of mineral rich Chhattisgarh State as far as Geological, Geophysical, Mining, Mineral and Natural Resource Management are concerned.

- **Year Of Establishment:** Year 1961
- **Intake:** Post Graduate Program – 15
- **Degree Offered:**
  1. Post Graduate Program - M.Tech. (Applied Geology)
  2. Ph. D. Program in various disciplines of Geology
- **No. Of Ph. D. Students currently enrolled:** 07 Nos. (Full Time – 03, Part Time – 04)

Vision

- To be recognized nationally as one of the leading department in the research and consultancy in the field of Applied Geology to provide the sustainable development and conservation of the mineral resources.
- To provide high quality education in Applied Geology with special emphasis on its applied aspects with service to Community and Industry.

Objectives

- To support the industry through quality training, continuing education and consultancy services.
- To produce quality Geologists for meeting the needs of Industries & Society through Quality Education and Training.
- To encourage the spirit of Sustainable Development and Conservation of natural resources through the advancement of technology.
- To achieve excellence through creative Teaching- Learning and Research activities.

Academic and Research programs with area of research

The Department also offered the Ph.D. program in the following disciplines:

- Structural Geology
- Remote Sensing and GIS
- Petrology and Geochemistry
- Hydrogeology

Field in which department has expertise for providing training:

- Field Geology
- Petrology
- Geophysical Survey for Groundwater Investigation
- Ground water Development and Management
- Application of Remote Sensing and GIS

Areas for consultancy and testing:

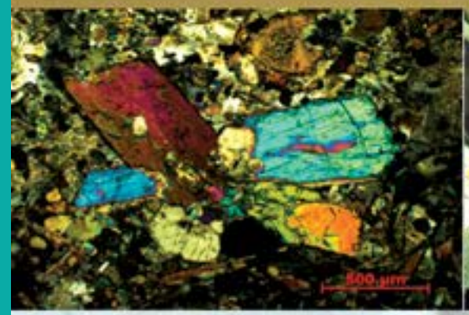
- Hydrogeological Investigation
- Soil Resistivity Survey
- Comprehensive Ground Water Assessment and Management Studies
- GIS based all type of solution, GPS based survey and Remote Sensing studies
- Testing of Rocks and Minerals (Microscopic and Visual Examinations)

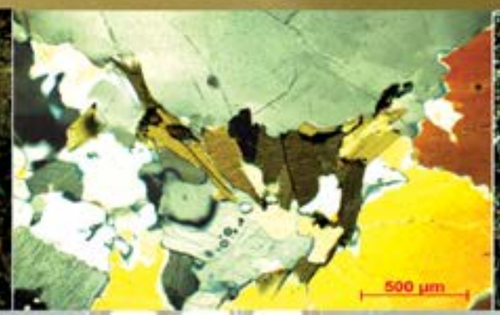
Brief list of equipment with the Department (capabilities for research, testing & consultancy):

- Resistivity meters (SSRMP-1 ,DDR2 etc.)
- Research Microscope Axioscope A1 Pol – Carl Zeiss Make with Photographic Facility
- Students Microscopes (Ore & Petrological)
- Rock Cutting and Grindinging Machines'
- Mirror and Pocket Stereoscopes
- Global Positioning System (GPS)
- Brunton Compasses, Clinometer Compasses & Estwing Geological Hammers
- Software (ArcGIS, Erdas Imagine, AquaChem, WinRock, RockWorks, IgPET, Grapher and Surfer etc.)
- Satellite data

Career prospects and course structure

The students with M. Tech. Degree in Applied Geology have bright career. They may have an opportunity to serve as Geologists in a number of Central, State, Public and Private Organizations. The Department offers three years M. Tech. Degree course (six semesters) in Applied Geology.





Infrastructure laboratory and testing facilities

- Petrological Lab. equipped with Carl Zeiss Research Microscope having microphotograph facility.
- Automatic Agate Mortar Pestle
- Field Geological Lab.
- Section Cutting and Polishing Lab.
- Hydrogeology Lab.
- Museum

R&D and consultancy work (research project details, consultancy details, snapshots, MoUs)

Testing Consultancy and Research

Title	Organization Served/ Funding Agency
Petrographic Study of Quarry samples (2014)	M/s Larsen and Toubro Ltd., Raipur (C.G.)
Petrographic Study of Rock samples (2014)	M/s Geologist, Exploration Techniques, Bhilai (C.G.)
Petrographic Study of Quarry samples (2014)	M/s Larsen and Toubro Ltd.,Raipur (C.G.)
Petrographic Study of Rock samples (2014)	M/s Sharda Enterprises, Durg (C.G,)
Petrographic Study of Quarry samples (2014)	M/s Larsen and Toubro Ltd.,Raipur (C.G.)
"Spot inspection and Characterization of Strata" (2013)	M/s Shivam Minerals, Bilaspur (C.G.)
Petrographic Study of Rocks Tilda Area Chhattisgarh (2013)	M/s L & T Construction., Lallpur, Raipur, Chhattisgarh
Petrographic Study of Rock samples (2012)	M/s IL&FS Engg. Construction Company Ltd. Anuppur (M.P.)
Resistivity Survey of Earth materials for the Steel Plant at Tandwa Village Tilda Area Chhattisgarh (2011)	Shri Bajrang Power & Ispat Pvt. Ltd., Tilda, Raipur, Chhattisgarh
Petrographic Study of Rocks Tilda Area Chhattisgarh (2011)	M/s L & T Pvt. Ltd., Hyderabad (Andhra Pradesh)
Resistivity Survey of Earth materials to Design Foundation at Ramsada Industrial Area Durg Chhattisgarh (2010)	Private and Semi- Government Organizations
Petrographic Study of Rocks Tilda Area Chhattisgarh (2011)	Petron Civil Engineering Pvt. Ltd. Rawan ,Raipur, Chhattisgarh
Petrographic Study of Rock samples (2011)	M/s Chhattisgarh Distilleries Ltd., Kumhari, Durg (C.G.)
Rock harness Determination Tilda Area Chhattisgarh (2010)	M.R.P. Disnet Division-3 Tilda ,Chhattisgarh

Human Resources

S.No	Name	Designation	Areas of Research	Email Id
1.	Dr. Prabhat Diwan	Associate Professor	Structural Geology, Economic Geology, Remote Sensing & GIS	pdiwan.geo@nitrr.ac.in
2.	Dr. N. Vishwakarma	Assistant Professor	Mineralogy, Petrology & Geochemistry	nvishwakarma.geo@nitrr.ac.in
3.	Dr. D.C. Jhariya	Assistant Professor	Hydrogeology, Remote Sensing & GIS	dcjhariya.geo@nitrr.ac.in
4.	Dr. Himanshu Govil	Assistant Professor	Remote sensing, GIS, Mineral exploration, Engineering Geology & Environmental Geology	himgeo@gmail.com
5.	Dr. V.K. Singh	Temporary Faculty	Paleontology, Srtatigraphy and Hydrogeology	vikal_singh@rediffmail.com
6.	Mr. Gaurav Mishra	Temporary Faculty	Geochemistry and Igneous Petrology & Engineering Geology	gaurav19mishraa@gmail.com
7.	Dr. Neelratan Singh	Temporary Faculty	Environmental Geology, Tectonic geomorphology, River science	neelratan.geology@gmail.com

Department of Biomedical Engineering

About The Department

Biomedical Engineering Department started at 2003 with intake of 42 students which has now increased to 62. The department is committed to the challenging task of technical education by preparing graduates in highly sophisticated field of engineering and technology. In developing India, medical technology is a demanding exercise as it involves knowledge of engineering and medical domain with combination of cost effectiveness and efficiency along with producing world class technology at the cutting edge.

Vision

To provide society with world-class competitive professional in Biomedical Engineering by making the Department as the best through its faculty and graduates, which is a driving force in creating engineering knowledge and novel Biomedical Technology that improve the human condition through advancement of health care and Biomedical Sciences, among the top most (top-5) in India.

Objectives

The primary mission of the BME department is to educate students to understand the human body as an integrated system through quantitative engineering analysis and to use that understanding to design better therapeutic strategies, devices, and diagnostics. A mission of nearly equal importance is to serve society by conducting research that develops quantitative linkages across scales in the human body and uses that development to build new tools to improve human health. It also includes the following points:

- Institute-Industries collaborative activities on real life problem-solution approach.
- Serve our wider constituencies by offering our expertise to other health-related professionals, industries, and state and local communities.
- Building World-Class infrastructure for cutting–edge technology research in Health care science.
- Collaborative research with Pioneers of Biomedical Engineering Societies across the Globe.
- Built some specialised Centre of Excellence for conducting research on Future Health Care Sciences and Technologies.

Placement And Higher Studies Scenario

The various reputed organization visit for campus placements are: Cognizant, Tata consulting service, Accenture, Mu sigma, Pradhan, John & Jonson, Wipro, HCL, Trans Asia, Infosys, Apollo hospital groups tec. The placement and research scenario for last five years are shown below

Cec Training/ International/ National Confernece/ Workshop/ Seminar / Expert Lecture Conducted

- Short term course on MATLAB Programming and its Engineering Applications (mpea-2013) from 26th -30th December 2013 under CEC NIT Raipur, at NIT Raipur
- National workshop on recent trend in the field of biomechanics: application to device development and Surgical Issues from 11th -13th September 2014 under TEQIP-II and CGCOST at NIT Raipur
- Short term training program on "Mimics with materialize Sweden" from 18th – 20th September 2014 under TEQIP-II at NIT Raipur
- Department invite eminent personalities and academicians from IITD, AIIMS Raipur to deliver Expert talk.
- Industry Institute Interaction by Expert lecture series from 20th -24th November 2014 under TEQIP-II at NIT Raipur.
- Short term course on Recent Research Methodologies and Instrumentation techniques on chemical and biomedical engineering (RRMITCBE- 14) from 15th -19th December 2014 under CEC NIT Raipur, at NIT Raipur

Publications

- International journals : 20
- International conference : 30

Academic And Research Programmes

Undergraduate Program

- B.Tech.(Biomedical Engineering : Four year duration

Research Program

- Ph.D.(Biomedical Engineering : Full time/Part time

Infrastructure Laboratories And Testing Facilities

The department has well equipped laboratories in the specialized areas. The laboratories are well equipped with all modern equipment to cater the need of UG students as well as research work.

Biomedical Instrumentation and Equipment Laboratory

- Tread Mill Test machine(TMT)
- Ultrasound sonography machine
- Four Channel Biosignal (EEG, EMG, ECG,PPG) Data Acquisition system
- 16 channel Bio-signal (EEG, EMG, ECG,PPG,EGG) data acquisition system
- Electro-surgical unit
- Hemodialysis trainer
- Patient monitoring unit
- Computerized Tomography trainer
- Ophthalmoscope
- Audiometer
- Blood viscometer

Students testing various parameters of heart arrhythmia using TMT machine

Bio-Signal, Medical Image processing and Bioinformatics Laboratory

- MATLAB, LABVIEW
- Statistical and data mining software (SPSS)
- National Instrument Multisim Software
- NI LabView Hardware Platform for Design & Prototyping

Students performing experiment to monitor various physiological signals of human body using **4 channel Bio-signal data acquisition system**

Biochemistry and Microbiology Laboratory

- Auto Semi Biochemistry Analyzer
- Microscopes
- Blood cell counter

Anatomy and Physiology Laboratory

- Haemometer
- Haemocytometer
- Anatomical models
- Skeletal system models

Students examining various anatomical parts of human using **Anatomical models**

Optical Fibre and laser in medicine Laboratory

- Fiber Optics trainer kit

Students performing experiment to measure numerical aperture using **Fiber Optics trainer kit**

Microprocessor & Microcontroller Laboratory

- Microprocessor Trainer Kit
- Microcontroller Trainer Board

Students study the basic logic gates using **Digital gates kit**

Telemedicine and Principal of Communication system Laboratory

- National Instrument - Remote stand-alone Physiological Transmission platform
- National Instrument – Telemedicine student project platform
- Pulse amplitude modulation / PPM / PWM and Demodulation Kit
- Sampling and reconstruction trainer Kit
- DSB-SC Transmitter and receiver Kit
- Frequency division multiplexing an de-multiplexing

➢ Analog, Digital, Microelectronics and Integrated circuits Laboratory

- Transistor characteristic, Diode Clipping Kit
- Digital Gates Kit
- Shift Register Kit
- CMOS, UJT Kit

R &D, Sponsored and consultancy project work, MOUs

➢ Established an Academic Research Collaboration with Pt.JNM Medical College, Raipur for research /academic cooperation

- Jointly do R & D in the field of health care and diagnostic.
- Jointly propose and engage in research or training programmes.
- Jointly organize short-term continuing education programmes
- Jointly organize seminars, conferences, or workshops

➢ Our department equipped with recent equipment for R&D and consultancy works such as 16 channel Biosignal data acquisition system, Blood viscometer, Auto Semi Biochemistry Analyser, Treadmill Machine, NI LabView hardware and software, Medical signal and Image analysis, Audiometer.

➢ Institute has functional ethical committee (IEC) for R&D works.

Our Alumini

Our alumni have brought laurels to the department by joining higher studies and doing research in renowned national and international institutes like IITs, NITs, University of Virginia and University of Texas USA, DRDO, Oxford Medical College, Hospital & Research Centre. Some alumni's are working in core companies and software companies like GE Health Care, HLL, BPL Medical Technology, Siemens, Siemens Corporate Research & Tech, Pradhan, Accenture, TCS, Cognizant, Patni, Infosys, New Sigma, Capgemini etc

Success Stories

- Established an Academic Research Collaboration with **Pt. JNM Medical College, Raipur** for research /academic cooperation.
- Two Students of Fourth Semester Biomedical Engineering (Anish Sharma, and Abhishek Soni) won **"Best Research Poster Award"** at Instrumentation and Signal Processing Winter School 2015" organized by IIT Kharagpur.

Human Resources

S.No	Name	Designation	Areas of Research	Email Id
1.	Mr. Bikesh Kumar Singh	Assistant Professor & HOD	Instrumentation, Biomedical Signal Processing, Medical Imaging, Information Retrieval, Soft computing.	bsingh.bme@nitrr.ac.in
2.	Mr. Arindam Bit	Assistant Professor	Numerical and Experimental Biomechanics, CFD Application in Biomedical Engineering, EEG Signal Analysis, Medical Image Processing	arinbit.bme@nitrr.ac.in
3.	Dr. R. Periyasamy	Assistant Professor	Biomechanics of foot, Gait analysis, Non-invasive diagnostic device (blood glucose monitoring , Diabetic foot problem, Bio-signal (EMG) Analysis, Computational analysis	rperiya.bm@nitrr.ac.in
4.	Mrs. Neelam Shobha Nirala	Assistant Professor	Diagnostic and Therapeutic Equipment, Signal and Systems, Biomedical Instrumentation.	neelanir.bme@nitrr.ac.in
5.	Mr. Sandeep Ghritlahare	Temporary Faculty	Biomedical instrumentation, Bioelectricity, Physiological Modelling	sandyghritlahare@gmail.com
6.	Ms. Kushangi Pathak	Temporary Faculty	Instrumentation, Process control, Basic electronics, Control systems	kush30kushangi@gmail.com
7.	Mr. Debabrata Satpathy	Temporary Faculty	Drug Delivery, Bio-materials, Tissue Engineering	debabrat.satpathy@gmail.com
8.	Dr. Saurabh Gupta	Temporary Faculty	Inverse Problems, Optical Tomography, Optimization Algorithms, Pattern Recognition and Medical Imaging	saurabhgupta.iisc@gmail.com
9.	Mr. Ritwick Mishra	Teaching Assistant	Biomedical Instrumentation, Biomedical Image Techniques, Biomaterial Science, Biomedical Equipment, Rehabilitation Engineering.	ritwick.mishra@gmail.com

Department of Biotechnology

About The Department

Department of Biotechnology at NIT, Raipur was established in 2003 with the mission of defining and establishing a new discipline fusing life sciences with engineering. The goal of this discipline is to advance fundamental understanding of how biological systems operate and to develop effective biology-based technologies for applications across a wide spectrum of societal needs through research and education. The innovative educational programmes reflect this emphasis on integrating life sciences with a quantitative, systems-oriented engineering analysis and synthesis approach, offering opportunities at the undergraduate level and at the graduate level for the PhD.

Vision

Our vision is to promote, support and facilitate the development of Biotechnology. Department of Biotechnology will train and prepare students to become competent Biotechnologists who will be able to apply principles of engineering and life sciences to solve a wide array of problems in a global society and in order to do so will develop new cost effective alternative technologies for serving mankind.

Objective

To be a sound center for education and research in field of Biotechnology.

To provide adequate and scientific education in Biotechnology to the under graduate students and prepare them for innovative, creative, and successful careers in the global and competitive society.

To emphasize on interdisciplinary research merging science and technology and to shape biotechnological developments under an ethical vision.

To participate in biotechnology based education programs campus-wide and with industries in order to address important national and global needs, and work in the direction of technology transfer and their commercialization.

To excel in all aspects of academic activity and produce a high quality technology based engineers and entrepreneur for the society.

Publications

- International journals/National Journal (For last Three year) : 42
- International & National conference (For last Three year) : 28

Academic & Research Programme with area of Research

Undergraduate Program

❖ B.Tech.(Biotechnology : Four year duration)

- Our UG program was focused on mostly interdisciplinary courses related to Environmental Science, Biochemical and Metabolic Engineering, Immunology, RDNA Technology, Informational Technology and Bioinformatics, Bioprocess Technology, Stem Cell and Nanotechnology etc.

Research Program

❖ Ph.D.(Biotechnology : Full time/Part time)

- Biochemistry, Enzyme Technology, Nanotechnology, Microbiology, Cell & Molecular Biology, Genomics/ Proteomics Infectious and Metabolic disease, Bioinformatics, Bioprocess Optimization & modelling.

Lab Course Structure

- Immunology & Microbiology lab
- Bioinformatics/ Computer lab
- Cell And Molecular Biology lab
- Environmental Biotechnology lab
- Drugs And Pharmaceuticals lab
- Biochemistry & Enzyme Technology lab
- Genomics
- Metabolic Engineering

Infrastructure Laboratory and testing facilities

- ELISA reader: Applicable for enzyme-linked immunosorbentassay.
- SDS-PAGE & Western Blot Unit: Used in resolving protein, its separationand identification
- U. V. Visible Spectrophotometer & Nano-Drop: Biochemical analysis of micromolecules.
- PCR: DNA/Gene amplification.
- CO2, BOD & COD Incubators: Microbial study and analysis.

ELISA READERSDS_PAGE Assembly

UV-VIS SPECROPHOTOMETERNANO DROP

PCR INCUBATOR SHAKER

Student working in Biotech Lab

Computer Lab for Students

R&D and consultancy work (Research Project/Consultancy details, MOUs)

Ongoing sponsored projects:

- 1(DST, New Delhi) on Bio diesel production
- 4(CG-COST, Raipur) on Enzymatic hydrolysis of rice husk, Micro extraction/analysis of toxicants, Chemical/enzymatic modification of drug, Lead identification/optimization for Anti-Cholera drug

MoUs: Established a MoU with Pt. JNM Medical College, Raipur for research/academic cooperation in areas of mutual interest.

IEC: Institute has functional ethical committee for R&D work.

Conferences, Workshop and Short Term Courses organized.

- One Week Short term Course on "TECHNICAL LAUNCHING ON ENVIRONMENTAL ISSUE" 26thto 30th June, 2013. (Self Sponsored)
- One Week Short term Course on "BIO-ENTREPRENEURSHIP: FROM IDEAS TO SERVICE" 14th to 18th July, 2014. (TEQIP II Sponsored)

Photograph of speakers and participants from STC on "Technical launching on environmental issue"

PLACEMENT SCE NARIO OF B.TECH. STUDENT

Year	Industry	No. of student placed	Average package
2014	MU-SIGMA PVT LTD, COGNIZANT TECHNOLOGY, PRADAN – NGO	14	3.5-4.5 Lakh
2013	COGNIZANT TECHNOLOGY	3	3.1 Lakh
2012	HEADSTRONG, COGNIZANT TECHNOLOGY, PRADAN – NGO	14	3.2-3.4 Lakh
2011	ACCENTURE, CAPGEMINI,COGNIZANT TECHNOLOGY	8	3.2-4 Lakh

SUCCESS STORIES

- Departmental students perusing higher studies: Our students are regularly qualifying GRE, CAT and GATE and perusing their higher studies in reputed institutes like IITs, NITs and other centrally funded institutes, Foreign University.
  - Akansha Agarwal : Perusing M.Tech : IIT Mumbai (2011-2015)
  - Vishal Bhagat: Perusing M.Tech : IIT Delhi (2010-2014)
  - Pooja Chandraukhi: Perusing M.Tech : IIT Kanpur (2010-2014)
  - Tripurari Gautam: PhD Scholar IIT Mumbai
  - Ketan Mulchandani: PhD Scholar ICT Mumbai
  - Avinashkumar: PhD Scholar Syracuse University, USA
  - Soma Dash: PhD Scholar University of Delaware, USA
- Established a MoU with Pt. JNM Medical College, Raipur. R&D in the field of metabolic disease, microbiology, Biochemistry is going on between two institutions by using their available resources and manpower.
- Ms. Anuradha (Batch 2010-2014) got international fellowship from DAAD for summer internship at Germany.

Human Resources

S.No	Name	Designation	Areas of Research	Email Id
1.	Dr. Lata Sheo Bachan Upadhyay	Assistant Professor	Biochemistry, Enzyme Technology and Nano based Biosensor development, Environmental Biotechnology, Enzymatic drug Modification, Generation of Alternative energy fuel	lupadhyay.bt@nitrr.ac.in
2.	Dr. Pratima Gupta	Assistant Professor	Bio prospects of microorganisms, Molecular microbiology, Microbial enzymology, Microbial products and process technology mainly in Biofuel production, biopolymer development	pgupta.bt@nitrr.ac.in
3.	Dr. Awanish Kumar	Assistant Professor	Infectious Diseases (Leishmaniasis, Candidiasis), Metabolic Disease (Diabetes), Host-Pathogen interaction, Drug development and therapeutics, Drug Resistance.	awanik.bt@nitrr.ac.in
4.	Mrs. J. Satya Eswari	Assistant Professor	Bioprocess Optimization, modelling, Metabolic network modelling; Dynamic optimization of batch/fed-batch process, Mathematical modeling & dynamic simulation, process monitoring & fault diagnosis, process identification & state estimation, Bioinformatics, System biology	satyaeswarij.bt@nitrr.ac.in
5.	Dr. D. Vasanth	Assistant Professor	Bio process Engineering, Environmental Biotechnology, Biocatalyst & Bio-products	dvasanth.bt@nitrr.ac.in / vasanthdphd@gmail.com
6.	Dr. Seenivasan Ayothiraman	Assistant Professor	Biochemical Engineering and Biotechnology, Applied Mycology, and Metabolic foot-printing	aseenivasan.bt@nitrr.ac.in or seeni_198506@yahoo.co.in

Department of Chemical Engineering

About the Department

The Chemical Engineering department was established in the year 1962 under the aegis of Government College of Engineering and Technology, Raipur (now NIT, Raipur). The first post-graduate degree with specialization in chemical process design was started in the year 1996. The Department is successfully and continuously preparing the under-graduates and post-graduates for working as Engineers / Scientists in various central, state, public and private sector organizations and to pursue higher studies in premier institutions in India and abroad. The department has well-qualified and committed faculties with Ph.D degree. All the faculties are pursuing research in cutting edge areas. Faculty members of our department successfully completed three research projects and eight more research projects are ongoing, sponsored by various funding agencies. The department has organized some international conferences, short-term courses and expert lecture from industries.

Vision

The Department aims for global recognition in teaching, research and community services and raising the standard of Chemical Engineering education in the latest art of the technology, constantly improving the quality and skills at undergraduate and post graduate levels, emphasizing on novel research and development that leads to a socioeconomically feasible technology.

Degree programme offered:

Programme	Year of start	Present intake
B. Tech.	1962	62
M. Tech.	1996	20
Ph.D.	2010	07 (presently enrolled)

Mission

To impart the quality education in the field of Chemical Engineering to produce professionally competent engineers for the benefit of the society at large.

Objectives

- To prepare students for diverse career in engineering and allied fields.
- To make them professional to apply principles of Chemical Engineering in solution of practical problems.
- To impart skills of leadership as well as group work among students.
- To introduce them with not only the basics but also advanced skills so that they can opt their career.
- To make the graduates well skilled with ethical values so that they could benefit the society through their services.

Laboratories:

- Mass Transfer Operations Laboratory
- Process Dynamics and Control Lab
- Heat Transfer Laboratory
- Fuel Technology Laboratory
- Fluid Mechanics Laboratory
- Chemical Reaction Engineering Lab
- Mechanical Operation Laboratory
- Environmental Engineering Laboratory
- Computer Laboratory

Miscellaneous Research Items of Laboratory:

- pH meter
- Conductivity meter
- Magnetic stirrer
- Ultra Sonicator
- Vortex Shaker
- BOD incubator
- COD reactor
- Incubating Shaker
- Digital Weighing Balance
- MilliQ-Ultra Pure Facility
- Ultrasonic Cleaner

Analytical / Research Equipments:

- Atomic Absorption Spectrophotometer
- UV-vis Spectrophotometer
- Gas Chromatography
- FTIR (Fourier Transform Infrared Spectroscopy)

- Rheometer
- Refractometer
- Contact Angle Analyzer

Major Softwares:

- Ansys (CFD / Fluent)
- MATLAB Simulink
- C, C++

Areas of Research / Domains of expertise:

- Food Science and Engineering
- Reactive Extraction
- Pervaporation
- Membrane synthesis and applications
- Fluidization
- Chemical Mechanical Planarization
- Waste water treatment
- Bio Fuels
- Heat transfer
- Coal weathering for coke production

Student activities:

- Chemical Engineering Association of NIT, Raipur (CHEANIT)
- Expert Lecture from industry/Academic institutes
- To apprise of branch – for first year students
- Industrial Training / Internship
- Seminar / Conferences
- Mentorship for students by faculty
- Industrial visit
- Group Activities for academics & co-curricular activities

Major research projects:

S. No.	Title of Project	PI / CO-PI	Cost of Project	Funding Agency	Year of Sanction	Current Status
1	Intensification of downstream processing of citric acid using process intensification method (reactive extraction)	Dr. Amit Keshav & Dr. (Mrs.) A. B. Soni	2,00,000/-	CGCOST	2012	Completed
2	Treatment of bio-digester effluents (BDE) of rice grain based industry	Dr. P. K. Chaudhari	1,05,000/-	CGCOST	2011	Completed
3	Kinetics of thermal degradation of chlorophyll green leafy vegetables and increasing the shelf life of the vegetables	Dr. Amit Keshav & Dr. (Mrs.) A. B. Soni	11,71,400/-	DST/SERB	2012	Completed
4	Studies on a membrane reactor for the etherification of mono-carboxylic acids with ethanol	Dr. Amit Keshav	25,20,000/-	DST/SERB	2013	On Going
5	Shelf life of spices	Dr. B. Mazumdar	5,00,000/-	CGCOST	2014	On Going
6	Organic acids from sugarcane industry's by-product	Mr. Dharm Pal & Dr. Amit Keshav	5,00,000/-	CGCOST	2014	On Going
7	Slurry formulation for ruthenium chemical mechanical planarization	Dr. R. Manivannan	20,87,000/-	DST/SERB	2014	On Going
8	Removal of dye and reduction of COD from dye bearing effluent	Dr. J. Anand kumar and Dr. P.K. Chaudhari	4,00,000/-	CGCOST	2015	On Going

S. No.	Title of Project	PI / CO-PI	Cost of Project	Funding Agency	Year of Sanction	Current Status
9	Interactive mechanism of green corrosion inhibitor and mild steal in alkaline medium containing chloride ion	Dr. R. Manivanan and Dr. (Mrs.) A. B. Soni	4,28,000/-	CGCOST	2015	On Going
10	Electrochemical deposition of CZTS	Dr. S. Noyel Victoria	27 lakhs	DST-SERI	2014	On Going
11	Sonochemical synthesis of CZTS	Dr. S. Noyel Victoria	24 lakhs	DST-SERB	2014	On Going

Distinguish aluminies:

- Sudhir Vasudeva – ONGC (Ex-Chairman & Managing Director) and Ex-Chairman BOG-NIT Raipur
- Narendra Narayan Das – NASA Jet Propulsion Lab (Research Scientist at California Institute of Technology)
- Arun Kumar Agrawal – E.I. DuPont India Pvt. Ltd. (Director-Operations & Sourcing)
- Diwakar G. Kaveeshwar – KLJ Organics Ltd., Thailand (Director)
- Aditya Mahobia – Essar Oil Ltd. (DGM)
- Sima Suryesh Sinha – GAIL (Manager-HR)
- Anand Kiran Daga – Citibank, Singapore (Vice President, ITO)
- Sheny Joseph – CMET Pune (Scientist)
- Devendra Thakur – TATA Chemicals (Head - Safety & Health)
- Atul Joshi – J. K. Tyres (Dy. Manager)
- Amit R. Thakkar – CPCB (Scientist-B)

Human Resources:

S.No.	Names	Designation	Areas of Research
1	Dr.(Mrs.) A. B. SONI	Professor & Head	Semi-fluidization, Separation Processes, Biomass Production and environmental engineering problems
2	Dr. BIDYUT MAZUMDAR	Associate Professor	Waste Water Treatment, Bioprocess Engineering and Environmental Biotechnology
3	Dr. P. K. CHAUDHARI	Associate Professor	Process Design, Reaction Engineering, Waste Water Treatment
4	Mr. A. K. POONIA	Associate Professor	Heat Transfer, Petroleum Refining
5	Mr. V. K. SINGH	Assistant Professor	Solvent Extraction, Pyrolysis, Adsorption, Environmental Pollution
6	Dr. AMIT KESHAV	Assistant Professor	Membranes, Reactive Separation, CFD, Food Science
7	Mr. DHARM PAL	Assistant Professor	Reactive extraction, Renewable energy, Pyrolysis
8	Dr. PRABIR GHOSH	Assistant Professor	Environmental Pollution Control, Advanced Oxidation Processes (AOPs), Wastewater Treatment Technique
9	Dr. J. ANANDKUMAR	Assistant Professor	Advance Separation Process (Adsorption, Membrane & Biological) and Nano-composites
10	Dr. R. MANIVANNAN	Assistant Professor	Microelectronic Fabrication (CMP), Nanotechnology, Electrochemistry

Department of Chemistry

About the Department

Department was Established in Year 1956

Vision

- To arrange Help Sessions for students, in order to nurture them more closely.
- To start Post Graduate Course in Applied Chemistry.
- Modernization of Chemistry lab for B.Tech. and research Students.
- To start Post Doctoral research program.
- To start testing and consultancy work by using the sophisticated instruments procured by the department.

Objectives

- To impart good quality knowledge to the students for their upcoming carrier opportunity
- To collaborate with renowned R& D agencies.

Academic and Research Programs with area of research

- **Academic**

Papers in Board of Studies of Chemistry for B.Tech I and II Sem:

A. **Applied Chemistry** (Theory and Practical)

Intake: 5 branches (Electronics and telecommunication, Electrical, Chemical, Biotech and biomedical, Information technology)

B. **Environment and Ecology** (Theory and Practical)

Intake: 5 branches (Mechanical, Mining, Metallurgy, Civil, Computer Science)

Research Programs and areas of research

Ph.D (Full Time & Part Time)

- Environmental Analytical Chemistry
- Corrosion Inhibition
- Heterocyclic Synthesis of Organic Chemistry
- Synthesis of Nano particles
- Analytical Studies
- DNA binding
- Polymer Chemistry

Research Paper published in journal both National / International

National (total nos.)	International (total nos.)	National Conference	International Conference
8	75	25	75

Short term courses organized.

Short term courses organized- 03

Titles

1. "Technical Launching on Environmental issues" June 26th -30th, 2013
2. "Recent Trends in Heterocyclic compounds and Material Science" from May 26th – 30th 2014, at Department of Chemistry, NIT-Raipur
3. "Nano-Materials: Characterizations & Applications (NCA-2014) from Dec 1st -5th, 2014

Infrastructure laboratory and testing facilities

R&D Consultancy work (research project details, consultancy details, snapshots, MoUs)

Research project details

i. Dr. Mrs. F. Khan (PI)
Chhattishgarh Govt. Project – 1.82 lac
ii. Dr. Mrs. Kavita Tapadia (PI)
Chhattishgarh Govt. Project-1.84 lac
Water sanitation and supply organization, PHED GOI- 18.55 lac
iii. Dr. S.P. Mahapatra (Co-PI)
Chhattisgarh Govt. Project – 2.0 Lacs
iv. Dr. Mrs Tungabidya Maharana (PI)
DST-Fast Track Young Scientist Scheme – 24 lacs
v. Dr. Santhosh Penta(PI)
Chhattisgarh Govt. Project – 5 Lacs

Consultancy details

Dr. G Wellness Pvt. Ltd, New Delhi,
Which is related for the preparation of food supplements for prevention and curing of diseases

Our Alumni

1. Dr. C. Subba Rao - Prof. Govt. Engineering College
2. Shri K.B. Bummerker - Prof. Govt. Engineering College
3. Prof. Somsekhar Rao - Anna University
4. Shri K.N. Raoot - DRDO Scientist
5. Mrs. Sarla Raoot - DRDO Scientist
6. Shri M. K. Ahmed - Scientist in Department of Atomic Energy
7. Shri Rajneesh Shrivastava - Scientist
8. Prof. B.K. Shrivastava - Prof. in CMD
9. Dr. Mrs Fhamida Khan - Prof & Head Deptt. of Chemistry NIT, Raipur
10. Shri Seth - Scientist in Pollution Control Board
11. Mrs. Madhulika Shrivastava - Prof in Mahila Mahavidyalaya, Bhilai
12. Ms. Anupama Joshi - Prof
13. Dr. S.Ganesh - Scientist in Department of Atomic Energy
14. Dr. Mrs. Sonalika Agrawal - Prof.
15. Dr. Mrs. Kabita Sathpathy - Prof.
16. Dr. Shashikant Tiwari - Prof.

Services to be extended in form of JV, collaboration, onsite testing etc.

To start testing and consultancy work by using the sophisticated instruments procured by the department.

Human Resources

S.No	Name	Designation	Areas of Research	Email Id
1.	Dr. (Mrs.) Fahmida Khan	Prof & Head	Organic Chemistry / Analytical Chemistry, Nuclear Chemistry, Environmental Chemistry, Nanotechnology & Luminescence/ Drug designing & DNA binding	hod.chy@nitrr.ac.in
2.	Dr. (Mrs.) Kavita Tapadia	Assistant Professor	Inorganic Chemistry / Environmental Nano science	ktapadia.chy@nitrr.ac.in
3.	Dr. Shyama Prasad Mahapatra	Assistant Professor	Synthesis and Characterization of Polymer Nano composite, Environmental Chemistry	spmahapatra.chy@nitrr.ac.in
4.	Dr.(Mrs.) Tungabidya Maharana	Assistant Professor	Inorganic Chemistry / Catalysis, Polymer Synthesis	tmaharana.chy@nitrr.ac.in
5.	Dr. Santhosh Penta	Assistant Professor	Synthetic organic Chemistry/ Hetero cyclic Chemistry, Newer Methodologies, Drug design of pharmaceutical importance	spenta.che@nitrr.ac.in
6.	Dr. (Mrs.) Arti Rastogi	Contract Faculty	Organic chemistry/Natural Product	arti.rastogi20@gmail.com
7.	Dr. (Mrs.) Sonalika Agrawal	Contract Faculty	Analytical Chemistry, Nuclear Chemistry, Environmental Chemistry	Sagrawal.chy@nitrr.ac.in
8.	Mr. Vipin Soni	Teaching Assistant	Analytical Chemistry, Nuclear Chemistry, Environmental Chemistry	hello26476@yahoo.co.in

Department of Civil Engineering

About Department

Civil engineering is considered to be the backbone for all type of developments. Civil Engineering involves the application of scientific principles and knowledge of mathematics, theory of mechanics and application of computers to the planning, analysis, design and construction for all type of infrastructures.

The Department of Civil Engineering at NIT Raipur (formerly, Government college of Engineering and Technology) is producing high quality technical manpower; required by various industrial establishments, R & D organizations, Govt. & Public establishments and academic institutions since 1958. The Department offers B Tech degree in Civil Engineering and M Tech degree in Civil Engineering with specializations in Water Resources Development & Irrigation Engineering and Structural Engineering. The Department has been offering Ph.D. Program in various specializations. The Department also encourages its students to engage in extra-curricular and co-curricular activities, essential for development, nurturing of team spirit, and developing organisational skills. The faculty members of the department are involved in research and consultancy activities, and they continue to enjoy academic leader role in the country. Govt. of India has recognized Civil Engineering Department as State Technical Agency for implementation of its ambitious projects of Pradhan Mantri Gram Sadak Yojana (PMGSY) & National Rural Drinking Water Programme (NRDWP).

Vision -

To be the foundation for creativity and innovation in Civil Engineering.

Mission -

To provide state-of-art education, research and consultancy in Civil Engineering for the sustainable development and benefit of the society.

Goals & Objectives -

To be amongst the top ranking Civil Engineering Department for education, research, consultancy and outreach programmes.

Academic and Research programs

- Under Graduate Program - B.Tech. (Civil Engineering)-78 (Intake)
- M.Tech (Water Resources Development and Irrigation Engineering) – 17 (Intake)
- M.Tech (Structural Engineering) – 13 (Intake)
- **Research programs leading towards Ph.D degree are available in following areas:** Structural Engineering, Earthquake Engineering, Geotechnical Engineering, Water Resources Engineering, GIS applications, Environmental Engineering, Transportation system, Alternative construction materials, Soil Structure Interaction, Public Private Partnership in Transport Infrastructure.

Conferences, Workshop and Short Term Courses organized.

- Department has organized a large number of training programmes to train young educated persons from society. Some of them are: Hands on Training on Visual MOD Flow, Image Processing Software- ERDAS & GeoMedia, Structural Engineering Solutions, Awareness of Indian Standard with particular Reference to National Building Code, Integrated Development of Towns as Growth Centers, Durability of Concrete and Role of Blended Cements, Best Practices of Flexible Pavement Construction, Recent advances in research schemes in DST and recent advancements in civil and transportation engineering, Alternative Building Materials and Advanced Construction Techniques, Tools and Techniques in Bio-informatics, Computations In Bioinformatics, Computer Applications in Mineral Exploration, Modular Coordination and Prefabrication, Digital Cartographic techniques for map updation and digital image fusion for large scale mapping and entropy for accuracy assessment, Application of Artificial Intelligence in Bioinformatics / Life Sciences.

Infrastructure laboratory and testing facilities

Following laboratories, well equipped with conventional and state of art instruments, are available for academic, research, testing and consultancy.

Concrete Laboratory

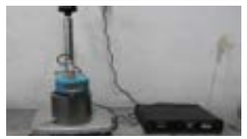
Concrete laboratory of the Civil Engineering Department is state of the art and advanced concrete testing and mix designing facility. Our lab follows unbiased rigorous quality assurance / quality control policies and procedures to ensure the integrity of the scientific data on which decisions are based. Department provide professional recom¬mendations based on their experience and knowledge of the properties and composition of the different materials used in construction.

Scope of Services

Material Sampling, Testing & Analysis

Aggregates	Bricks	Concrete	Cements testing
• Particle Size Analysis • Specific gravity • Shape of aggregate • Crushing Strength • Impact strength • Absorption	• Strength • Absorption • Dimensions	• Mix Design & Verification • Compressive & Flexural Strength testing • Concrete Core Samples & Testing • Rheology, Shrinkage and Durability test	• Standard consistency • Initial & Final setting time • Strength • fineness






Major facilities:

- **Concrete Rheology Meter** (First in the region): For better understanding of fresh concrete properties.
- **Early Shrinkage Meter** (First in the region): For better understanding Shrinkage of various cementitious materials and concrete under local hot conditions.
- **Electrical resistivity Meter** (First in the region): For better understanding of concrete durability under various conditions.

Carbonation Chamber (First in the region): For understanding behavior of concrete in local industrial region. Ultrasonic Pulse velocity meter, Rebar Locator, Rebound Hammer and many more.

Environmental Engineering Laboratory

Testing and consultancy services provided in the distinct areas of

- Measurement of various parameters for water, wastewater, soil, sludge, and air samples
- Ambient air monitoring
- Environmental management
- Wastewater treatment plant performance monitoring
- Design and monitoring of water and wastewater treatment plants
- Solid waste management
- Design of water distribution system
- Design of sewerage system
- Design of decentralized wastewater treatment systems
- EIA Studies

For more information: please refer to:

http://www.nitrr.ac.in/dept-civil.php?dept=Laboratories

The Environmental Engineering Laboratory in the Department of Civil Engineering is established to provide the needed resources to enhance the research activities of Environmental Engineering Group. The laboratory is equipped with modern equipment to carry out the research related to Water quality, Noise and Air Pollution.

State of the Art Equipment

Water/Waste Water/ Soil/sludge Analysis

- Atomic Absorption Spectrophotometer
- UV-VIS Spectrophotometer
- BOD Incubator
- COD Reactor
- Kjeldahl Digestion Unit
- Soxhelt Extraction Unit

Noise Pollution Monitoring

- Sound Level Meter

Air Pollution Monitoring

- OC/EC Analyzer (RT-4)
- Aethalometer (AE-33-7)
- Respirable Dust Sampler
- PM 2.5 and PM 10 Sampler
- High Volume Sampler
- Stack Monitoring Kit
- Air Sampler (Personal Sampler for Workers Exposure.
- Digital Anaemometer




Fluid Mechanics Engineering Laboratory

Testing and consultancy services provided in the following areas:

- Pipe pressure and leakage testing
- Pumping system Performance
- Turbines Performance
- Risk Assessment
- Analysis and Design of Water Distribution Network
- Design of Storm water drainage system
- Urban Planning for sewerage system of a city
- Reservoir operation

- Statistical Hydrology

List of Equipment in Fluid Mechanics Engineering Laboratory

- Metacentric Height Apparatus
- Hydrostatic Pressure Apparatus
- Energy Losses In Pipes
- Reynolds No. Apparatus
- Energy Losses In Bends
- Cavitation Apparatus
- Dead Weight Pressure Gauge Tester
- Free And Force Vortex Apparatus
- Centrifugal Pump Test Rig
- Centrifugal Pump Test Rig(Variable Speed)
- Bernoulli's Apparatus
- Pitot Static Tube Apparatus
- Reciprocating Pump Rig
- Francis Turbine
- Pelton Wheel
- Tilting Flume
- Notches & Weirs
- Fixed Bed Channel

Geotechnical Engineering Laboratory

Testing and consultancy services provided in the distinct areas of

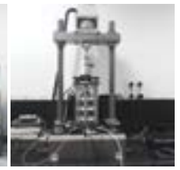
- Material characterization: Soil, Rock, Geosynthetics etc.
- Soil exploration and investigation
- Foundation recommendation based on bearing capacity and site investigation report
- Shallow and deep foundation design.
- Geotechnology for roads, railways and runways
- Slope stability analysis and design.
- Field plate and pile load test
- Field standard and cone penetration test
- Strengthening of existing foundations
- Improvement of expansive/compressible soils
- Dam foundations
- Underground structures
- Landfills
- Stability of reinforced slopes
- Seepage analysis
- Design of filters
- Design of ash dykes

For more information: please refer to:
http://www.nitrr.ac.in/department/civil/lab/geotech

State of the Art Equipment

Soil Testing Equipment

- Cyclic triaxial test with analysis software
- Universal triaxial test with analysis software
- Electronic direct shear test with analysis software
- Unconfined compression test
- Consolidation test equipment
- Falling and constant head parameter
- Relative density test apparatus
- Standard/modified Proctor compaction test apparatus
- CBR Apparatus
- Index and physical properties of soil



Geosynthetic Lab Testing Equipment

- Universal testing system for geotextiles
- Thickness Gauge for Geotextile / Geosynthetic
- Dry Sieve test Apparatus
- Hydrodynamic Sieve Test Apparatus
- Interface Friction Measurement Apparatus
- Cone drop test Apparatus
- Cross permeability test apparatus
- In-Plane permeability test apparatus
- Long term Flow test apparatus
- Gradient Ratio test Apparatus
- Geotextile parameter

Field Testing Equipment

- Plate Load Test
- Standard Penetration test
- Cone penetration test
- Field CBR Test Cone penetration test

Softwares:

- SAP 2000 Advanced V15
- STAAD Pro. and STAAD Foundation
- CSIBRIDGE Advanced V-15
- ANSYS Civil FEM Research Version
- HEADS Professional Version

Surveying Laboratory

Consultancy services provided in the distinct areas of

- Field Measurements
- Topographical Survey
- Route and Construction Survey
- Preparation of Contour Map
- Curve Setting

For more information: please refer to:
http://www.nitrr.ac.in/department/civil/lab/survey

State of Art Equipment

- Total Station
- Digital Theodolite
- Theodolite
- Auto Level
- Distance Meter

Transportation Engineering Laboratory

Testing and consultancy services provided in the distinct areas of

- Pavement material characterization: Aggregate, Bitumen etc.,
- Bituminous mix design, Concrete Pavement design.
- Pavement structural and functional eva[illegible]
- Signal Design
- Traffic management planning
- Public transport route rationalization
- Travel demand modeling
- Public transport planning
- Regional transport planning
- Pre-bid advisory services
- Road safety audit
- Runways, Railways and Heliport designs

For more information: please refer to:
http://www.nitrr.ac.in/department/civil/lab/Transportation

State of the Art Equipment

Soil / Aggregate test equipment

- Los Angeles Abrasion testing with 1.70 mm sieve
- Automatic Sieve Shaker for Fine aggregates
- Electronically operated CBR Apparatus with analysis software

Bitumen/Bitumen mix test equipment

- Universal Penetrometer with digital timer
- Ring and Ball Apparatus with electrical fitting
- Flash and Fire Point Apparatus eclectically operated closed system
- Ductility Testing Machine with set of mould
- Manual Bitumen mix Compactor with Modified and standard rammer
- Modified Marshall's Apparatus with accessories
- Bitumen centrifuge motorized Extractor

Pavement Evaluation

- Benkleman beam deflectometer

Research Project details

Department is actively participating in R&D, and consultancy projects. Department has successfully completed 7 sponsored research projects and more than 400 consultancy projects in last three years.

Significant Consultancy Projects

The Vice President and Head Projects, Balco Aluminum Company Ltd Korba (C.G.) [0245: 26/09/14]	Checking of Structural Stability of Power Plant Structures of 1200 MW Thermal Power Plant of Bharat Aluminium Company Korba [399 and 400: 24/11/14] Rs 47.16 Lacs
M/s A. C. C Ltd, Jamul Integrated Projects, P O Jamul Cement Works, Distt Durg-490024, CG [001:23/05/13]	Checking of Design Calculations of High Rise Buildings. [1773:05/08/13] Rs 32.40 Lacs
M/s J K Lakshmi Cement Ltd [2012-13]	Proof Checking of High Rise Structures of J K Lakshmi Cement Plant at Ahiwara (Distt Durg) Rs 18.97 Lacs
M/s Praxair India Pvt. Bangalore 560042	Proof Checking of High Rise Structures for Bhilai Steel Plant Expansion Projects at Bhilai. (Distt Durg) Rs16.55 Lacs
M/S Bhilai Jaypee Cement Limited, Bhilai Bhilai-490001, Distt-Durg. [BJCL/Bhilai/NOC/ 2012:18-01-2012]	Proof Checking of Design of High Rise Industrial Structures of Bhilai Jaypee Cement Plant at Bhilai Steel Plant Premises. [R. No 3255 dt 29-01-12: Rs 13.90 Lacs]
The Chief Executive Officer, CGRRDA , Vikas Bhawan Civil Lines RAIPUR [2188:3/4/2013]	Proof checking of Revised DPRS for modified crust for heavy traffic [394: 21/11/2014] Rs 9.40 Lacs
M/S J K Lakshmi Cement Ltd, Malpuri-Khurd Khasadih, P O Ahiwara, Distt Durg [JKLC/VP/GT/DURG/11-12:]	Vetting of Design Calculations of High Rise Structures. [1507: 01/02/2013] Rs 8.93 Lacs
The Executive Engineer, Division No. 1 Public Works Department Raipur. [9057:23-11-2011]	Structural Design and Drawings for Construction of Cement Concrete Road From ROB Khamtarai to Bhanpuri Chowk and Km 9/4 to 15/6 of NH 30 (Old N.H 200) [R. No 3111 dt 05-12-11: Rs 8.70 Lacs]

Services to be extended in form of JV, collaboration, onsite testing etc.

Govt. of India has recognized Civil Engineering Department as State Technical Agency for implementation of its ambitious projects of:

- Pradhan Mantri Gram Sadak Yojana (PMGSY)
- National Rural Drinking Water Program (NRDWP).

Department is also doing Research Projects, Testing and a large Number of Consultancy Projects.

Regular Consultancy and Testing services are provided to the followings:

- State Government Departments: Public Works Department, Water Resources and Irrigation Engineering Department, Public Health Engineering Department, Chhattisgarh Housing Board, Chhattisgarh State Industrial Development Corporation, Electricity Board, Municipal Corporations, CGCOST and other state Governments undertakings.
- Central Governments Departments; CPWD, Central Railways, NRRDA and other Central Governments Undertakings.
- Industries: SAIL, RVNL, BSNL, NMDC, SECL NTPC, NPGC, MCML, ACC, JP, JKLAXMI, BALCO, PGCIL, etc.

Human Resources

S.No	Name	Designation	Areas of Research	Email Id
1	Dr Rajesh Kumar Tripathi	Professor & Head, B.E. (Civil), M. Tech (Structures), Ph.D.	Structural Engineering Design and Analysis- High rise structures, Industrial structures, Bridge structures, Earthquake resistant design, Pavement Design, Water resources structures, Soil structure interaction, Ground improvement techniques.	rktripathi.ce@nitrr.ac.in
2	Dr Mukesh Kumar Verma	Professor, B.E. (Civil) 1984, M. Tech (Fluid Mech. & Water Power) 1986, Ph.D. (Water Resources Engg.).	Fluid Mechanics, Fluid Machines, Water power, Hydrology, Water Resources and Environmental Engineering, structural design of buildings, Bioinformatics : gene/protein modelling and drug designing.	mkv.civil@nitrr.ac.in
3	Dr Umesh Kumar Dewangan,	Professor, B.E. (Civil), M. Tech (Structures), Ph.D. (Structures).	System Identification, Structural Engineering Design, Inverse Problem, Finite Element	ukdewangan.ce@nitrr.ac.in
4	Dr Gangadhar Ramtekkar,	Professor & Dean (Planning and Development), B.E. (Civil Engg, Gold. Mdl.), M. E.(Structural Engg. (Hons.), Ph.D. (Structural Engg).	Structural Engineering Design and Analysis- High rise structures, Industrial structures, Bridge structures, Earthquake Engineering, Mechanics and failure of Fibre reinforced polymer composites.	gdramtekkar.ce@nitrr.ac.in
5	Dr. Samir Bajpai,	Professor, B.E. (Civil), M.Tech. (Environmental Engineering), Ph.D. (Env. Engg.).	Water and wastewater treatment, air pollution – monitoring and control, waste management, environment management.	sbajpai.ce@nitrr.ac.in

S.No	Name	Designation	Areas of Research	Email Id
6	Dr Shirish V. Deo	Assistant Professor, Qualification: BE, ME, PhD (Concrete Technology),	Concrete Mix Design, Green Concrete, Use of marginal materials in concrete, Fresh and hardened concrete tests- Rheology, Shrinkage, Strength and Durability, Structural Engineering Design and Analysis or structures.	svd.ce@nitrr.ac.in
7	Dr Laxmikant Yadu	Assistant Professor , B. E. (Civil), M. Tech (Rock Engg. & Underground Structures), Ph. D. (Geotech Engg.)	Geotechnical (Soil & Rock) Engineering, Foundations, Soil structure interaction, Geoenvironment, Landfills, Problematic soil and ground improvement, Geosyntheics, Slope stability, Geotechnology for roads, railways and runways, Seepage analysis, Ash Ponds, Pavement materials, Locally available marginal materials.	lkyadu.ce@nitrr.ac.in
8	Prof. Ajay Vikram Ahirwar,	Assistant Professor, B.E. (Civil), M. Tech (Environmental Engineering), Ph. D. Pursuing (Environmental Engineering)	Water and Waste Water Treatment, Air Pollution Monitoring & Modelling, Solid Waste Management and EIA Studies.	avahirwar.ce@nitrr.ac.in
9	Prof. Ishtiyaq Ahmad,	Assistant Professor, B.E. (Civil), M.Tech (Water Resources Development & Irrigation Engineering) Ph.D. (Pursuing).	Water Resources Planning & Management, Hydrological Modelling, Applied Hydrology, Reservoir Operation, Designing of Hydraulic Structures, Open Channel Flow, Irrigation Water Scheduling, Pipe Flow Analysis, Hydrological Survey, Application of Remote Sensing & Geographical Information System in water resources.	iahmad.ce@nitrr.ac.in
10	Dr Govardhan,	Assistant Professor, B.E. (Civil), M.Tech (Structures), Ph.D. (Earthquake Engineering).	Structures, Structural Dynamics, Seismic Base Isolation, Seismic Hazard Analysis and Vulnerability Assessment, Soil Dynamics and Geotechnical Engineering, Vedic Studies and Modern Physics.	gov.ce@nitrr.ac.in
11	Dr. Meena Murmu,	Assistant Professor, B.E (Civil), M Tech (Structural Engineering), Ph.D. (Civil Engineering)	Sustainable concrete, Waste management of Industrial by-product in cement and concrete construction. Characterization of raw materials of cement and concrete. Optimization of mix proportions mortar and concrete by computational analysis.	mmurmu.ce@nitrr.ac.in
12	Prof. Mani Kant Verma,	Assistant Professor, B.Tech (Civil), M.E. (WREE), Ph.D. (Pursuing)	Fluid Mechanics, Fluid Machines, Stochastic Hydrology, URBAN hydrology, STATISTICAL hydrology, Water Resources and Environmental Engineering., Design of: water supply schemes/distribution network/sewage/storm drainage/ intake structures/water treatment plant/ Overhead tanks/Road design & planning/structural design of buildings/water pumps/complete testing of pumps/weirs/anicuts/barrage & other hydraulic structures. GIS based special consultancy for: flood analysis & mitigation/ watershed analysis & planning/ basin potential estimation/ integrated planning of basin/ Inter basin planning for water transfer/ Reservoir operation optimization/any other problem related with water resources	manikverma.ce@nitrr.ac.in
13	Prof. Mohit Jaiswal,	Assistant Professor, B.Tech.(Civil), M.Tech. (Integrated Dual Degree in Structures) IIT-BHU.	Advanced Structural Analysis, Disaster Management & Mitigation, Retrofitting of RCC Structures, Wind and Seismic Effects on Structures.	mjaiswal.ce@nitrr.ac.in
14	Prof. Sunny Deol. G,	Assistant Professor, B.Tech. (Civil), M.Tech (Transportation Engineering & Planning), Ph.D. (Pursuing).	Pavement design, Pavement material characterization, Design of Runways, Heliports, and Industrial corridors, Regional transport planning, Road safety audit, Public transport planning, Pre-bid advisory services, Pavement structural and functional evaluation, Life cycle cost analysis, Travel demand modelling, Intersection and signal design.	sdguzzzarlapudi.ce@nitrr.ac.in
15	Prof. Ansu Thomas,	Assistant Professor, B.Tech (Civil), M.Tech (Geotechnical), Ph.D (Pursuing)	Soil and Foundation Engineering, Soil structure interaction, Ground improvement techniques.	athomas.ce@nitrr.ac.in
16	Prof. Kamal Shanker Patel,	Assistant Professor, B.Tech. (Civil), M.Tech (Structures),	Structural health monitoring, High rise buildings	kamalspatel@gmail.com
17	Prof. Bahuguna Dalai,	Assistant Professor, B.Tech. (Civil), M.Tech (Transportation Engineering)	Pavement design, Pavement material characterization, Design of Runways, Heliports, and Industrial corridors, Regional transport planning, Public transport planning, Pavement structural and functional evaluation, Life cycle cost analysis, Travel demand modelling, Intersection and signal design.	Bahuguna.dalai@gmail.com
18	Prof. Nupur Kesharwani,	Assistant Professor, B.E. (Civil), M.Tech (Environmental Engineering)	Concrete Technology, costing and estimation	
19	Prof. Kamlesh Kumar Ratre,	Assistant Professor, B.E (Civil), M.Tech (Geotechnical Engg)	Reinforced Soil Techniques, Ground Improvement Techniques, Soil Dynamics, In-situ and Engineering properties of Soil, Slope stabilization of Earth and Rockfill Dams.	kamleshratre2605@gmail.com
20	Ms. Tripti Singh Rajput,	Teaching Assistant, B.E. (Civil),	Concrete Technology and Structural analysis.	triptisr990@gmail.com
21	Ms.Prerana Agrawal,	Teaching Assistant, B.E. (Civil),	Concrete Technology, costing and estimation	prerana.agrawal3191@gmail.com
22	Ms. Manju Sahu,	Teaching Assistant, B.E. (Civil)		
23	Mr. Bajrang Panigrahi,	Teaching assistant, B.E.(civil),		
24	Mr. Sumit Bhattacharya,	Teaching assistant, B.E.(civil),		

Department of Computer Science and Engineering

About the Department:

The Department of Computer Science and Engineering at the National Institute of Technology Raipur was formed in the year 2000 and provides an outstanding research environment complemented by excellence in teaching.

The Department offers B.Tech. and Ph.D. degrees. The Department has a comprehensive curriculum on topics related to all aspects of Computer Hardware and Software with an emphasis on practical learning. The course structure is up-to-date and includes courses on nascent topics to equip our students with the latest developments in Computer Science and Engineering.

The Department has state-of-the-art infrastructure and computing equipment supported by high speed Ethernet and wireless networks.

Our faculty members aim at delivering top class education blending their rich research experience with classroom teaching. The Department has undertaken many research projects funded both by multinationals and government agencies. For more information regarding research activities please visit the faculty and research pages.

Our Vision :

To promote Research and Development in frontier areas of Computer Science & Engineering also to generate Competent Professionals to become part of the industry and research Organizations at the National and International levels. Department also providing necessary strengths to enable the students to innovate and to become entrepreneurs.

Objectives:

- To provide students with a strong foundation in the mathematical, scientific and engineering fundamentals necessary to formulate, solve and analyze engineering problems and to prepare them for postgraduate studies, R&D, consultancy and higher learning.
- To develop an ability to analyze the requirements of the software, understand the technical specifications and to provide novel engineering solutions for efficient product designs.
- To provide exposure to emerging cutting edge technologies, adequate training & opportunities to work as teams on multidisciplinary projects with effective communication skills and leadership qualities.
- To prepare the students for a successful career and work with values & social concern bridging the digital divide and meeting the requirements of Indian and multinational companies.

Academic and research programme:

All our programmes are comprehensive and research oriented running since 2000.

- B. Tech. (CSE) : Four Year Duration
- Ph. D. (CSE) : Full Time/ Part Time

Career Prospects and Course Structure:

Based on the career prospects, the courses have been designed to lay emphasis on various specializations of Computer Science and Engineering. The courses and curriculum are modified regularly to meet the standards of reputed foreign Universities and IIT's and to cope up with recent developments. The courses are planned with our alumni, experienced faculty from prestigious institutes and experts from industries.

Placement Opportunities

Dream job opportunities in government as well as private sectors are available for our graduates. The placement scenario for other departments is good too. The top recruiters were Directi, Oracle, Cognizant, Persistent, MU-Sigma, Birlasoft, DRDO, IBM Pvt.Ltd., CSC, BEL India Ltd., Sapient Corp. Ltd., SEL, Capgemini, Accenture, HCL, Patni Computers, Samsung Electronics Ltd., L&T Infotech Pvt. Ltd., Amdocs India Pvt. Ltd. and ONGC.

Our Alumni:

Our alumni have brought laurels to the Department by retaining good positions in the national and international organizations.

Laboratory and Testing facilities:

The Department has several well equipped computer laboratories with 150 computers and 10 workstations to cater to the needs of CSE students. The present infrastructure is excellent to carry out research and other academic work by UG and PhD students. Department uses a number of softwares available centrally at NIT Raipur like MATLAB, .Net, SPSS, Analuo and large number of open source softwares to carry regular academic and research works.

Major laboratories are listed below:

C-Programming Lab:

- ✓ To get compatible with the tool used for practicing the C language.
- ✓ To implement the different programs related to the different arithmetic and logic instructions.
- ✓ To implement the programs which include the high level data transfers and arraying.
- ✓ To analyze the programming skills of the student.

Programming Lab

- ✓ To learn the basic knowledge required for the simple programming.
- ✓ To develop initial applications like calculator, computing investments, building logic.
- ✓ To create an application used for the different bars such as status and toolbar.
- ✓ Build logic to develop and design the case studies.
- ✓ To get compatible with the different libraries like DATABASE.

Data structure Lab

- ✓ To have a good understanding of how several fundamental algorithms work, particularly those concerned with sorting and searching and linked list.
- ✓ have a good understanding of the fundamental data structures used in computer science
- ✓ To be able to analyze the space and time efficiency of most algorithms
- ✓ To be able to design new algorithms or modify existing ones for new applications and reason about the efficiency of the result
- ✓ To implement different algorithms for the searching, sorting and linked lists.
- ✓ To develop new and used algorithms to solve the occurring problems.

OOPS & C++ Lab

- ✓ To learn the concepts of object oriented programming by using classes and objects.
- ✓ To reuse the codes in an effective manner via polymorphism.
- ✓ To reduce the burden of coding by inheritance and its properties.
- ✓ It provides file handling features and exception handling features.

Operating System Lab

- ✓ Student will be able to implement process scheduling & synchronization algorithms.
- ✓ Student will be able to understand page replace strategies and implement various page replacement algorithms.
- ✓ Student will be able to simulate the concept of semaphore and inter-process communication.
- ✓ Student will be able to utilize available memory by implementing memory management scheme like best fit, worse fit etc.
- ✓ Student will be able to implementation of various Disk scheduling algorithms.

Data Base Management System Lab:

- ✓ Students design and implement a database schema for a given problem-domain and are also able to populate and query a database using SQL DML/DDL commands.
- ✓ Students are able to Program in PL/SQL including stored procedures, stored functions, cursors, packages and get familiar with Oracle functions and use them in SQL queries.
- ✓ Students develop facilities for controlling data access, enforcing data integrity, managing concurrency control.
- ✓ Student will be able to analyze the cause of deadlock during transaction processing. The MySQL is used as Database server.

Analysis & Design of Algorithms Lab

- ✓ Student will be able to write programs for sorting and searching techniques and calculate total no. of swaps, total no. of comparison, and running time of each technique.
- ✓ Student will be able to understand divided and conquer method and implement Strassen's matrix multiplication.
- ✓ The student will gain knowledge about a greedy method and the ability to solve knapsack problems and find a minimum spanning tree of giving spanning tree.
- ✓ Student will be able to solve problem related to graphs and implement them.

Computer Network & Network Programming Lab

- ✓ This lab is designed to carry out experiment on both wireless and wired media. Network simulator 2 is used in this lab to carry out experiment on Mobile Ad-hoc network, apart from that java open source is used to design application on networking. Also, to Develop applications using socket and routing protocols. The lab is well equipped with facilities to train students learn about network configuration and management , client server applications and clear understanding of system driving programs.

Computer Graphics Lab

- ✓ This lab facilitates students to learn and develop various algorithms in the area of computer graphics like line clipping, polygon clipping ,shearing,projection etc. Students also develop 2D and 3D transformation techniques like translation ,rotation,reflection and scalling .student also work on adavanced application like animation ,computer vision and multimedia. The major API used is OpenGL.

Unix & Shell Programming Lab

- ✓ Students will be able to understand basic UNIX commands and the UNIX programming environment.
- ✓ Student will be able to understand UNIX text editor to create a shell script and run scripts effectively from the command line.
- ✓ Student will be able to write shell script for finding, sorting, comparing and merging text in given file.
- ✓ Student will be able to use pipes to communicate between processes.
- ✓ Student will be able to design, implement, test, and debug functions that can be used in scripts.
- ✓ Student will be able to use grep and advanced regular expressions for sophisticated pattern matching.
- ✓ Student will be able to manipulate the given text using stream editor and awk programming.

Microprocessor Lab:

- ✓ To understand the internal organization of INTEL 8085 and 8086 Microprocessors and Assembly Language Programs using the instruction sets of processors and to study the interfacing of the processor with various peripheral devices.

Data Mining & Ware Housing (Lab)

- ✓ Students can understand the basic concepts of how to extract data from large databases.
- ✓ Discuss, critically analyse and evaluate current approaches in the field.
- ✓ Students can develop applications based on data mining.

R&D and Consultancy Works:

The Department has a proud record of research and has generated expertise in various areas. The Department has sufficient in infrastructure to carry out research and consultancy in the following areas:

- Mobile, ad hoc & wireless sensor networks
- Computer networks
- Database and data mining
- Computer architecture and reconfigurable computing
- Artificial Intelligence and NLP
- Image Processing
- Design & development of software
- Design & evaluation of campus wide networks

Sponsored and R&D Projects

S. No.	Title the Project	Co-ordinators	Research Grant	Funding Agency	Year of Sanction	Current Status
1	Predictive and visual analysis of the price distribution Information of rice and wheat across India	Dr. N.K. Nagwani Dr. Shrish Verma Dr. Kesri Verma	4,50,000/-	CCOST	2013	On Going
2	Development of a comprehensive model for software fault prediction	Mr. Pradeep Singh and Dr. Shrish Verma	5,00,000/-	CCOST	2013	On Going
2	Modeling of autonomous software agents' behaviour defend HTTP request attacks.	Prof. Dilip Singh Sisodia	4,90,000/-	CCOST	2015	On Going

Proposed academic programmes and centres:

- Learning Over Cloud – Virtual Classes using NKN Network.
- Projects Tie-ups with the Industries
- Specialized Lab Setups
- M. Tech. in Computer Science & Engineering
- Creating a platform for Professional Consultancies with the help of Students
- Targeting Big Size Sponsored and R&D Projects.

Future Plans:

The Department has a major role to play in providing academic excellence in computer science and information technology. The Department has great potential for expansion in the upcoming years. Future plans include:

- To start Full Time/Part-Time MTech programme in CSE/IT
- Recruiting and retaining well-qualified faculty
- Enhancement of research activities through MoU with Premier National and International Institutes
- Consolidate infrastructure and facilities
- Strengthening Institute-Industry Interaction
- Imparting training programmes related to new advancements in
- the field of computer science and information technology
- To setup state-of-the-art Research Centre in Mobile Computing

Human Resources

S.No	Name	Designation	Areas of Research	Email Id
1	Dr. Naresh Kumar Nagwani		Data Mining, Text Mining, Software Engineering	
2	Mr. Dilip Singh Sisodia		Applications of Soft Computing Techniques, Web Mining, TOC	
3	Mr. Pradeep Singh		Machine Learning, Software Engineering, DBMS	
4	Dr. Manu Vardhan		Distributed System	
5	Ms Aakanksha Sharaff		Software Engineering	
6	Ms. Veena Anand		Mobile Adhoc Network	
7	Mr. Jasraj Meena		Grid Computing	
8	Mr. Vrajesh Kumar Chawra			
9	Mr. Upendra			
10	Mr. Rakesh Kumar Tiwari.			
11	Mr. Saroj Kumar Chandra.			
12	Mr. Amar Nath Patra.			
13	Mr. Mohammed Rizwan Rawani.			
14	Mrs. Anupriya Babbar.			
15	Ms. Akanksha Verma.			

Department of Electrical Engineering

About Department:

Bachelor of Engineering (BE) program with sanctioned intake of 20 in Electrical Engineering Department was started in 1958 in erstwhile Govt College of Mining & Metallurgy which was later changed to Govt College of Engineering & Technology (GCET Raipur) and then to Govt College of Engineering (GEC Raipur). In 2005 the institute got the status of NIT by MHRD. The first batch passed out in 1962 and since then 53 batches have passed out from this Department. Later the sanctioned intake was increased to 60 and it is recently further increased to 92. Since its establishment, the Department has been imparting quality education to by reviewing its curricula, developing laboratories with state of art equipment and software. The Department was offering MTech in Computer Technology since 2000 which discontinued in 2014 to accommodate new MTech course in Power System and Control. Department also started providing PhD programmes in all disciplines of Electrical Engineering since 2011. In future, new MTech course in Instrumentation and Control is likely to commence which along with existing BTech and MTech programmes will strongly impart advanced academic training and provide better opportunities for research and consultancy.

Objectives

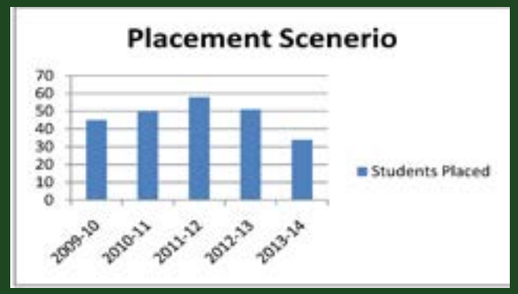
- To provide quality education and research to the students to cope up with international standards.
- To set up state of the art infrastructure and upgraded laboratories for students to provide practical knowledge and to implement their innovative concepts.
- To conduct regular continuing education and community development programmes.
- To provide technical assistance and consultation to Government, private, public and industrial sectors.
- To excel in industrial consultancy and research with recognized national and international organizations and to contribute truly to benefit human kind.

Academic and Research Programmes

- B.Tech (Accreditation by NBA is under process)
  - Discipline: Electrical Engineering
  - Duration: Four Years
  - Intake: 92
- M.Tech
  - Discipline: Power System and Control
  - Duration: Two Years
  - Intake: 25 (20 GATE qualified and 05 Sponsored by Industry and Academia)
- Ph.D.
  - Full Time/Part Time (Both from Industry and Academia)
  - Major Research Areas
    - Power System
    - Power Electronics and Drives
    - Control System
    - Digital Signal and Image Processing
    - Speech Processing and Biometrics

Placement Scenario

Excellent placement opportunities come for both UG and PG students via our well established Training and Placement Department of the institute. The industries from various sectors like power, coal, cement, steel, instrumentation, software etc. of Government / public sector / private visit the campus with both inter and intra disciplinary job opportunities. The placement record for last five years is depicted in following chart:



Some of the prominent visiting industries and organizations for campus placement are NTPC, CIL, IOCL, ONGC, Cognizant, Tata Steel, Hindalco, L&T, ABB, Trident, JSP, FIAT, Godrej, Vedanta, Capegemini, Reliance, AREVA, ACC, Mahindra & Mahindra, Siemens, Sarda Group, NRDA, Adani Group, HPCL, Escort, NMDC etc.

Conferences, Workshop and Short Term Courses organized.

1. Organized a short term course on "MATLAB based Design and Implementation of Advanced Control, Signal & Image Processing Algorithms" from 16-21st August 2013 in Department of Electrical Engg., NIT Raipur.
2. Workshop on "LabVIEW and MATLAB" from 28-30th March 2014 at National Institute of Technology Raipur.
3. Workshop on "National Ethical Hacking" on 7th and 8th Oct 2014 at National Institute of Technology Raipur.
4. Certified training on "Basic Programmable Logic Circuits (PLC)" of SIEMES on 15th and 26th Dec 2014 in Department of Electrical Engg of National Institute of Technology Raipur.
5. Technical Training of Loco Supervisors of South Eastern Central Railways from 16th to 21st Feb 2015.

Laboratories and Testing Facilities

Department has well equipped laboratories in core areas to cater the needs of UG, PG, PhD as well as industrial R&D and consultancy. All state of art and modern equipment are available to address real time industrial challenges. Complete range of testing facilities related to Electrical Engineering is available in the laboratories. The major equipment present in various laboratories are listed below:

Electrical Machine Laboratory

- Motor Generator Set
- Alternator Synchronization
- CT Testing Unit
- Clamp Meter 2000 A
- Frequency Meters
- 1ϕ & 3ϕ Auto Transformers
- 1ϕ & 3ϕ Wattmeters
- Resistive and Inductive Loads

High Voltage Laboratory

- 100kV, 100mA HV Testing Transformer
- 100 kV Transformer Oil Testing Kit
- Sphere Gap for HV Measurement
- Oil Tank and Resistivity Measurement Kit
- Rod Gap and Horn Gap Apparatus
- 100 kV AC to DC Converter Circuit
- Portable Acidity Measurement Kit
- Kar-Fisher Titrator for Moisture Content Measurement
- Flash Point Tester
- 100 kV Capacitance Divider
- HV Impulse Generator

Power Electronics and Drives Laboratory

- dSPACE 1103
- TMS320F2812 DSP Board
- Spartan 3AN FPGA Board
- Fluke 434-II Power Quality Analyzer
- YOKOGAWA DL850 E Scope Corder
- 1 HP, 3 Phase induction motor drive Setup
- 40 discrete IGBT switch module
- Tektronics TPS2000 Series oscilloscope
- SCR based DC Chopper
- SCR BASED AC Chopper
- Single Phase Half Controlled Converter
- Single Phase SCR based Bridge Converter
- Single Phase Full Controlled Converter
- Three Phase Full Controlled Thyristorized Bridge Converter.
- Three Phase Generalized Converter

Measurement and Instrumentation Laboratory

- National Instrument's Data Acquisition Lab
- National Instrument's ELVIS2
- Bridges
- Megger
- RTD, Thermocouple, Thermister
- LVDT, RVDT
- Load Cells
- Accelerometer
- Energy Meters
- Solar PV Module
- Sensors

Control System Laboratory

- Control Trainer Kit XPO-PID
- Digital Control System Kit
- AC Servomotor Study Kit
- Study of Second order Networks
- Linear System Simulator
- Analog Discovery Board (PC Based Oscilloscope and Spectrum Analyzer)
- Computer Controlled Temperature Control Unit
- Lag-Lead Compensation Kit

- Nonlinear system Simulator
- Virtex-7 FPGA Board

Analog and Digital Electronics Laboratory

- IC 741 as Adder, Averager, and Subtractor
- Astable, Monostable, Bistable Multi-vibrators
- IC 741 as Inverting and Non-Inverting Op-Amp
- Class B Push Pull Amplifier
- Oscillators
- Microprocessor Kit (8085)
- Micro Controller LCD Kit (8051)
- Micro Controller LCD Kit (8086)

Modelling and Simulation Laboratory

- PSIM
- PSCAD
- MATLAB
- LabVIEW
- High end computers & workstatations

R&D and Consultancy Work

The Department always remain forefront in R&D and consultancy work. We are very well known for testing and consultancy in the region. The department has good rapport with – CREDA, CSEB, BALCO, NTPC, PGCIL, BSP, Coal India Ltd and is also offering consultancy and testing services to nearby local industries. The faculty has pulled in very good sponsored R&D projects of great social and economical values.

Sponsored Research Projects

- Hybrid Optimization Based fractional order fuel cell modeling and online parameter estimation with design of adaptive controller for integrated power converters (Sponsoring Agency – DRDO, Cost-34.79 Lacs)
- Speech recognition for Chhattisgarh (Sponsoring Agency – CCOST, Cost-5.0 Lacs)
- A single ended directional relaying algorithm based on ANN for fault classification and zone identification of double infeed transmission line (Sponsoring Agency – CCOST, Cost-4.4 Lacs)

Consultancy Projects

- Energy Efficient Street Lighting System at Durg in association with CREDA.
- Energy Audit of Coal Mines Under South eastern Coal Fields Ltd (SECL)
- Generator of Higher Ratings Verification at Vandana Global, Crest Steel, Real Ispat etc.

Success Stories

As our department is one of the oldest of the institute and the Chhattisgarh region also, The department is blessed with lots of success stories of our alumni, faculty members, students. Some recent of them are given below:

- Dr. N. D. Londhe received Visiting Scholarship in recognition of writing Best Paper in Journal of Medical Ultrasound (Elsevier) to attend the 30th Annual Convention of Taiwan Society of Medical Ultrasound on 18-19 Oct 2014 at Taiwan International Convention Centre, Taipei, Taiwan.
- Dr. N. D. Londhe received Dr. T K Saxena Memorial Award of Ultrasonics Society of India for best PhD Thesis in the field of Ultrasonics and applied research on 30th Oct 2012 in XIX National Symposia of Ultrasonics 2012 (XIX NSU-2012) organized at National Physical Laboratory, New Delhi.
- Our student Lekhraj Sinha secured 19th All India Rank in UPSC 2014 and got selected in Indian Railways.
- Our student Ms. Kamlesh Bhoorani received prestigious OPJEMS Scholarship in 2014, which is aimed at promoting academic and leadership excellence and are awarded to meritorious students who emulate the vision and values of Shri O. P. Jindal and have the potential to become leaders in entrepreneurial excellence and innovation.
- Miss Aleena Swetapadma M.Tech. student 2013 batch has received the POSOCO Power System Award (PPSA-2014) for her Master's research work entitled "Combined Wavelet and ANN Based Directional Relaying for Double Circuit Transmission Line".
- Miss Reshmita Sharma M.Tech. student 2012 batch has received the POSOCO Power System Award (PPSA-2013) for her Master's research work entitled "ANN based Open Conductor Fault Detector/Classifier and Distance Locator for Protection Of Double Circuit Lines".

Our Alumni

Department has largest alumni pool in the region. Amongst the notable alumni, Dr. Iyengar (1962) retired as Professor in Electrical Engg at IIT Kanpur, Dr. B. K.B. Bhatt retired as Professor at I.I.T. Delhi who is recognized as pioneer of computerized Railway Reservation System, Dr. A. S. Zaoganakar (1965) Vice Chancellor of Dr. CV Raman University Kota Bilaspur, Shri Banafar (1969) Chairman CSEB, Shri B.K. Sharma (1968) and Shri Manoj Dey (1970) Technical Member of CSEB, Shri Manoj Dey Chairman of Chhattisgarh State Electricity Regulatory Commission, Mr. K.D. Diwan (1981) working as CMD of Hindustan Copper Ltd (HCL). Similarly, the alumni are very well placed in India & abroad.

Human Resources

S.No	Name	Designation	Areas of Research	Email Id
1	Dr. A. S. Thoke	Visiting Professor	Ph.D. (Power Systems)	
2	Dr. (Mrs.) S. Gupta	Professor	Ph.D. (Power Systems)	
3	Prof. P.D. Dewangan	Associate Professor	M. Tech. (Power Systems)	
4	Dr. S. Ghosh	Assistant Professor	Ph.D. (Control System)	
5	Dr. Narendra D. Londhe	Assistant Professor		
6	Dr. S. Patnaik	Assistant Professor	Ph.D. (Power Electronics)	
7	Dr. (Mrs.) Anamika Yadav	Assistant Professor	Ph.D. (Power Systems)	
8	Dr. (Mrs.) Ebha Koley	Assistant Professor	Ph.D. (Power Systems)	
9	Mrs. Varsha Singh	Assistant Professor	M. Tech (Computer Technology)	
10	Dr. (Mrs.) Monalisa Biswal	Assistant Professor	Ph.D. (Power Systems)	
11	Dr. V.P. Singh	Assistant Professor	Ph.D. (Control System)	
12	Mr. Lalit Sahu	Assistant Professor	M.Tech. (Power Electronics)	

Department of Electronics and Telecommunication Engineering

About Department

The department was established in the year 1985. It offers undergraduate degree in Technology (B. Tech.) currently and the annual intake is 92 students. A post graduate course in VLSI and Embedded Systems is proposed to be started from 2016. The department offers Doctoral program in Communication Engineering. Also, the faculty of the department are guiding research leading to Doctoral degree in the area of Data Mining, Software Engineering and Soft Computing.

Vision

To be a national leader in imparting quality education, carrying out research and technology development in the field of Electronics and Telecommunication Engineering.

Mission

- To produce sound, readily employable engineers having strong theoretical foundation, excellent practical knowledge and research outlook.
- To strive for productive partnership with alumni, industry and other Institutions to frame curricula, carry out research, technology development and consultancy as per the need of industry and society at large.
- To encourage better interaction among faculty and students to inculcate value–based socially committed professionalism for the overall development of students for the society.

Program Educational Objectives (PEOs)

- To provide the necessary background in the field of Electronics and Telecommunication Engineering to deal with Engineering problems, to pursue PG/Research program and to excel as engineering professionals in industries and society at large.
- To develop ability among students towards innovation and entrepreneurship that caters to the need of Industry and society.
- To develop an attitude to apply the technical knowledge acquired to solve real life problems and to develop the competent workforce to carry out consultancy services to the industries and utilities.
- To develop the qualities like creativity, leadership, team work, skill, and professional ethics, thus contributing towards the growth and development of society and to inculcate an attitude for life- long learning process.

Laboratory Facilities

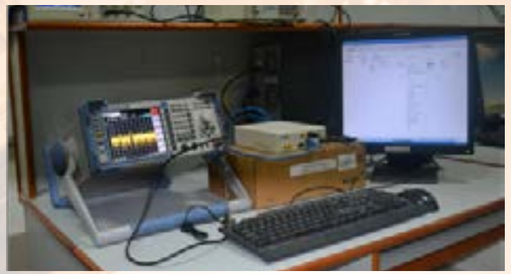
The department has well-equipped laboratories in all the basic subjects of the stream like Analog and linear Circuits, Digital and Digital System Design, Microcontrollers and Embedded Systems, Instrumentation, Digital signal Processing, VLSI, Microwave and Antennas, Analog and Digital Communication, Computer Simulation and Image Processing. State-of-the-art test and measuring instruments and software like LabView, MultiSim, UltiBoard, MATLAB, ModelSim, Xilinx ISE system and many more are available in various laboratories.

Analog Circuit Laboratory

Electronic Devices Training Kits, Training and Design Kits for Analog circuits like Amplifiers, Oscillators, etc., Linear ICs based circuit design and Test Kits, CROs, Function Generators, Variable DC supplies, Multimeters, NI Elvis kits, Labview and MultiSim software.

Communication Laboratory

Analog and Digital Communication trainer kits, R&S 3Ghz Spectrum analyzer, USRP software defined radio, DSOs & MATLAB software with simulink tools.

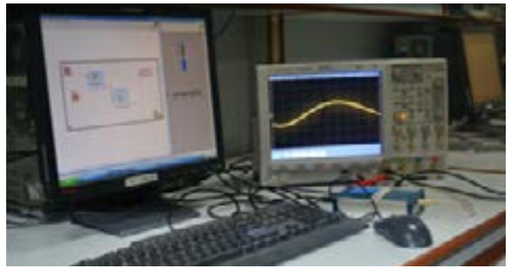


Computer Laboratory

Desktop PCs having corei5&i7 processor with MATLAB software, Multisim and Ultiboard 11.0, Exata Cyber/ Qualnet.

Digital Signal Processing Laboratory

Agilent Programmable arbitrary function generator (Dual channel, 25 MHz) Agilent 500 MHz Mixed Signal Oscilloscope Agilent DSO (60 MHz, 100 MHz, 200 MHz), TI C6713 DSK, Code composer studio, NI Speedy 33 kit, Virtex-4 XtremeDSP board, LabView.



Digital Systems and Microprocessor Laboratory

8085 Trainer kit, 8086 Trainer kit, E&E system trainer kit with multi utility bread board panel, Transtech TSP36N multiprocessor board, Daytona software radio, DSO (100 MHz).

Electronic Workshop and Project Laboratory

Basic Electronics Kits, Power Supply, Oscilloscope, Signal Generators, PCB making setup with dark room facility and Ultiboard software for designing PCBs.

Image Processing and Computer Vision Laboratory

NIEVS 1464(WINDOWS 7) Computer vision system, Desktop PCs(Core i5/i7 Processors) with MATLAB and Labview Software having different Image Segmentation and Enhancement tools.

Microcontroller and Embedded system Laboratory

TI MSP430 launchpad development tool, Sitara Arm Processor AM335x starter kit, Ultra low Power MSP430 Microcontroller kit, Anshuman 8051 trainer kit, Texas Instruments ASLKv2010 Starter kit, MSP5529/5438 Experimenter Boards, SCORBOT-ER 2U robotic arm.

Microwave and Antenna Laboratory

Agilent 18Ghz vector network Analyzer, Microwave test benches for X-bends with VSWR digital meter, Fiber optics trainer kit.

VLSI Laboratory

Xilinx ISE, Model Sim, Altium Designer & Nanoboard 3000, ML 605 virtex 6 Evaluation kit, NB300 FPGA kit, Spartan 3AN kit, Mentor Graphics (HDL Author & Precision RTL).

Placement Scenario

The Department enjoys one of the best placements of its students in the Institute. The major recruiters are Coal India Limited, Cognizent Technologies Solutions, Mu-Sigma Business Solutions Pvt Ltd, Reliance Industries, Infosys Pvt Ltd, Persistent India, DRDO, L & T Infotech Pvt Ltd, Oracle FSS India, Capegemini Pvt Ltd, Wipro Technologies, Hewlett Packard India, Reliance Jio Infocomm Pvt Ltd, etc., to name a few.

Placement Percentage

Research Projects

- Predictive and visual analysis of the price distribution information of RICE and WHEAT across INDIA. (Sponsoring Agency-CCOST, Sponsored Fund-4.5 Lakhs).
- Development of a comprehensive model for software fault detection,(Sponsoring Agency-CCOST, Sponsored Fund-5 Lakhs).

Interaction with Industry

The Department has been one of the nodal agencies to carry out post purchase testing of computers, peripherals and other electronic equipment for CG Govt. The department have MoUs for collaborative research and training with National Instruments, and Texas Instruments.

Alumni Base

The Department has a strong Alumni base and most of the Alumni are well placed in India and abroad. Many of our Alumni are at very senior level in Government, Private and Public sectors. Some of our senior alumni have started their own ventures abroad and are making their alma-mater and themselves proud.

Some of our prominent alumni are Sri Abid Ali Neemuchwala (1990), Group President and COO, Wipro, Shiben Das (1990), CTO, Airtel, Prabal Biswas(1991), Co Founder & CTO- Channel Mentor IT Sol. Ltd., Alpana Shukla Rao (1992), Director (TERM)-DoT, Indranil Ganguly (1992), Prn. Design Engineer- Texas Instrument Ltd., Rakesh Lakhani(1992), Director - Network Solution-Erricsson, Rajesh Lakhani (1995) IAS, Commissioner of Corporation, Chennai(TN), Manish Agrawal(1995), Cofounder & CTO- Yagna iq Inc. USA, Sonal Verma(1995), Sr.IPS, ADGP, CG Police, Pallaw Sharma(1997), Director- Microsoft Corp., Shyam Dixit (1997), Founder & Chief Cosultant-Xamtrex Tech. Consultant (UK) Ltd., Amitabh Agrawal (2000), Managing Director-ADROTIUS, Parvesh Chauhan (2000), Sr. B I Consultant-Business Intelligence Alliance P L.

Our Competencies

The department has competencies in the following areas in which it would like to develop sustainable partnership with the Industries for collaborative research, consultancy and man-power training.

- Automation of the processes and systems
- Circuit (Linear and Digital) Design and Analysis
- Design and planning of Computer networks
- RF measurements
- PCB Design and prototype development.
- Software tool training in tools like LabView, MATLAB, Xilinx, Exata Cyber, etc.

Success Stories

Electronics and Telecommunication has been the most sought after stream in last decades and as the department is the oldest department in the State of Chhattisgarh, there are many success stories of our students. Also the faculty of the department being among the most experienced and qualified have brought laurels to the department from time-to-time. Few recent prominent achievements of the students and faculty of the department are listed below.

- The Department has produced the toppers of GATE examination twice in its glorious journey and many of our students have been successful in being within top ten scores Jaya Jha(GATE Topper AIR-I, 2015), Nidhi Agrawal(GATE AIR-2,2009) and Rajesh Lakhani (GATE Topper - 1990), etc.
- Aditya Om, Student of 7th semester, received 3rd place in "The Jury Popular choice award", in 2014. His project named as "Gabby Tree" is an innovative idea which when attached around a tree, enables the tree to tweet on social networking site such as TWITTER , and send text PUSH MESSAGES, to the person in-charge of the Tree in Real-time in case of any threat to the tree.
- Also many of the students from the department have given excellent performance in CAT Examination, i.e. Shashank (Percentile-98, 2014), Ashish Reddy (Percentile-98, 2014), etc.
- Mr. B. Acharya, Assistant Professor, received "Rajiv Gandhi Excellence Award" in 2011 by India International Friendship Society. He also received "The Best citizen of India Award" in the same year by International Publishing house, New Delhi.
- Dr. Shrish Verma, Professor, received the "Shiksha Ratan Puruskar" constituted by India Internation Friendship society in April 2010. He was also awarded with "Shiksha Bharti Puruskar" constituted by India Economic Development & Research Association and All India Achievers Foundation in August 2011.

Human Resources

S.No	Name	Designation	Areas of Research
1	Dr. Sudarshan Tiwari, Ph.D.	Professor and Director	WDM optical networks, wireless sensor networks, wireless mesh networks and next generation networks.
2	Dr. Shrish Verma, M.Tech, Ph.D.	Professor and Dean Faculty welfare	Digital system design, computer & communication networks, Data mining and Soft Computing.
3	Dr. Ajay Singh Raghuvanshi, Ph.D.	Assistant Professor	Digital Communication, Wireless sensor network, Artificial Intelligence.
4	Mr. B. Acharya, M-Tech, Ph.D.	Assistant Professor	Cryptography & Network Security, Signal Processing, Mobile Communication, Soft Computing.
5	Mr. Saikat Majumder, M-Tech, Ph.D.	Assistant Professor	Distributed source/channel coding, Error correction codes, Digital system design
6	Mr. Sujay Chakraborty, B.E., M-Tech.	Assistant Professor	Microwave and antennas.
7	Dr. Ajay Singh, Ph.D.	Assistant Professor	Wireless communications.
8	Dr. T. Meenpal, M.Tech., Ph.D.	Assistant Professor	Image processing, Multimedia security.
9	Dr. Suman Kumar Saha, Ph.D.	Assistant Professor	DSP filter design, soft computing.
10	Mr. R. K. Chaurasiya, B Tech, M E, Ph.D.	Assistant Professor	Pattern recognition, Computer vision.
11	Mr. Anshul Gupta, B.E., M-Tech, Ph.D.	Assistant Professor	Microwave and antennas.
12	Mrs. Anjali Chandra, B.E, M.Tech.	Assistant Professor	Image processing, neural network & fuzzy logic.
13	Mr. Md. Imroze Khan, B.E, M.Tech	Temporary Faculty	Cryptography and network security, biomedical image processing, signal processing.
14	Mr. Shashank Gavel, B.E, M.Tech	Temporary Faculty	Wireless & Mobile communications, Wireless networks, Communication systems.
15	Ms. Onika Parmar, B.E, M.tech	Temporary Faculty	Microelectronics and VLSI Design
16	Mr. K A Patro, M.Tech(ECE)	Temporary Faculty	Signal and Image Processing, VLSI Design
17	Mr. Amit Kumar Shrivastava, B.Tech, M.Tech	Temporary Faculty	Digital Communication
18	Mr. Hitesh Tekchandani, B.E. M.Tech	Temporary Faculty	Embedded System, Virtual Instrumentation, Image Processing
19	Mrs. Ankita Meenpal, B.E, M.E	Temporary Faculty	Image processing, Secure Multimedia Communication

Department of Information Technology

About the Department:

Establishment Year: 2000

Programs offered: i. B.Tech in Information Technology (Intake: 92)

ii. M.Tech in Information Technology (Proposed)

iii. PhD in Information Technology

The Department of Information Technology caters to the study, research and work place of 300 people from 29 states across India. About 15 professors in this department teach mainly in areas like Information Science & Technology, Computer Science & engineering, system-oriented sciences, and mathematics, etc., and carry out research in their respective fields.

Our vision:

To become one of the leading departments of the institute and a distinguished centre of excellence in the region. The Bachelor of Technology in Information Technology program is designed to provide its graduates a solid educational foundation on which they can build successful and sustainable career in Information Technology or a related field.

Our Objectives:

The objectives of the Department of Information Technology is to serve the society by preparing undergraduate students for professional practice as successful engineers, by providing continuing education opportunities and by making original contributions to the art of engineering. The objective of our mission includes:

- To prepare skilled manpower in the field of information technology for next generation.
- To enhance industrial productivity.
- To improve research activity.
- To provide quality education to students.
- To provide sufficient infrastructure for research.
- To develop e-tutorial, e-labs.
- To increase computer literacy in society.
- To establish a healthy environment for industry-academy interaction.

Academic and Research Programs with area of research

- B.Tech in Information Technology.
- M.Tech in Information Technology (Proposed)
- PhD

Research Area

- Computer Networks
- Image Processing
- Robotics
- Artificial intelligence and Neural Networks.
- Data Mining and Data warehousing.
- Wireless sensor networks
- Mobile ad-hoc networks
- Time series analysis.

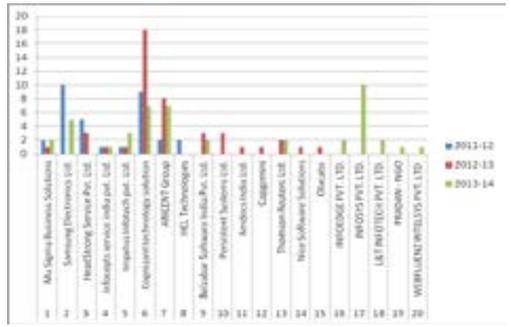
Career Prospects and Course Structure

Information technology is a branch of engineering that involves the study of utilization of computers and telecommunications in order to gather, store, control and disseminate information. Both software and hardware sectors are included in IT. Due to the importance and popularity of IT, the current age is sometimes referred to as Information Technology Age. Availability of trained and proficient professionals makes India one of the popular places for career in IT.

Several IT companies in India and abroad hire well-qualified and skilled IT professionals. Application of Information Technology can be used in many sectors, including in banking business, health and medicine, railways, agriculture, forensic science and education. Computing professionals might find themselves in a variety of environments in academics, research, industry, government, private and business organizations, analyzing problems for solutions, formulating and testing, using advanced communications or multi-media equipment, or working in teams for product development.

Information Technology stream offers a lot of job opportunities for the graduates. IT Service provider based companies concerned in hardware/software development, application and its testing employ IT professionals.

Placement scenario



Facilities and Laboratories:

The Department has well equipped laboratories catering to the needs of IT students as well as students from other departments. The infrastructure is good enough to carry out the academic and research work for UG and PG students. The facilities available in different laboratories are listed below:

Computer Network Lab

- HP Z420 Workstations - 2 Nos
- Lenovo / HP / Zenith P4/Dual Core / Core2Duo / Celeron Desktops - 30 Nos
- Benchmark I Securit - 1 No
- Benchmark NetSysT Firewall - 1 No
- Benchmark NetSysT Router - 4 No
- D-Link 16port Switch - 1 No
- Benchmark LAN Trainer – 5 Nos
- Turbo C++
- Windows XP

Functional Areas & its Capabilities:

Academic support and R&D activities on computer networks, mobile computing, ad hoc networks and wireless sensor networks.

Software Technology Lab

Functional areas & its capabilities:

Academic support and R & D activities on Software development, design and testing.

DBMS Lab

- HP Z420 Workstation - 1 No
- HP Core i7 Desktops – 25 Nos
- Lenovo/IBM Core2Duo/Dual Core/P4 Desktops – 17 Nos
- My SQL
- Visual Studio (.Net)
- Turbo C++
- Windows 2007/ XP

Functional areas & its capabilities:

Academic support and R&D activities on databases, data mining, text mining and time series analysis.

Programming Lab

Functional areas & its capabilities:

Academic support and R&D activities on programming languages, algorithms and operating system.

Computer Graphics Lab

- Lenovo/IBM/HP P4/Dual Core/Core2Duo - 40 Nos
- Turbo C++
- Windows XP
- Matlab

Functional Areas & its Capabilities:

Academic support and R&D activities on computer graphics and CAD.

Data Structure and Algorithm Lab

Functional areas & its capabilities:

Academic support and R&D activities on designing algorithms, data structures and its implementation.

AI and Computational Lab

Functional areas & its capabilities:

Academic support and R&D activities on Artificial intelligence, ANN, Fuzzy logic, image processing and computer vision.

Project Lab

Functional areas & its capabilities:

Academic support, R&D activities and project works.

R & D and Projects:

The Department has sufficient infrastructure and facilities to carry out research and consultancy in the following areas:

- Computer networks
- Mobile, ad hoc & wireless sensor networks

- Data Analytics and text mining
- Image Processing
- Software and system testing
- Computer architecture and recon-figurable computing
- Artificial Intelligence and NLP
- Design & evaluation of campus wide networks
- IT solutions and training in the cutting-edge technologies The Department has gear up to take projects form funding agencies. The undergoing project is as follows:
- Design and Development of dynamically controlled walker system, DST, 23.13 Lacs, PI: Mr. Rakesh Tripathi

There is the exponential growth of the department in terms of facilities, faculties, courses, latest technology awareness, Research activities, placement of the students in the recognized companies etc. In the year 2013, PhD Course has been started and we are committed to start M.Tech program in the year 2015. Almost all the students got the opportunity either in the form of job or higher studies in India and abroad as well.

The training is a continuous learning process to implement the perceive methods and technologies and it is the regular feature of the department. The students, faculty members and technical staff update their knowledge by regularly attending various conferences, training programmes and workshops. The Department is also in the forefront for organizing training programmes, workshops and invited lectures. More than 500 participants from reputed organizations and community have attended different programmes organized in the Department.

The major activities undertaken in the recent years are:

- Workshop on Ethical Hacking, (29-30, Sept 2012)
- Workshop on Cloud Computing (20-21, July 2013) : Jointly organized with CSE and MCA Departments
- Short Term Course on Linux Operating System and shell Programming under CEC.

Information technology has a major role to play in providing academic excellence in information technology and computer science. The Department has great potential for expansion in the upcoming years.

- To setup state-of-the-art Research Centre in Information Technology
- To start Full Time M.Tech. programmes in areas of IT and CS
- To conduct national/international conferences in collaboration with recognized organizations
- Enhancement of research activities through MoU with premier National and International Institutes/Industries
- Strengthening Institute-Industry Interaction
- Imparting training programmes related to new advancements in the field of information technology and computer science and engineering.

Human Resources

S.No	Name	Designation	Areas of Research	Email Id
1	Dr. Sudhakar Pandey, PhD, MANET,		Wireless Sensor Networks.	(E-mail: spandey.it@nitrr.ac.in)
2	Prof. Satya Prakash Sahu, PhD (Pursuing),		ANN and Medical Image Processing.	(E-mail: spsahu.it@nitrr.ac.in)
3	Prof. Sanjay Kumar, PhD (Pursuing),		Adhoc Networks.	(E-mail: skumar.it@nitrr.ac.in)
4	Prof. Rakesh Tripathi, PhD (Pursuing),		Design of Computer Networks.	(E-mail: rtripathi.it@nitrr.ac.in)
5	Prof. Mridu Sahu, PhD (Pursuing),		Time Series Analysis and Data Analytics.	(E-mail: mrisahu.it@nitrr.ac.in)
6	Prof. Tirath Prasad Sahu, PhD (Pursuing),		Text Mining and Image processing.	(E-mail: tirathpdsahu.it@nitrr.ac.in)
7	Prof. Pavan Kumar Mishra, PhD (Pursuing),		Next Generation Networks.	(E-mail: pavanmishra.it@nitrr.ac.in)
8	Prof. Rajesh Doriya, PhD (Pursuing),		Robotics and AI.	(E-mail: rajdor.it@nitrr.ac.in)
9	Prof. Nivedita Pandey, M.Tech,		Software Designing and Testing	(E-mail: nivedita.pandey08@gmail.com)
10	Prof. Suman Chouhan, BE,		Design of Computer Networks	(E-mail: sumanc633@nitrr.ac.in)
11	Prof. Dhirendra Kumar Sharma, PhD (Pursuing),		Routing Protocols	(E-mail:dhirendrasharm@gmail.com)
12	Prof. Ramchandra Reddy, PhD (Pursuing),		Software Development and Maintenance	(E-mail: brcreddy.mtech@gmail.com)
13	Prof. Deepika Agrawal, M.Tech,		Cloud Computing.	(E-mail: deepika721@gmail.com)
14	Prof. Parul Dewangan, M.Tech,		Information Security	(E-mail: paruldewangan29@gmail.com)
15	Prof. Priyamvada Shrivastava, BE,		Database Systems	(E-mail: priyamvadashrivastava@yahoo.com)

Department of Mathematics

About the Department

The institute was established as Government College of Mining and Metallurgy on 1 May-1956. Then the Department of Mathematics came in existence. The department provides an outstanding research environment. The department offers academic program leading to the award of Ph.D. degree. Apart from this, department taking care of mathematical input to all undergraduate and Post-Graduate courses in Engineering and Computer Applications. Presently, in the department, there are nine regular faculties (one faculty is on lien) and two teaching assistants. The faculty takes research initiatives to work in recent and emerging areas of mathematics.

Vision of Department

To develop the Department of Mathematics at National and International level in teaching & research, the vision of the Department:

1. To develop a computer laboratory for advances mathematical programming for applied and computational mathematics such as MATLAB, MATHEMATICA, MAPLE etc.
2. To start M.Sc. (Applied Mathematics and Computation), with relevant syllabus to CSIR-NET exam pattern.
3. To increase projects from different funding agencies from all over India such as CGCOST, DST, NBHM, UGC, ISRO, CSIR etc.
4. To increase the facility to research scholar like E-journals, Books and Magazines etc.

Objectives

The syllabus of NIT Raipur has been designed in keeping with the present requirements of the Industry. The endeavor of apprising the student of the latest in Information and Technology has resulted in up gradation of the syllabus from time to time, the latest changes being brought into effect from 2000. Mathematics is a king and queen of all subjects. So mathematics is a basic tool for all. Our main aim is to provide a logical way to learn mathematics. We mainly focus in the following way of teaching:

1. The student learns mathematical concepts rather than simply memorize procedures.
2. Students solve problems relevant to real world situations.
3. Students work together with faculty members to learn mathematics.

Mathematics classes in

- B. Tech. [up to 1-4 / 1-6 semesters in 11 Engineering Branches]
- M. Tech. (Civil Engineering)
- MCA [up to Four Semesters]

Academic and Research programs with area of research

Fluid Mechanics;
Algebra;
Linear Algebra;
Fluid Dynamics;
Operation Research;
Mathematical Ecology;
Fluid Dynamics;
Cryptology;

Conferences, Workshop and Short Term Courses organized.

1. Successfully Conducted National Level SHORT TERM TRAINING PROGRAMME ON "MATHEMATICAL MODELING IN SCIENCE AND ENGINEERING" July 02-06, 2014 (Under TEQIP Phase-II) in the Department of Mathematics.
2. Successfully Conducted National Level SHORT TERM TRAINING PROGRAMME (STTP) in the Department of Mathematics on A GLIMPSE OF DIFFERENTIAL EQUATIONS IN SCIENCE AND ENGINEERING, March 10-14, 2014 (Under TEQIP Phase-II)
3. Successfully Conducted National Level Short Term Training Programme on "Current Trends in Applied Mathematics: Applications and Future Aspects", July 06-10,2015 (Under TEQJP Phase II) in the department of Mathematics.

R&D and consultancy work (research project details, consultancy details, snapshots, MoUs)

1. One research project is on going from CGCOST of rupees five lacks, (Principal Investigator: Dr. Arvind Kumar Sinha, HEAD, Department of Mathematics, NIT Raipur).
2. One research project is on going from CGCOST of rupees five lacks, (Principal Investigator: Dr. R. P. Pathak, Professor, Department of Mathematics, NIT Raipur).

Success stories

Mr. Anand Prakash , Ph. D. Scholar (Under the guidance Dr. Arvind Kumar Sinha, HEAD , Department of mathematics) , Department of Mathematics , NIT Raipur presented and awarded Young Scientist Award for Best Research Paper in the discipline of Mathematical & Statistical sciences during the 12th Chhattisgarh Young Scientists Congress (CYSC-2014) organized by Pt Ravishanker Shukla University Raipur, Chhattisgarh sponsored by Chhattisgarh Council of science and Technology Raipur.

Human Resources

S.No	Name	Designation	Areas of Research	Email Id
1	Dr. R.P. Pathak Ph.D.	Professor	Fluid Mechanics	rppathak.maths@nitrr.ac.in
2	Dr. Arvind Kumar Sinha Ph. D.	Assistant Professor and HEAD of Department	Algebra	aksinha.maths@nitrr.ac.in
3	Dr. Gorakh Nath Ph. D.	Assistant Professor(On Lien)	Fluid Dynamics	gnath.maths@nitrr.ac.in
4	Dr. DEBASISHA MISHRA Ph.D.	Assistant Professor	Linear Algebra	dmishra@nitrr.ac.in
5	Dr. SUJIT KUMAR SAMANTA Ph.D.	Assistant Professor	Operation Research	sksamanta.maths@nitrr.ac.in
6	Dr. SHARADA NANDAN RAW Ph.D.	Assistant Professor	Mathematical Ecology	shardaraw@gmail.com
7	Dr. MADASU KRISHNA PRASAD Ph.D.	Assistant Professor	Fluid Dynamics	madaspra.maths@nitrr.ac.in
8	Dr. NILESH KUMAR THAKUR Ph.D.	Assistant Professor	Mathematical Ecology	nkthakur.maths@nitrr.ac.in
9	Dr. DEEPMALA SHARMA Ph.D.	Assistant Professor	Cryptology	deepsha.maths@nitrr.ac.in

Department of Mechanical Engineering

About Department:

Year of Establishment: 1958

Department offers undergraduate program in Mechanical Engineering and three Postgraduate programs in specializations of Thermal Engineering, Industrial Engineering and Management and Machine Design respectively. It is one of the largest departments of the institute with intake of 90 students for undergraduate course and 17+13+13 students for post graduate courses. Department also offers Ph.D. program in all relevant discipline of Mechanical Engineering including Design, Production, Thermal and Industrial Engineering and Management.

Vision

To produce innovative, entrepreneurial and successful engineers and technologists of high calibre for the nation, to serve as a valuable resource for industry and society.

Mission

- To provide the students and the faculty with opportunities to create, interpret, and apply the knowledge in the field of Mechanical Engineering.
- To provide technological service to local, national, and international communities

Programme Educational Objectives (PEOs)

Under the undergraduate Mechanical Engineering programme the objectives and aims to produce qualified Mechanical Engineers who will:

- Apply technical knowledge and skills as Mechanical Engineers to provide the solutions for the industries and government organizations.
- Utilize effective communication, team, and project management skills to work productively within their professions and communities.
- Conduct themselves in a responsible, professional and ethical manner.
- Inculcate an attitude for lifelong learning process.

Programme Outcomes (POs):

Program Outcomes are the expected qualities of a graduating engineer. They represent the views of industry and institute, and the needs of jobs performed by graduates and are listed below for the graduates to:

- Acquire knowledge of basic sciences and mechanical engineering.
- Acquire an ability to identify, formulate and solve Mechanical engineering problems.
- Acquire an ability to design and conduct experiments and analyse and interpret data related to mechanical engineering.
- Acquire skills to use modern mechanical engineering tools, software and equipment to analyse problems.
- Acquire knowledge of professional and ethical responsibilities and develop an understanding of impact of mechanical engineering solutions on the society.
- Communicate effectively both verbal and written, as an individual or as a leader.
- Acquire awareness of contemporary issues.
- Participate and succeed in competitive examinations.

Academic and Research Programmes

Bachelor of Technology (Accreditation by NBA is under process)

- Discipline: Mechanical Engineering
- Duration: Four Years
- Intake: 90

Master of Technology

- Discipline: Thermal Engineering
- Duration: Two Years
- Intake: 17
- Discipline: Industrial Engineering and Management
- Duration: Two Years
- Intake: 13
- Discipline: Machine Design
- Duration: Two Years
- Intake: 13

Ph.D.

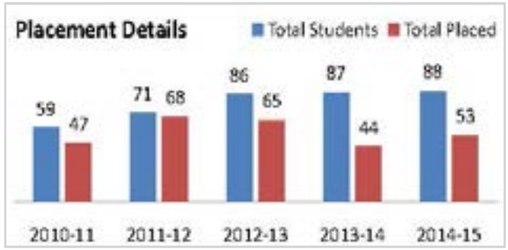
- Full Time/Part Time (Both from Industry and Academia)
- Major Research Areas

- Thermal Engineering.
- Heat and Mass Transfer.
- Computational Fluid Dynamics.
- Alternative Fuels.
- Mechanisms and Machine Design
- Computational Mechanics.
- Engineering Materials, Synthesis and Characterization.
- Industrial Engineering and Management.
- Logistics and Supply Chain Management
- Fly ash utilization and Management
- Strategic Management
- Environment Management
- Decision Modelling and Optimization

Placement Scenario

Excellent placement opportunities come for both UG and PG students via our well established Training and Placement Department of the institute. The industries from various sectors like power, coal, cement, steel, instrumentation, software etc. of Government, public sector, private visit the campus with both inter and intra disciplinary job opportunities. The placement record for last five years is illustrated in following chart:

The industries and organizations that regularly visit the Institute for campus placement are NTPC, CIL, IOCL, ONGC, Cognizant, Tata Steel, Hindalco, L&T, ABB, Trident, JSP, FIAT, Godrej, Vedanta, Capegemini, AREVA, ACC, Mahindra&Mahindra, Siemens, Sarda Group, NRDA, Adani Group, HPCL, Escort, NMDC ARCELOR, MILTON, HCL, Reliance Power, TATA Motors, Ambuja Cement , Maruti and many more.



Conferences, Workshop and Short Term Courses organized.

The Department of Mechanical Engineering, NIT Raipur has organized:

- National Workshop on 'Convergence of Technologies, Management and Global Business' on Dec. 20, 2011.
- One week self-financed workshop on Finite Element Method 18-22 June 2012.
- Two day Workshop on Intellectual Property Rights under TEQIP-II, 14-15 Feb. 2014.
- International Conference on Quality Management at Raipur in collaboration with South Asia Institute of Science and Engineering (SAISE), 22-23 March, 2014.
- Two days workshop on "Academic Ethics and IPR" at NIT Raipur in collaboration with Chhattisgarh Council of Science and Technology Raipur on April 4-5, 2014.
- One week workshop on Multi-criterion decision making and optimization, 25-29 May 2015.

Laboratories and Testing Facilities

Mechanical Engineering Department constitutes of a number of laboratories with a diversified variety of equipment. Being one of the core branches we have laboratories focusing on fundamental aspects of Mechanical Engineering. Department is well equipped with latest instruments such as Four ball tester, Rheometer, Universal Testing machine, CNC milling machine and CNC trainer for turning to cater the needs of UG, PG, PhD as well as industrial research and consultancy. Students have an open access in the laboratories, to understand as well as apply their knowledge to explore their engineering skills. The Design (CAD) Laboratory of the Department strives to be a centre for skill development and initiator in innovative application of engineering design. The lab is equipped with latest software pertaining to the area of CAD and Simulation. Department also has Industrial Management Lab and has licensed simulation and statistical software like SPSS, AMOS and Witness.

Infrastructure laboratory and testing facilities (photographs)

Heat and Mass Transfer Laboratory

Instruments: Composite Slab, Thermal conductivity of liquid, Forced Convection, Natural Convection, Emissivity of Grey Surface, Un steady State Heat Transfer, Drop Wise and Film wise Condensation, Heat Pipe Demonstrator, Regenerative Heat Exchanger

Internal Combustion Engine Laboratory

Instruments
2-Stroke SI and CI Engine, 4-Stroke SI and CI Engine, Fuel Supply System, SolexCarburettor, Ignition System, Lubrication System, Cooling System, Friction Power (Morse Test and Willans Line Method), Valve Timing Diagram of SI and CI engine, Heat Balance Sheet.

Workshop

Equipments
Lathe, Milling machine, shaper, Welding booth, Fitting, Carpentry and Machining tools and equipment, CNC trainer for turning, CNC lathe and milling machine

Refrigeration and Air Conditioning Laboratory

Instruments
Domestic Refrigerator, Ice Plant Tutor, Bottle Type Cold Storage, Cold Storage Unit, Storage Type Water Cooler, Vapour Absorption Refrigeration, Air Conditioner Trainer (Duct Type), Vapour Compression Type Air Water Heat pump, Expansion and Evaporators System, Automobile Air Conditioning System, Thermoelectric Refrigeration System, Reciprocating Compressor.

Applied Thermodynamics Laboratory

Instruments
Cochran Boiler, Lancashire Boiler, Locomotive Boiler, Babcock and Wilcox Boiler, Boiler Mountings and Accessories, Steam Engine, Compound Steam Engine, Petrol and Diesel Engine (2-Storke and 4-Stroke).

Energy Conversion System Laboratory

Instruments
Reader Stem Engine, De Level Steam, Steam Condenser Plant, Flat Plate Collector, Parabolic Collector, Pyranometer, Sunshine Recorder, Solar Heat Collector.

Dynamics of Machines Lab

Instruments
Four Ball Tester, Motorized gyroscope, Epicyclic Gear Train, Static and dynamic balancing machine

Industrial Engineering & Management Lab

Hardware Specifications
5- Wipro,2.8 Ghz (WSG 15696), 512 MB DDR -1, Desk top ,Intel Core 2 Duo E 600, 2 MB L-2 Cache 2Gb ;RAM, 17" TFT Monitor,Window Vista, Business Preloaded, 1GB DDR 28- HP Compaq 8200 Elite SFF PC, 32 bit Operating System, Intel Core i7, DDR 3-1600,4

Software Specifications
IBM SPSS v20; Witness-PwE 3.0 Manufacturing Performance Edition; AMOS Software; MINITAB

AD LAB

Software Details
Autodesk Inventor, 2011; AUTOCAD 2007;, CATIA-DELMIA (V5R20); Solidworks 2014; Robo-Analyzer;RokiSim; CAElinux 2013; MATLAB 2012a, Deform 2D-3D.

Material Testing Lab

Instruments
Universal Testing Machine, Rockwell Hardness Testing Machine, Brinell Hardness Testing Machine, Impact Testing Machine

R&D and consultancy work

The Department has good reputation for its testing and consultancy services in the region. The faculty has found success in securing grants for highly relevant sponsored research projects of huge social and economic impact.

Sponsored Research Projects

- Strategies for Effective Environmental Management in Thermal Power Plants in Chhattisgarh. (Sponsoring Agency – CGCOST, Cost-5 Lakhs).
- Determination of Operating Conditions for hydro-transport of mineral slurry based on wall shear stress and head loss measurement for mineral industries of Chhattisgarh State. (Sponsoring Agency – CCOST, Cost-5.0 Lakhs).
- A project on 'Efficient window cooler for power and water saving' is taken jointly with SSCET, Bhilai.
- Design and validation of existing bike based patient carrier transport system for remote areas of Chhattisgarh and proposing design of bike trailer assembly. (Sponsoring Agency – UNICEF, Cost-10 Lakhs).

Consultancy Projects

- Testing of steel rods and wires.
- Design verification of trailer-chassis and validations as per CG Road Transport rules and regulations.
- Premature failure investigation of Komatsu makes Engine Model at SECL.
- Cooling Load Calculation of Indoor Stadium at Raipur.
- Tower crane failure investigation at Naya Raipur (NRDA).
- Hopper failure investigation at Urla Industrial Estate.
- Fly-over failure investigation at Durg.
- Quality inspection for CSIDC for Dual Desk and other furniture items.
- Failure Analysis of Gear Box Pinion of Ecofren Power and Projects Ltd.

Success Stories

Mechanical engineering offers a vast amount of career options and opportunities and results into a large professional occupation. As a result of our reputed graduation program, our graduates have been among the most sought after engineers and research scholars. This recognition is the sweetest form of acknowledgment of our success. We have a strong and ever-growing alumni presence in almost all the leading Organizations, Research labs and Premier Institutes of Importance throughout the Nation and Overseas. Their achievements have made us proud and added to our success stories time and again. Apart from the placement, every year graduates from our department are getting selected for Post-Graduate programmes in Universities and Research Institutes international repute all over the world. The experienced faculty members have also brought laurel to the Department with prestigious awards being conferred upon them.

- Dr. A M Rawani received 'International Corporate Leadership Award' in field of Education in 2015 by Economic Growth Society of India.
- Dr. A M Rawani received 'Pride of Asia International Award' in 2014 by Economic Growth Society of India.

- Dr. A M Rawani received 'Rashtriya Gaurav Award' in April-2010 by India International Friendship Society, India.
- Dr. A M Rawanireceived Best Management Case Award in 'GIFT CASE 2000' competition (executivecategory) from Global Institute of Flexible Systems Management.
- Dr. A M Rawani received Best Paper Award in TECHNOLOGIA 2002 National Seminar.
- Dr. A M Rawani was honoured by The Institution of Engineers (India) Chhattisgarh State Centre in 2009 for his valuable contribution in the field of Technical Education.
- Dr. S Sanyal received GSFC & ISTE National Award for Thesis titled "Safe Spacing of Nozzles in Pressure Vessel" in the year 1990.
- Dr. S Sanyal brought laurel to the Institute when his representation led to the Institute being awarded for Dedicated Industry Linkage Activities at CIIILP - SHOW CASE CONFERENCE in GOA, 2004.
- Dr. S L Sinha has been honoured by The Institution of Engineers (India) Chhattisgarh State Centre in 2012 for her valuable contribution in the field of Technical Education.
- Dr. S L Sinha has been the recipient of "Shiksha Rattan Puraskar" offered by India International Friendship Society on April 7, 2010.
- Dr. A K Tiwari is honoured with the best paper award in International Conference on Mechanical and Robotics Engineering, May-2012, Phuket, Thailand.
- Shri Suraj Kumar Mukti is the recipient of Mahatma JyotibaPhule Fellowship Award in 2010.
- Shri Suraj Kumar Muktiis conferred with Shikshak Ratna Sammanin 2010.

The Department offers the students regular opportunity to work one-on-one with the faculty while forming long-lasting relationships to boost meaningful alumni interaction. Alumni support in various capacities and extend quality support and hence have a huge impact on the Department's continued success. Through the support of our Alumni, scholarships are being disbursed to the deserving students. An arrangement for distributing books of Mechanical Engineering subjects to First year Mechanical Engineering students has also been initiated and being successfully conducted every year. Our Alumni take regular interest in our efforts and participate in our Departmental meetings and review discussions. We are grateful for all of the contributions of our alumni and we are particularly heartened hearing of their successes. We encourage alumni to connect regularly with and share their news. The strength of the relationships founded in our Department can be nurtured through our vibrant alumni community, bringing both career and social benefits to the stakeholders of the Department.

Amongst the notable alumni, Avinash Bhalerao (1964) has served with Bechtel Corp. Texas USA.Prabhu Nanjiani (1964) served in the capacity of Vice-President, Essar Power Limited. Chetan Advani (1965) retired as GM, Air India. Anil Agnihotri (1966), served as Vice President, Mahindra and Mahindra. Dipen Biswas (1982) is serving as DGM (I/C, Marketing) at MECON, Jharkhand. Maya Rao (1982) is serving as Director, in Department of Envrn. Quality at MS, USA. Manik M Rajput (1983) is a scientist with BARC, Kalpakkam, TN. Anand K. Vaishampayan (1984) is presently serving as Director, (Training and Placement), IBM.Trilok Singh (1988) is Senior Manager, NTPC, Noida. Ajay Ommen (1989) is Manager, Global Sales, Shell International, UK. Dr. Manish Mishra (1991), is faculty at IIT Roorkee. The list of Alumni is long and is ever-growing too with the passage of time. The Department is indeed proud of its alumni and bows to them for their achievements and their continued growth, support and contribution.

Our competency in Offering Research and Consultancy and Executive training:

- Fly Ash utilization and Management.
- Preparation of Strategic Plan for the organization.
- Flexible Systems Management.
- Quality Management and Six Sigma Concept.
- Creative Problem Solving Methodology.
- Research Methods.
- Design and validation of machineries, machine and automobiles components.
- Software training; ANSYS, AUTOCAD, CATIA, SOLIDWORKS, MATLAB.
- Tribological testing.
- Industry related case studies and simulations based on CAD and Finite Element Solvers.
- Flow simulation studies.
- Design for enhancing Thermal Comfort.
- HVAC and Cooling load calculation.

Human Resources

S.No	Name	Designation	Areas of Research
1	Dr. A.M Rawani	Professor	Strategic Management
2	Dr. S. Sanyal	Professor	Mechanisms and Machine Design, Robotics
3	Dr. ShobhaLata Sinha	Professor	CFD, Environmental Engg, Alternative Fuels
4	Dr. R. Salhotra	Professor	Heat Transfer
5	Dr. S.D. Patle	Professor	ThermalEngineering, Turbo machinery
6	Dr. S.P.S. Matharu	Professor	Tribology and Machine Design
7	Dr. Anil Kumar Tiwari	Professor	Solar Energy, Refrigeration and Air Conditioning
8	Prof. R.K.Yadav	Associate Professor	I C Engines, Alternative Fuels
9	Prof. G.K. Sahu	Assistant Professor	Production Engineering
10	Prof. Satish Kr.Dewangan	Assistant Professor	Computational Fluid Dynamics
11	Dr. Nitin Kumar Jain	Assistant Professor	Composite materials, Finite Element Method
12	Shri Shailesh Vaidya	AWS	Production Engineering
13	Prof. S.K. Mukti	Assistant Professor	Industrial Engineering and Management
14	Prof. Vivek Kumar Gaba	Assistant Professor	Heat Transfer, Refrigeration-Air Conditioning, FGM
15	Dr. S. Bhowmick	Assistant Professor	Finite Element Method, CAD, Machine Design, FGM
16	Dr. A.R. Singh	Assistant Professor	Industrial Engineering, SCM and Optimization
17	Dr. H.K. Narang	Assistant Professor	Industrial Engineering and Management
18	Prof. Nisha Netam	Assistant Professor	Thermal Engineering, Thermal Comfort
19	Dr. Srinivasu Gangisetti	Assistant Professor	Composite Materials, Tribology
20	Dr. Somnath Bhattacharya	Assistant Professor	Fracture Mechanics, Finite Element Method
21	Dr. R.K. Sahu	Assistant Professor	Fatigue, Material Characterization
22	Dr. Mridul Singh Rajput	Assistant Professor	Industrial Engineering and Management
23	Dr. Ranjana Suresh Kumar	Assistant Professor	Finite Element Method

Department of Metallurgical Engineering

About the Department

Department of Metallurgical Engineering is the oldest branches of the Institute, established in the year 1956 with student intake of 20 to cater the need of Bhilai Steel Plant and other metallurgical industries located in the central India.

The department in its journey through the 60 years produces many successful metallurgist who became the twinkling stars in different parts of this country and abroad. The department maintained a high standard of teaching and research to provide significantly skilled manpower to nearby metallurgical industries, academia and R&D laboratories, which includes, Mini-steel plants, national laboratories, Defence services, Bhabha Atomic Research Centre, HAL, BHEL, SAIL. Global consultants like Mecon, M.N. Dastur Co., Famous foundries, Forge shop, Heat treatment shop, Indian standard Institutes & Famous Educational Institutes along with dept. of Industries of state & centre thus covering the entire length & breadth of the country.

Vision and Mission of the Department

The Department of Metallurgical Engineering start functioning with an aim to create ambience to foster academic and research excellence through attracting high quality faculty members, technical staff and prospective students. , through constant interaction with research laboratories and industries; and develop a team spirit among all stake-holders to realise the vision. The department committed to develop state of the art laboratories in the area of materials and metallurgical research for offering doctoral research program, take up challenging research projects and industry based research and consultancy services to deliver world class scientific and research output. The overall goal of the department is to establish an atmosphere that will enhance the nation's capacity and capability to develop and sustain an educational and research infrastructure in the area of metallurgical engineering, toward meeting the needs of the twenty-first century of both industry and society at large for both industries and society at large..

Academic programs

The department presently offering Undergraduate in Metallurgical Engineering and PhD in Engineering. Also the department planning to start a M. Tech program.

A. Undergraduate (B. Tech in Metallurgical Engineering)

a) Duration: Four years / eight semesters degree program
b) Total no. of Intake :90
c) Admission: through JEE (main)

B. Ph. D Program

The department offer both full time and part time PhD program.

Research

A. Area of Research and Expertise

- High Strain rate deformation
- Nano structured and Amorphous materials for structural application,
- Material Informatics and, Computational optimization
- Semiconductor materials for TCO applications,
- Biomaterials,
- Bulk Metallic Glasses and Advance Alloy design
- Materials Modelling and Simulation
- High strength steels
- Phase Transformation (solid state)
- Tribology,
- Structure-property co-relation

Funded Research Projects and consultancy services

S. No	TITLE OF THE PROJECT	CO-ORDINATORS	RESEARCH GRANT	FUNDING AGENCY	CURRENT STATUS
1.	Study of high rate torsional behavior of Aluminum Zinc alloy (Al 7075) (No. SB/FTP/ ETA-01 22/201 3)	Dr. Manoj Kumar Chopkar	Rs. 23,27,000/	Science and Engineering Research Board SERB)	On going
2.	Study of ageing behaviour of copper added austenitic grade stainless steel and modeling the ageing characteristics (UG2014039)	Dr. Manoj Kumar Chopkar & Dr. SubhasGanguly	Rs. 50,000/-	The Institution of Engineers (India)	Ongoing
3	Quantifying the parameters and improving the impulse excitation technique for the measurement of elastic and damping properties of semiconductors and other advanced materials	Dr. Akhilesh Kumar Swarnakar and Prof. Jan Vanhumbeeck (KU Leuven, Belgium)	Project Grant - 101,000 Euros	Innovation by Science and Technology (IWT), Belgium	Successfully Completed

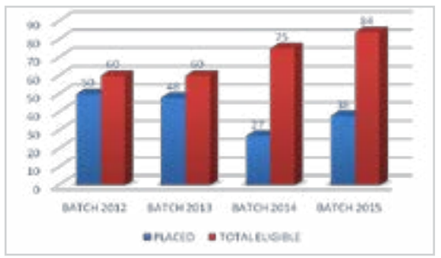
Awards and Achievement

- Organized a Workshop on "X-Ray Diffraction and Its Application in Materials Engineering" 1st -3rd August 2014, under TEQIP-II at NIT Raipur
- Two Sponsored Project has been awarded to Department in Year 2014.
- Dr. Chopkar has been awarded prestigious Sir Dorabji Tata - TR Anatharaman (SDT-TRA) faculty scholar fellowship 2013. Under this fellowship, he has visited center for Materials Processing and Tribology, School of Industrial Engineering, Purdue University, USA in Fall 2014 (August-December 2014).
- Dr Chopkar is member of editorial board of ISST Journal of Mechanical Engineering(IJME) and Advance Physics Letter (Indian journal)
- Dr. Akhilesh K. Swanrakar has won the best poster award in Symposium X [Materials Research for Group IV Semiconductors: Growth, Characterization, and Technological Developments] at EMRS 2014 Spring Meeting, May 26-30, 2014, Lille, France
- Dr. Akhilesh Kumar Swarnakar has received travel grant as a Young Scientist from foreign countries to attend 7th forum on the Science and Technology of Silicon Materials (Silicon forum 2014), in Hamamatsu, Japan between 19th to 22nd October 2014.
- Mr. Vinay Mohan Singh (B.Tech student), has been awarded Prestigious TRA-ERF, Hyderabad for summer internship.
- Amit Rajput and Shivendra Sinha Presented paper and Received 1st Position in Jadavpur University 2013
- Amit Rajput and Bhaskar Maheswari paper and Received 2nd Position in IIT Kharagpur 2013
- Shashank Mishra and Vivek Verma has presented Paper in various Institute like, OPJIT, Raigarh (secured 1st Position), IIEST Kolkata (secured 3rd Position).

Placement and Career prospects

The NIT Raipur has a full-fledged and proactive training and placement cell at the campus and we are proud to say that our budding metallurgists are get jobs through the campus placements with many blue chip corporate and other MNCs. The department has been successful in building the necessary skills and orient in the right direction to its students for the selection in the interview. Following are the brief highlight of the success stories

Placement scenario of the last few batched



Major Recruiters

- ONGC
- Tata Steel
- Jindal steel and power ltd.
- ESSAR
- JSW steel Ltd.
- Mu Sigma
- Vedanta (BALCO)
- Usha Martin
- Adhunik group
- Ador welding
- Hindalco Industries
- Sterlite
- Arcelor Mittal
- 3DPLM software
- Infosys Technologies
- Cognizent Technology Solutions
- Capgemini India etc.

Testing and Consultancy Services:

The department has been actively engaged in industrial consultancy and testing services for the industries in and around Raipur CG. These services include fractography and micro structural evaluation and testing for mechanical properties. Some of the areas where testing and consultancy activities are regularly carried out are listed below:

- Macro examination
- Mechanical testing – tensile, hardness, micro hardness, impact testing
- Micro examination
- Quantitative metallography
- Scanning Electron Microscopy (SEM)and EDS analysis
- Wear testing –pin on disc,
- X-ray diffraction analysis

Consultancy on

- Casting related problems
- Heat treatment problems
- Material selection and alternate materials
- Powder metallurgy
- Welding related issues
- Corrosion problems

Heat Treatment Furnace

induction Furnace

Pin on Disk Wear Testing Machine

Events: Conference,short term course, school, workshop etc.

1. Workshop on Academic Ethics and IPR held on April 04-05, 2014 at National Institute of Technology Raipur.
2. Workshop on X-Ray Diffraction and Its Application in Materials Engineering, Organized by Department of Metallurgical Engineering during August 01-03, 2014 at National Institute of Technology Raipur.
3. Training program, on Uses of E-Resources organized by Central Library on September 10, 2014 at National Institute of Technology Raipur.

Distinguished alumni

The department has largest alumni pool in the region who have serving with distinction in India and abroad. The department has privilege to recall the name of Dr. Baldev Raj (1971) (Eminent scientist and Padma Shri award winner and former Director of the Indira Gandhi Centre for Atomic Research (IGCAR) in Kalpakkam, , S D Chouharia (1966) Retried ED from NALCO, Prof S D Pathak (1968) Prof at IIT Madras, Prof. B P Kasyap, (1971) Prof at IIT Bombay, Mahesh Kakkar (1982), Chairman, Chhattisgarh UdyogMaha., Shri Yougesh Kumar Degan (1975) E D (works) BSP, SAIL, and many more are eminent personalities who have made significant contribution in academics, research and industries.

Services to be extended in form of JV, collaboration, onsite testing etc.

The department has been actively engaged since its inception to provide industrial consultancy and testing services for various metallurgical problems to numerous industrial houses in and around Raipur under the scope of Industry-Institute-Interaction partnership. The department is committed to undertake industrial problems and provide solutions. We also offer testing services for assessment of standards and ensure the quality of product on regular basis under the guideline of NIT Raipur. Our faculties are enriched of knowledge in the area of heat treatment of steels, forging and rolling of steels and aluminum, foundry, cupola melting, surface coating technology, mechanical testing, NDT (under development), electron and optical microscopy (SEM and EDS analysis), X-ray diffraction analysis and crystallography study, corrosion study etc. and frequently provide valuable solutions. We also offer failure analysis and damage evolution of critical metallurgical components, microstructure evolution, wear testing, casting related problem analysis and casting design solutions etc. In this context some of our some of the successful work (completed or under progress) carried out by this department are:

- Successfully completed the consultancy projects in the matter melting loss issue to M/S Aditilspat, Bhilai to settle the issue raised by Excise and Sale Tax Department Raipur
- We worked for providing the test certificate for confirmation of standards of the materials supplied by M/S Hira Power and Steel, Raipur to Airport Authority India Ltd., Raipur13. Professional Technical Bodies

Metallurgical Society (METSO)

The metallurgical society (METSO) is a professional body in the Metallurgical Engineering Department runs by the students of the department. METSO organizes frequent programs for students such as guest lectures, conferences, Annual technical festival, personality development program, social function and cultural program, sports and game events round the year. The annual technical festival "UTKARSHAN" organised every year highly motivate the students and a platform for developing technical skills and personality. It is a two days festival which acts as a summit of the theoretical and practical aspects of engineering with an exposure on the latest trends and innovations.

Human Resources

S.No	Name	Designation	Areas of Research	Email Id
1	Prof A P Rajimwale		Physical Metallurgy, Materials Science	anant.rajimwale@gmail.com
2	Prof M. K. Tripathi		Alloy design, Bulk Metallic Glass	mktripathi.met@nitrr.ac.in
3	Dr. Manoj Chopkar		Nano materials, High Strain Deformation	mchopkar.met@nitrr.ac.in
4	Dr. M. K. Manoj, HOD		Tribology, Structure-property co-relation	mkmanoj.met@nitrr.ac.in
5	Dr. Subhas Ganguly		Computational Materials Science, High Strength Steel	subhasmatsc@gmail.com
6	Dr. Sudip Kr. Sinha		Biomaterials, Thin film	sudipiitk@gmail.com

Department of Mining Engineering

About the Department

The Department of Mining Engineering was started in 1956 under the erstwhile Government College of Mining and Metallurgy. It was amongst the few technical institutes in the country offering courses in the important fields of Mining Engineering . The first session of the department commenced from 1st July 1956 with the admission of 15 students in Mining Engineering.

Vision of Department

To produce Mining Engineers of high caliber, fully equipped with state-of-the-art Technology, to cope with the challenges of Sustainable Development in Mining and Mineral Industry.

To be recognized nationally and internationally as one of the leading institutes in research and providers of quality engineers in field of Mining Engineering.

Objectives

To be recognized as a premier Mining Engineering Education Centre by all stakeholders in the Mining and Mineral Industry.

To impart Quality Education for meeting the needs of Mining Engineering Profession & Society, and achieve excellence through creative Teaching- Learning and Research.

To inculcate the spirit of Sustainable Development and Conservation of natural resources through the advancement of technology in exploration and production of minerals with due regard to Health, Safety and Environment.

To impart quality education and training to undergraduate students in Mining Engineering so as to prepare them for the Mining & other allied industries and higher studies.

Academic and Research programs with area of research

Presently, the Department conducts the Bachelors and Doctoral programmes (both Part time & Full time) in Mining Engineering. The undergraduate programme has an intake of 77 bright students through the national level competitive examinations. The Department has presently 290 undergraduate students and 11 doctoral students.

Career prospects and course structure

The Mining Industry has been the backbone of India's economy and prosperity. Since the nationalization of mines, the mining industry has grown manifold. Mines owned by the Government and Private industries have been a continuous source of employment for the students. International conglomerates have also shown willingness to recruit the mining undergraduates from India. The mining undergraduates from India have been marked with as tenacious, skilled, able and versatile in their working and professional knowledge.

The course structure of the undergraduate programme covers all aspects on the mining profession including the knowledge on allied fields. The curriculum encompasses in detail the technical knowledge on surface and underground mining, for coal, metal and non-metal minerals. It deals with delivery of the fundamentals, numerical calculations, computational investigations, thumb-rules and in-practice maneuvers. The theory is well supported with laboratory exercises, hands-on instrument handling, and computer programming. The curriculum also envisages the delivery of essentials of the allied expertise from the fields of electrical, mechanical, civil, geology, metallurgy, computer science. Besides the technical skills, the course also covers a detailed study of legal framework for mining industry, environmental assessment & environmental practices.

In brief, the courses include blasting engineering, opencast mining, advanced surface mining, underground metal mining, underground coal mining, strata control, rock slope engineering, mining legislation, mineral processing, mining management, and mining economics.

Placement scenario

This Department has served the needs of industry by educating capable mining engineers. In the recent years, the placement has been 100% for deserving mining students. The NIT Alumni have been highly appreciated for their work ethos and have risen to the highest echelons of the industry and academics as well.

Some of the recruiters include – COAL INDIA LTD., STEEL AUTHORITY OF INDIA LTD., NATIONAL THERMAL POWER CO., GRASIM CEMENTS LTD., N.M.D.C, ADHUNIK POWER AND NATURAL RESOURCES, ADITYA BIRLA GROUP, HINDUSTAN COPPER LTD., HINDUSTAN ZINC LTD., VEDANTA GROUP, SARADA ENERGY AND MINERALS LTD., AMBUJA CEMENTS, SHREE CEMENTS PVT. LTD., LAFARGE CEMENTS PVT. LTD., MECON INDIA LTD., M.O.I.L., MONNET ISPAT AND ENERGY LTD.

Conferences, Workshop and Short Term Courses organized.

As a Centre of learning and excellence, the Department of Mining Engineering, NIT Raipur visualizes conducting courses and programme for the industrial professionals. These are aimed at imparting technical and practical skills to the professionals, to develop computational capabilities, and effectively tap the managerial potential.

The Learning Courses for professionals shall be in the field of rock mechanics, mining environment, surface mine planning and design, slope stability and computer applications in mines.

Also, with an objective of bringing together the peers, researchers, learners and the vast multitude of stakeholders the Department of Mining Engineering shall conduct National Level workshops on Environmental Issues in mining industry, Computer applications in mining and mineral industry, Remote sensing applications in mining, Planning and design of openpit mines – a statutory and computational hands-on workshop .

Infrastructure laboratory and testing facilities (photographs)

Presently the Department has ten laboratories: Mineral dressing, Mining Machinery, Blasting Engineering, Mining Survey, General Mining, Mining Environment, Rock Mechanics and Computer Applications, Mining Robotics, and Mine Ventilation.

The Laboratories are equipped with both basic and modern instruments. Basic instruments cater to the teaching learning process. The modern & precise instruments are useful for conducting research and consultancy.

Some of the instruments include Universal Testing Machine, Triaxial Cell, Computerized universal testing machine, Photodyaknov test apparatus, Point Load test apparatus, Direct Shear test apparatus, Schimidits hammer, Total Station, GPS, Planimeter , Theodolite, Levels, Crushers, Grinding mills, Ore conditions, Wilfley table, Flotation cells, Seismograph, VOD mate, and others. Software available for computer simulation include WIPFRAG,JK SIM BLAST,FLAC,BLAST WARE, ANSYS, ERDAS, ARCGIS, SPSS.

R&D and consultancy work (research project details, consultancy details, snapshots, MoUs)

The Department of Mining has been closely associated with the industry. It has extended consultancy services to the South Eastern Coalfields Limited, Bhillai Steel Plant, Century Cements Ltd., Lafarge Cement Ltd., Ultratech Cement Ltd., Manganese Ore India Limited, NMDC, Sarada Energy & Minerals Ltd., and other major and minor mining industries.

Consultancy services are offered in the areas of production blasting, , strata control, ventilation organization, rock mechanics, mining environment, slope stability, remote sensing and GIS applications, geomatics, and rock testing.

Research in the department has been rooted to the thrust areas of technological and scientific goals being promoted by the Ministry. The department faculty have published several precious research papers in refereed journals and presented their findings in national and international conferences. The research strengths of the Department has been in the areas of explosives and blasting, rock mechanics and strata control, ventilation, environment, remote sensing and GIS, geomatics, computational modeling and simulation in mining, geostatistics, surface mine planning and design, environmental impact assessment, preparation of plans for quarries, rock slope design.

Some of the salient projects include -

- Assessment of ground vibrations due to blasting near railway line at Century Cement Limestone mines.
- Design of Blast near sensitive construction setting at KCL, Chhattisgarh
- Design of blast and vibration assessment
- Preparation of drainage pattern for all polluting industries located on the Ganga basin
- Design of blasting pattern for performing controlled blast near High Tension Line at Century Cements.
- Design of blast for overcoming the problem of flyrocks when blasting near public highway at Ultratech mines, Hirmi.

Our alumni

The Department has a wide base of successful Alumni working in India and abroad. Some of the Alumni have reached the pinnacle of the industry by reaching the positions of Chairman cum Managing Director of the Mining Organizations. The alumni are working at all levels of management in the strong mining industries like Coal India Ltd., N.M.D.C., etc.

Services to be extended in form of JV, collaboration, onsite testing etc.

The Department shall feel privileged to extend its services, support and cooperation to all the industries. The Department extends its Laboratory facilities for conducting the tests on rocks, soil, water, air for the assessment of various parameters. The Department can work under the following areas of support to the industries in dealing with any of the issues at workplace.

Rock Excavation, blasting engineering, mine environment, general environment, underground metal mining, mining surveying, rock mechanics, strata control, surface mining, ground vibration studies, slope stability, mine planning, Subsidence prediction and monitoring; Rock Mechanics Instrumentation & Monitoring; Design of Method of Working in Coal Mines, design of slopes, ventilation organization and ventilation network analysis, modeling of mine fan characteristics, modeling of air & water in underground and on surface, hydro-geological studies, environmental impact assessment, GIS- enabled services, Real-time monitoring of logistics, geostatistics, mine surveys, check surveys, boundary pillar survey under the mining legislation, 3-D geological modeling, resource estimation, economic analysis, production scheduling and optimization, remote sensing and GIS applications, computer applications to mining.

Professional Technical Bodies

The Department of Mining Engineering has been a hub of the Mining Engineers Association of India, a national society of mining and geology professionals, Raipur Chapter with its Faculty serving as Office Bearers of the MEAI. The activities of the MEAI, Raipur Chapter have been steered with the help of the Department of Mining Engg. through the strong support on the academic front as well as through the valuable services offered to all the industries which participate in the MEAI deliberations.

Department of Physics

About the Department

The Department existed since the inception of Govt. Engg. College (presently known as NIT Raipur) in 1963. The department caters to undergraduate students and offers PhD programme in all frontier areas of Physics including optical and magnetic properties of materials, luminescence studies and polymer nanocomposites (total scholars registered-18). All faculty members are Running Projects in different disciplines of theoretical and experimental condensed matter physics. The department also plans to start PG programme soon.

Vision

To contribute to society and the country through excellence in Scientific & Technical education and research.

To serve as a mainstay in supporting research and projects of the country.

To collaborate with other Institutions and National Laboratories to enhance the teaching and research activities.

Mission

To provide quality Scientific & Technical education, innovation and creativity in the areas of Pure and Applied Sciences.

To research, through theoretical and experimental methods to provide new materials.

To teach and learn physics in a collaborative way to provide skills to students.

Objective

To achieve academic excellence and overall developments of the students to meet the national standards.

To offer the analytical and consultancy services to the industries.

To use the knowledge of Physics for Industrial development. To make all necessary efforts to cater the needs of B. Tech. first year students by offering good teaching and lab facility to them.

To renovate Applied Physics and Basic Electronics lab with modern experiments.

To start Post Graduate programme in Physics (M.Sc. or M. Tech.)

Laboratories : Applied Physics and Basic Electronics

Fresnel Biprism

Spectrometer

Solar Cell

Four Probes Apparatus

OP-Amp

Energy Bad Gap Apparatus

Research Laboratory : Facilities available

LCR Meter

FTIR Spectrometer

TL Reader

RF 5301 Spectroflourophotometer

High Temperature Furnace

UV 1800 spectrophotometer

Projects in Progress

S. No.	Title the Project	Co-ordinators	Research Grant	Funding Agency	Year of Sanction	Current Status
1	Preparation and characterization of microcellular nano composites for packaging and semiconducting applications	Dr. (Mrs.) S. Agrawal	2,00,000/-	Chhattisgarh council of Science & Technology Raipur	2011	On Going
2	An Investigation on the optical and structural characterization of some fero electric materials	Dr. Ayush Khare	5,00,000/-	Chhattisgarh council of Science & Technology Raipur (CCOST)	2013	On Going
3	Role of Spontaneous and Piezoelectric polorization on thermal properties of Wurtzite Nitrides	Dr. Bijay Kumar Shaoo	5,00,000/-	Chhattisgarh council of Science & Technology Raipur (CCOST)	2013	On Going
4	Electronic optical and magentooptical properties of rare earth compounds	Dr. Sapan Mohan Sainee	5,00,000/-	Chhattisgarh council of Science & Technology Raipur (CCOST)	2013	On Going

Short Term Courses organized

S.No.	Title	Duration	Co-ordinator(s)
1	Recent Trends Material Science	Dec. 27-Dec. 31, 2008	Dr. Sadhana Agrawal and Dr. Ayush Khare
2	Recent Trends Material Science II (RTMS-2013)	Sept. 30-Oct. 04, 2013	Dr. Ayush Khare
3	Recent Trends Material Science II (AMP-2014)	May 19-May. 23, 2014	B.K. Sahoo and Dr. S.M. Saini

Collaboration with other institutes/ industries

- ✓ ISM Dhanbaad
- ✓ IIT Kanpur
- ✓ NIT Durgapur
- ✓ BIT Meshra
- ✓ CEERI Pilani
- ✓ IIT Roorkee
- ✓ DTU Delhi
- ✓ Pt. R.S. University Raipur
- ✓ Pt. J. N. M. Medical College and Hospital

Awards/recognition etc.

- Most of the faculty members are reviewer for many journals of international repute.
- Faculty members are acting as expert for CBSE, New Delhi.
- Dr. Sadhana Agrawal has won Second Best Poster Award in 5th International Conference on Luminescence and its applications (ICLA-2015) organised by PES University Bangalore and Luminescence Society of India during February 9-12, 2015.
- Dr. Ayush Khare has won Best Paper Award in National Conference on Recent Trends in Photonics (NCRTP-2014) organized by School of Studies in Electronics and Photonics, Pt. R.S. University, Raipur during March 12 -14, 2014.

Human Resources

S.No	Name	Designation	Areas of Research	Email Id
1	Dr. Sadhana Agrawal	Professor and HOD	Material Science, Luminescence, Composite Materials	sagrawal.phy@nitrr.ac.in
2	Dr. A.K. Shrivastava	Professor	Luminescence, Photonics	akshrivastav.phy@nitrr.ac.in
3	Dr. Ayush Khare	Assistant Professor	Optical and structural properties of nano phosphors	akhare.phy@nitrr.ac.in
4	Dr. B.K. Sahoo	Assistant Professor	Optoelectronics and Spintronics materials	bksahoo.phy@nitrr.ac.in
5	Dr. S.M. Saini	Assistant Professor	Theoretical Condensed Matter Physics	smsaini.phy@nitrr.ac.in
6	Dr. Somnath Nag	Assistant Professor	Experimental Nuclear Physics	somnanag@gmail.com
7	Dr. K.S. Ojha	Temporary Faculty	Laser Spectroscopy and Thin Films	kspectra12@yahoo.co.in
8	Dr. Onkar Nath Verma	Temporary Faculty	Theoretical Quantum Optics	onkarnath15verma@gmail.com
9	Dr. Punyatoya Mishra	Temporary Faculty	Material Science	punyatoya.phy@gmail.com

Location

Raipur, the capital of Chhattisgarh, has been the place of strategic importance-being the gateway to the mineral rich Chhattisgarh state, having an enormous potential for development with seemingly inexhaustible natural resources. The city of Raipur is situated on the trunk line connecting Bombay and Howrah at a distance 831 Km from Howrah and 311 Km from Nagpur on the national highway #6. The location of this institute is in the vicinity of Bhilai steel plant. Raipur is well connected through Air-Routes from Mumbai, New Delhi, Chennai, Bhubaneshwar, Vizag, Nagpur and Kolkata

The Institute, located in Raipur, the Capital City of Chhattisgarh State, is spared over an area of 100 acres. Raipur city is well connected with Mumbai, Delhi, Chennai, Visakhapatnam, Nagpur&Bhubneshwar by regular flights and is on the main Howrah-Mumbai railway line route. The institute is 5 km from Raipur railway station and 14 km from airport on NH-6, the Great Eastern Road. The state of chhattisgarh is a mineral rich state having enormous potential for development with seemingly inexhaustible natural resources of coal, iron ore, lime stones, dolomite, tin, gem-stones and other minerals. Many industries, such as those of cement, steel, steel aloy, mines etc., are located in the vicinity of the institute giving it a unique advantage for industry-institute interaction in various disciplines of engineering.

Reaching NIT, Raipur

The National Institute of Technology, Raipur, located in the vicinity of Bhilai Steel plant, is well connected by rail, road and air.

Railways: Raipur is well connected by rail to different parts of the country. The National Institute of Technology is located just 5 km from the railway stations.

Roadways: National Capital of Chhattisgarh is well connected by road too. It is located in the centre of the state on National Highway 6. It is connected with National Highway no 43 and National Highway no 200.

Airways: There are various direct flights to the Raipur from Mumbai and Bhubaneshwar airport. However, one won't find any direct flight from Delhi. Those who are willing to board the flight from Delhi will be offered a flight which would take them to Raipur via Nagpur. The NIT, Raipur is at a distance of just 12 km from the airport.

National Institute of Technology Raipur

Opp Ayurvedic College, GE Rd, Raipur,
Chhattisgarh 492010