राष्ट्रीय प्रौद्योगिकी संस्थान,
उत्तराखण्ड
National Institute of Technology,
Uttarakhand

Institute Brochure

2022-23

Table of Contents

Vision and Mission

Vision

To provide a global impetus to education and innovation for sustainable development of industry and society.

Mission

1. To provide an encouraging environment for education and training of technical professionals.

2. To establish as a centre of excellence for research on challenges and demands of future generations.

3. To promote innovation and leadership skills for producing competent professionals.

4. To develop research collaborations with institutions of repute.

NITUK Administration

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NITUK Ranking

We take immense pride in announcing that the National Institute of Technology, Uttarakhand has secured a place in Rank Band 101-150 in the Engineering category, out of more than 1500 participating engineering institutions, as per the National Institute Ranking Framework (NIRF), which was released on June 5th, 2023. Notably, our institute's overall score has demonstrated improvement, rising from 37.76 to 40.18. We extend heartfelt congratulations to each and every faculty member and student for their significant contributions to this remarkable achievement. Adding to our list of accomplishments, the National Institute of Technology, Uttarakhand has achieved the 33rd position in the Engineering category in the India's Best Colleges 2023 Ranking conducted by the India Today Group-MDRA Survey. This recognition serves as a testament to our ongoing commitment to delivering quality education and fostering an environment of excellence.

Why NIT Uttarakhand

INSTITUTE OF NATIONAL IMPORTANCE

National Institute of Technology, Uttarakhand (NITUK) is an Institute of National Importance and one of the 31 National Institutes of Technologies in the country. Since its inception, this Institute has grown many fields and has established itself as one of the best Technical Educational Institutes. NITUK is established in 2009 under the Act of Parliament by Ministry of Education (Shiksha Mantralaya). At present, the Institute have about 495 undergraduates, 25 postgraduates and 144 Ph.D. scholars. The Institute offers full time B. Tech. and M.Tech. Program in Computer Science & Engineering, Electrical & Electronics Engineering, Electronics & Communication Engineering, Mechanical Engineering and Civil Engineering with an intake of 180 & 95 students respectively. Beside this seat reserved for B.Tech (DASA) is 27, B.Tech (SII) is 20,M.Tech (SII) is 10 and M.Tech (self sponsored and DRDO) is 35.

EXCELLENT FACULTY

NITUK is known for excellent and well qualified faculty who have obtained their Master and/or Doctorate degrees from prestigious Institutes such as IITs/NITs/Central Universities and other reputed national and International universities. Most faculty members are with a PhD degree in their respective disciplines. The students are groomed under the expert guidance of the faculty members in academic and co-curricular areas.

NEW EDUCATION POLICY

NITUK follows a Choice based credit system (CBCS) which is very helpful for cultivating student interests in interdisciplinary areas. Further, the Institute has started multi entry and multi exit points from different courses in engineering. This will be fruitful for pursuing courses in a partial manner and provides the flexibility of completing the courses according to the students need.

DESIGN INNOVATION CENTRE

Ministry of Education (Shiksha Mantralaya), Government of India has approved to establish a Design Innovation Centre (DIC) at Indian Institute of Technology Roorkee as a Hub and NIT Uttarakhand as one of the spokes. The centre will focus on innovations around engineering products, add value to the available Engineering designs and promote early stage startup companies. The sanctioned amount for the centre is Rs. 10 Crores. Several ideas will be perused for development of new pedagogy in teaching and training in design and innovations. A number of design technologies for Hilly terrain will be taken up at DIC, NIT Uttarakhand.

AUTONOMOUS ACADEMIC FUNCTIONING

NITUK is an autonomous Institute which has all the privileges to induce new academic programmes to incorporate contemporary global trends and practices in curriculum to make the teaching and learning process effective and competitor this cutting edge era. Different department level bodies are formed which continuously seeks inputs from reputed industry as well as educational institutes for revision of syllabus in UG and PG programs.

INDUSTRY TRAINING

A healthy interaction with the industry exists, where students are sent for practical training, internship and industry exposure trips. In addition, expert lectures by industry personnel, consultancies with the industry, as well as project work based on industry requirements are undertaken as part of the curriculum NITUK has a separate Training and Placement Department for this purpose.

NATIONAL COLLABORATIONS

NITUK has signed various MoUs at National and International level with other universities for provising a better learning experience to the students of NIT Uttarakhand. The MoUs at national level are signed with IIT Kanpur, IIT Roorkee, IIT Delhi, IIT Ropar, MNIT Jaipur, HNB Garhwal University, Semi-Conductor Laboratory (SCL) – ISRO, AIIMS Rishikesh, CSIR – IIP, Dehradun, BHEL, Haridwar, National Highways Authority of India (NHAI), Central Manufacturing Technology Institute, Bengaluru, Institute of Informatics & Communication, University of Delhi, New Delhi for Implementation of Non-SaaS SAMARTH ERP(SHSM) system, Manipal University, Jaipur, Jawaharlal Nehru Government Engineering College (JNGEC) Sundernagar.

INTERNATIONAL COLLABORATIONS

The MOUs at International level are signed with Eötvös Loránd University, Hungary and National Formosa University, Taiwan.

CROSS CULTURAL LEARNING EXPERIENCE

NITUK being an Institute of National Importance attracts students from all over india and offers a cross-cultural experience to students as many states like Uttar Pradesh, Haryana, Panjab, Jammu and Kashmir, Rajasthan, Madhya Pradesh, Bihar, Andhra Pradesh, Tamilnadu, Maharashtra, Gujrat, north eastern states, Kerala, Karnataka have enrolled and added the multicultural dimensions to the NITUK family.

ALL-ROUND DEVELOPMENT OF STUDENTS

NITUK campus is vibrant with many activities as it provides to the students various opportunities to showcase their academic, technical, cultural and sport talents through many events like CLIFFESTO Techno-Cultural Festival, PRODYOGEEKY, Life Changing Motivational Seminar, Department Gathering, Institute Gathering, Freshers Evening, Farewell Party, Institute Day, Innovation Competition, Community Project Program, Robo War, National Unity Day, Blood Donation Camp, International Yoga Day, Anti-Terrorism Day, Entrepreneurship Development Programme, Hindi Pakhwada and Students' societies of different departments arrange host of activities both technical & cultural to foster all-round development of students. They are also encouraged to participate in events and competitions showcase their talent and skills.

ENHANCEMENT OF STUDENT CULTURAL INTERESTS

There are several clubs run at the Institute such as Rocktave - the Music Club, Klick - Photography Club, Literary Society, Dance Club, Robotics Club (Kalam Robotics), Verbatim Club, Movie Club, Mountaineering Club (Aarohan), Nauseekhiye, Q&A CLUB SAEINDIA Collegiate Club to promote wide range of cultural activities among the students.

BEAUTIFUL LOCATION

NIT Uttarakhand is situated in scenic natural beauty in the hilly place called Srinagar Garhwal which is the most beautiful city and serves as an education hub after Dehradun in the state of Uttarakhand. Most of the facilities are available nearby the Institute. It is surrounded by mountains all around and Alaknanda river flows near to the Institute. The environment is very healthy around with no pollution.

OUTSTANDING PLACEMENTS

NITUK student placements have been good in the past and getting improved every year. For the 2019-23 batch, out of 80 eligible students of the Institute, 60 students have received job offers with a highest package of Rs. 21 Lacs with average package of 9.95 lakh,

STRONG ALUMNI BASE

Alumni Association is spread across the country and Globe. Annual Alumni meets are conducted and the distinguished alumni award is given to the outstanding alumni.

FINANCIAL SUPPORT FOR EDUCATION

The students who are not capable of paying the Institute fee due to limited or low income of their parents are supported in getting scholarships from various schemes of Government of India. Hence, money is not a problem for meritorious students for getting admission at NITUK.

LIBRARY

The Institute Library has a rich collection of books on Engineering, Science and Technology, Humanities and Social Sciences and also a good collection of English and Hindi Fiction. The Institute Library has four stack rooms with subject-wise arrangement of books on the shelves according to the Universal Decimal Classification Scheme. The Institute Library has one reading room which remains open 24x7 for the students and the staff members.

SPORTS ACTIVITIES

The motto of National institute of technology Uttarakhand is **Sports for all and all for Sports.** The vision of the sports section is to provide the good sports facilities, equipment's, recreational and competitive sports programs to the students and encouraged them to take part in games & sports to keep themselves fit and inculcate a spirit of sportsmanship amongst themselves & also encouraging student to participate in Inter-NIT sports competitions and other open competition in the country.

HOSTEL ACCOMMODATION

Based on the principle of "Homes away from home", hostels available in the campus provide all the basic facilities to the students with proper care. Institute has residential facilities for six hundred students in the campus. Institute has five boys and two girls hostels, having rooms available on sharing basis (two/three seater) accommodating maximum institute students in comfortable and conducive manner.

Facilities in the Campus

Wi-Fi Campus, Keeping you connected

The technology-rich environment for students on NIT Uttarakhand campus includes, high-speed, high-capacity gigabit Ethernet fiber optic data network infrastructure. All labs are connected for high-speed Internet. All the hostels class rooms are facilitate with wireless access points. Student can also download important software, lectures from institute FTP server from anywhere in campus.

ATM

An ATM of SBI is installed in the Poly technic Campus of the Institute.

Auditorium

The Institute has a multi-purpose auditorium that is used for seminars, workshops, recreation, gatherings, screening movies, etc. The auditorium has the seating capacity of 300 persons.

Open Air Theater

An open air theater is established at the ITI Campus of the Institute which hosts various cultural events.

Canteen in Polytechnic Campus

The canteen of the Institute serves cafeteria items at a reasonable price.

Conference Hall

The Conference Hall of the Institute has the seating capacity of 70 people. It is used for conducting meetings, seminars, workshops, etc.

Gymnasium

"A Sound Soul Resides in a Sound Body"

The Institute boasts of a well-equipped gymnasium, with all the necessary and modern facilities, for the enhancement of health and stamina of its students.

Alternate Power Sources

nstitute have six Diesel Generator Sets (200 kVA) for the backup electricity supply in the campuses of the Institute. The Administrative block, Academic block and all departments of the institute are equipped with Diesel Generator facility for emergency electricity supply in the institute. Also all hostels of the institute are provided with 24 x 7 electricity supply.

Movie Club

The Movie Club at NIT Uttarakhand screens 2 movies every week at its Auditorium. The auditorium has a seating capacity of around 350 people and is equipped with fire safety devices, 5000 lux projector, 3 speakers, 3 amplifiers, sound mixer, 8 surround sound speakers, and a DSP processor procured from JBL. The movie club caters not only to the students but also to staff and faculty members of the Institute.

Medical Facility

The dispensary provides basic medical facilities for the students and staff members. A Doctor offers daily service at the dispensary in the evening. A nurse is available in the Institute for 24 hours. The Institute has tie-ups with hospitals in Srinagar and Dehradun. All students are offered health insurance facilities. The Institute plans to procure an ambulance in the near future. NIT Uttarakhand provides basic medical facilities for looking after the good health of

its students and employees within the campus at the institute health center. It is prepared with modest medical services and in case of specialized medical treatment students are referred to the base Hospital, Srinagar (Pauri-Garhwal). At present, institute health center is looking after around 500 B.Tech. Students and around 100 employees. The OPD remains open for all 24 hours and 7 days and the medical facilities are completely free for the institutes students and employees.

Campus Security

Presently the Security comprises 7 Supervisors and 76 (70 male + 6 female) security guards. The guards are deployed at Main Gate, Hostels, Academic Building, Administrative Building, Departments etc. round the clock in three shifts on rotation basis. One Supervisor is posted in each shift to supervise the security guards. The main duty of security guards is to look after the assets of the Institution besides maintaining discipline in the campus. All guards are issued identity card, uniform, shoes, caps, belts & batton etc.

Academic Programs

a. Undergraduate Programmes

S. No.	Department	Program Title	Program Code	Qualification
1	Civil Engineering	B. Tech. in Civil Engineering	CIV	As per the notification published by CSAB/ JAB/Competent Authority designated by MHRD, GoI.
2	Computer Science and Engineering	B. Tech. in Computer Science and Engineering	CSE	
3	Electrical Engineering	B. Tech. in Electrical and Electronics Engineering	EEE	
4	Electronics Engineering	B. Tech. in Electronics and Communication Engineering	ECE	
5	Mechanical Engineering	B. Tech. in Mechanical Engineering	MEC	

b. Postgraduate Programmes

S. No.	Department	Program Title	Program Code	Specialization	Qualification
1	Civil Engineering	M. Tech. in Civil Engineering	CIV	1. Structural Engineering	As per the notification published by

				2. Transportation Engineering	CCMT/ /Competent Authority designated by MHRD, GoI.
2	Computer Science and Engineering	M. Tech. in Computer Science and Engineering	CSE	1.Artificial Intelligence & Machine Learning	
3	Electrical Engineering	M. Tech. in Electrical and Electronics Engineering	EEE	1.Power Electronics & Drives	
4	Electronics Engineering	M. Tech. in Electronics and Communication Engineering	ECE	1.Microelectronics and VLSI Design	
5	Mechanical Engineering	M. Tech. in Mechanical Engineering	MEC	1. Machine Design 2. Thermal Engineering	

c. Research Programmes

S. No.	Department	Program Title	Program Code	Qualification
1	Civil Engineering	PhD in Civil Engineering	CIV	M.E., M. Tech. , M.S. and M. Sc. (Engg.) in relevant engineering and technology disciplines
2	Computer Science and Engineering	PhD in Computer Science and Engineering	CSE	B. E./B. Tech. in Computer Science and Engg./Computer Engg./ Information technology/ Communication and Computer Engg./Electronics and Communication Engg. M.E./M.Tech. in Computer Science and Engineering/ Computer Engg./ Software Engg.Information technology/ Information Security/ VLSI
3	Electrical Engineering	PhD in Electrical and	EEE	M.E/M.Tech, or equivalent degree in respective & relevant Engineering disciplines

		Electronics Engineering		
4	Electronics Engineering	PhD in Electronics and Communication Engineering	ECE	B.E/B. Tech. and M.Tech..in Electrical Electronics / Computer/ Communication/ Telecommunication / Instrumentation/ Control/ Microelectronics/ Signal Processing or equivalent discipline consistent with research areas of the department.
5	Mechanical Engineering	PhD in Mechanical Engineering	MEC	B.Tech./M.Tech. degree or equivalent degree in Mechanical/ Industrial/ Production Engineering, Manufacturing Engineering, Automobile Engineering, other allied branches of Engineering and Technology. B.Tech/M.Tech. degree/ disciplines consistent with the research areas of the department
6	Physics	PhD in Physics	Physics	M.Sc. Physics/Applied Physics/Engineering Physics/allied Physics/interdisciplinary areas in physical sciences
7	Chemistry	PhD in Chemistry	Chemistry	M.Sc. in Inorganic Chemistry/Organic Chemistry/Physical Chemistry/Analytical Chemistry/Nuclear Chemistry/Medicinal Chemistry/Environmental Chemistry and related disciplines with Chemistry as one of the optional subjects.
8	Mathematics	PhD in Mathematics	Mathematics	M.A./M.Sc. in Mathematics/Applied Mathematics
9	Humanities and Social Sciences	PhD in English	English	M.A./M.Com. or equivalent degree with 6.75 CGPA on a 10-point scale or 60% marks (where CGPA is not awarded)

Department Profiles

Civil Engineering

Department of Civil Engineering, N.I.T. Uttarakhand was established in 2013 with an intake of 60 students. The department offers a four-year course leading to the bachelor's degree in Civil Engineering. Department of Civil Engineering has advanced academic structure with core course and variety of elective courses so that the students' knowledge is not only enhanced in core discipline but also in the related disciplines. The department also offers postgraduate courses in Structural Engineering, Transportation Engineering and Geotechnical Engineering along with Ph. D. degree program in all the specialization of civil engineering.

Vision:

To dispense sound technical expertise in sustainable infrastructural solutions for complex geographical terrains and pioneer in providing transformative education in Civil Engineering.

Mission:

(i) To nurture students with an engineering education providing an understanding of local infrastructural issues, and develop enough skills to tackle them.

(ii) To develop state-of-the-art research and development facilities to find solutions to pertinent natural hazards such as floods, landslides, and earthquakes.

(iii) To provide outreach services and technical expertise to various stakeholders of the society, and create common platforms to share knowledge.

(iv) To achieve excellence in professional ethics and code of conduct.

Programme Education Objectives (PEO) :

PEO1: Civil Engineering graduate shall have sound knowledge of infrastructural issues.

PEO3: Civil Engineering graduate shall develop acumen for higher studies and research.

PEO3: Civil Engineering graduate shall be able to participate in the various Infrastructures related community projects.

PEO4: Civil Engineering graduate shall practice high standards of professional ethics throughout their life.

Programme Specific Outcomes (PSO)

PSO1: To develop critical thinking and aptitude to analyze & design problems in Civil Engineering.

PSO2: To inculcate the ability and understanding for sustainable development in the field of Civil Engineering.

PSO3: To develop interdisciplinary approach related to infrastructural issues.

Faculty Profile

S. No.	Faculty Name	Specialization
1.	**DR. KRANTI JAIN (HEAD)**	• Structural Concrete, • Structural Behavior of Steel Fibre Reinforced Concrete, • Repair and Restoration of Structures, • Sustainable Advanced Materials
2.	**DR. ADITYA ANUPAM**	• Pavement Materials and Pavement Construction • Analysis and Design of Pavements • Pavement Evaluation, Rehabilitation and Maintenance • Soil Stabilization
3.	**DR. VIKAS PRATAP SINGH**	• In-situ earth retaining structures • Soil nailing technique, • Reinforced earth, analytical and computational modelling of geotechnical structures • Reliability-based analysis, and ground improvement techniques
4.	**DR. SMITA KALONI**	• Structural dynamics, • Structural health monitoring, • System identification and inverse problems in vibration, • Finite element methods

5.	**DR. SHASHANK BHATRA**	• Finite Difference Methods • Lumped Parameter Modelling of Reinforced earth bed • Influence of dynamic loads on geotechnical engineering structures • Stability Analysis of Underground Excavations • Ground Improvement Techniques.
6.	**DR. BIBHASH KUMAR**	• Soil Mechanics, • Foundation Engineering, • Computational limit analysis • Underground Excavations/Tunneling • Strength Behavior of Rocks • Ground Improvement Techniques
7.	**DR. MUSKAN MAYANK**	• Flow and transport of contaminants through porous media, • Groundwater Hydraulics
8.	**DR. SHASHI NARAYAN**	• Finite Element Method, • Meshfree Method, • Dynamic Analysis, • Plastic Analysis, • Energy Based Design
9.	**MR. AMARDEEP**	• Modelling of Mechanical Properties of Concrete using Finite Element Methods, • Construction Materials, • Numerical Methods and their application in Structure Analysis
10.	**DR. ABHINAV KUMAR**	• Transportation Engineering, • Traffic Engineering, • Road Traffic Safety, • Traffic Conflict Technique, • Pedestrian Safety, • Signalized Intersection

Major facilities in the Department

- Testing Facilities
- Tri Axial Test
- Universal Permeability Test
- Consolidation Test
- Plate Load test
- Creep Testing machine
- Servo Controlled Compression Testing Machine (CTM)
- Rebound Hammer
- Self-Compacting Concrete equipments
- Air/Water Permeability test for concrete
- CBR Test
- Marshall Test
- Benkelman Beam Test
- Diamond Core Cutter
- Dynamic Shear Rheometer
- Centrifugal Extractor
- Centrifuge
- Muffle Furnace
- UV-Vis Spectrophotometer
- Distill water Apparatus
- COD Digester
- Photometer
- Skid Resistance test

Lab facilities in the Department

Building Material and Testing Lab

List of Experiments:

1. Bricks- Shape and Size, Efflorescence, Water absorption and Compressive strength test

2. Cement- Specific gravity of cement, Soundness and Fineness of cement.

3. Cement- Normal Consistency of cement, Initial setting time of cement and Final Setting time of cement.

4. Compressive strength test for cement (OPC-43 and PPC).

5. Fine Aggregates- Specific gravity, Grain/Particle size distribution and Fineness Modulus test for fine aggregates.

6. Coarse Aggregates- Specific Gravity, Absorption value and Grain/Particle size distribution and Fineness Modulus test for Coarse aggregates.

7. Coarse Aggregates-Crushing Value, Impact Value, Elongation and Flakiness determining tests

8. Concrete- Slump flow test, compaction factor test, Vee-Bee Consistency test.

9. Concrete- Compressive strength test.

10. Basics of Mix Design- IS:10262-2019.

Soil Testing Lab

List of Experiments:

1. Determination of Water Content (Oven Drying)

2. Determination of Specific Gravity (Pycnometer)

3. Grain Size Analysis

4. Grain Size Analysis (Hydrometer)

5. Determination of Dry Density of Soil in Place (Sand Replacement Method)

6. Determination of Dry Density of Soil in Place (Core Cutter Method)

7. Determination of Liquid Limit (Soil Cone Penetrometer, Casagrande's Apparatus)

8. Determination of Plastic Limit and Shrinkage Limit

9. Light Compaction Test

10. Permeability test- constant head and falling head methods.

11. Undrained Shear Strength using Vane Shear Test.

12. Consolidation test: estimation of settlement, compression index parameter, rate of settlement, coefficient of consolidation.

13. Shear strength tests: direct shear test, Triaxial compression test-unconsolidated - undrained tests, consolidated undrained tests with pore pressure measurement, consolidated drained tests.

14. Plate load test

15. California Bearing Ratio test

Fluid Mechanics Lab

List of Experiments

1. To verify Bernoulli's equation.

2. To determine the Metacentric height of a floating body (i.e. a model of ship) and to locate the center of Buoyancy, metacenter and center of gravity.

3. To reproduce the dye line experiment as performed by Reynolds and to obtain the criteria for Laminar and Turbulent flow

4. Determination of coefficient of discharge, coefficient of contraction, coefficient of velocity of orifice & mouthpiece.

5. To calculate coefficient of discharge, Cd of Venturi meter.

6. To calculate coefficient of discharge, Cd of Orifice meter.

7. To determine the percentage error in Rotameter with the actual flow rate.

8. To determine the friction factor of a given pipe of circular cross section.

9. To compare theoretical and actual value of flow over notch.

Environmental Engineering Lab

List of Experiments

1. Water pollution

Determination of characteristics given below from the given sample

1. pH
2. Conductivity
3. Turbidity
4. Alkalinity
5. Acidity
6. Hardness
7. DO
8. BOD
9. COD
10. Chloride
11. Sulphate
12. Available chlorine and Residual chlorine
13. Total solids
14. Nitrate
15. Phosphate
16. Iron
17. Chromium

2. Air pollution

Determination of air pollutants given below using a high volume air sampler

1. PM
2. Nitrogen dioxide
3. Sulphur dioxide

3. Sound pollution

Determine the intensity of sound at different locations using a sound level meter

Geology Lab

List of Experiments

1. Physical properties of minerals by observation of various collection boxes

2. Identification of common rock forming minerals (Hand specimen).

3. Description of physical properties of 20 minerals used in civil construction

4. Textures of common rocks

5. Identification of rock type (Igneous, Sedimentary, Metamorphic)

6. Field identification using Brunton's Compass

7. Identification of common geological discontinuity: Bedding plane, Folds, Faults, Joints, Foliation Plane

8. Measurement and plotting of geological structures.

9. Extracting information from geological maps: Introduction to topographic sheets

Concrete Testing Lab

List of Experiments

1. Mix Design- High Strength Concrete as per IS:10262-2019 and relevant flowability and strength tests.

2. Mix Design- Self consolidating Concrete as per IS:10262-2019 and relevant flowability and strength tests.

3. Mix Design- Pumpable Concrete as per IS:10262-2019 and relevant flowability and strength tests.

4. Evaluation of Heat of hydration for Cement

5. Tests on effects of Superplasticizers- Marsh Cone, mini-slump and flow table test

6. Studying the effect of temperature on compressive strength of concrete

7. Measurement of effects of fibers on the strength of Concrete.

8. Rebound hammer test for concrete strength

9. Measurement of specific gravity, loss on ignition, sieve analysis and lime reactivity of pozzolans

10. Determination of chloride content in concrete, Phenolphthalein test for carbonation depth and pH of concrete

Surveying Lab

List of Experiments:

1. Linear Measurement by Tape: a). Ranging and Fixing of Survey Station. b). Plotting Building Block by offset with the help of cross staff.

2. Compass Survey: Using Surveyor's and Prismatic compass a). Measurement of bearing of lines b). Adjustment of included angles of compass traverse.

3. Levelling: Using Tilting/ Dumpy/ Automatic Level a). To determine the reduced levels in closed circuit. b). To carry out profile levelling and plot longitudinal and cross sections for road.

4. Theodolite Survey: Using Vernier Theodolite a). To carryout temporary adjustment of Theodolite & Measurement of horizontal and vertical angle: by method of repetition and method of Reiteration. b). To measure and adjust the angles of a braced quadrilateral.

5. Trigonometric Levelling: To determine the Height of an object by trigonometric levelling: a). By using Instruments in same vertical plane. b). By using Instruments in different vertical planes.

6. Tacheometry Survey: a). To determine the tachometric constant. b). To determine the horizontal and vertical distance by tachometric survey.

7. To study the various electronic surveying instruments like EDM, Total Station etc.

Transportation Engineering Laboratory

List of Experiments:

1. To determine the CBR value of a given soil sample.

2. To determine crushing value of given road aggregates with the help of a compression testing machine

3. To determine the abrasion value of given coarse aggregates sample

4. To determine the aggregate impact value of road aggregates.

5. To determine the Flakiness Index of given aggregates

6. To determine the specific gravity and water absorption of coarse aggregates

7. To determine the softening point of bitumen

8. Penetration value test of bitumen.

9. To find out optimum bitumen content of given bituminous mix by Marshall Stability test.

10. To determine the particle size distribution of coarse aggregates by means of sieve analysis.

11. To determine the Ductility test of bituminous materials

12. To determine the Viscosity of the given bitumen

13. To determine the Elongation Index of given aggregates

14. To determine the rheological properties of the given bitumen/gel

15. Evaluation of the structural capacity of existing flexible pavements and also for estimation and design of flexible overlays for the strengthening of any weak pavement for highways by Benkelman beam deflection method.

16. To determine the percent of bitumen content of exiting pavement.

Computing Facilities

- 30 COMPUTER SYSTEM
- 2 WORKSTATIONS
- ABAQUS
- ANSYS
- VISSIM & VISWALK
- PLAXIS 2D AND PLAXIS 3D
- MATLAB
- KENPAVE
- TOSCA (FLUID + STRUCTURE)
- FE SAFE,
- ISIGHT

Consultancy offered by the Department

The department offers constancy to the industry in several fields of civil engineering. The department has offered consultancy worth 30lakhs in the pandemic hit year 2020. The broad area of consultancy offered by the department are as follows

- Aggregate test
- Sand test
- Tests on subgrade soil
- Bitumen tests
- Bituminous mix / GSB, WMM mix design
- Pavement design and evaluation
- Cement tests

- Concrete test
- Soil Testing
- Proof check/vetting - reinforced earth walls, soil nailing techniques
    - Proof check/vetting- foundations design for various structure
    - Designing- foundations for various structures
- Designing - reinforced earth walls, soil nailing technique
- Proof check/vetting of structures
- Designing of structures
- Property assessments for potential contamination concerns
- Environmental impact assessments and audits
- Air, water, and soil assessment
- Environmental management and remediation solutions
- Waste management policies
- Water testing and management
- Sustainability and energy solutions
- Identifying unknown contaminant sources

Computer Science and Engineering

The Department of Computer Science and Engineering is an integral part of National Institute of Technology, Uttarakhand. The department came into existence in 2010 and thereafter has been imparting significant contributions in the growth of the Institute. The department is equipped with the latest computers including workstations with Intel Xeon processors and two powerful servers from Dell and IBM. The department has got a good mixture of fresh as well as experienced faculties for fostering quality education to students. The faculty members are working in the potential research areas like Network Security, Image Processing, Computer Vision, Cloud Computing, Pattern Recognition and Machine Learning, etc. Presently, the department is offering an undergraduate programme (B.Tech.), postgraduate programme (M.Tech. specialized in Artificial Intelligence & Machine Learning) and a Ph.D. programme.

Vision:

To foster an ecosystem of global standards in the field of computing to serve industry and society.

Mission:

(i) Establish high end computing facilities for technical education, research and skill development.

(ii) Impart education to meet next generation computing challenges.

(iii) To promote recent and futuristic advances in the field of computing for sustainable development.

(iv) To produce skilled engineers and researchers to serve industry and society globally.

Program Educational Objectives (PEO):

PEO1: To build a strong understanding of fundamentals in computational, logical and analytical skills.

PEO2:. To imbibe competency in analyzing, designing and development of real-world computing applications for the industry and society.

PEO3:. To instill in ethical and social practices for sustainable development among students and enabling them for employment of their choice.

PEO4:. To inculcate communication, teamwork and management skills for leadership and entrepreneurship.

Program Specific Outcome (PSO):

PSO1: Inculcate comprehensive knowledge in computing paradigm.

PSO2: Analyze problems in the computational domain and design viable prototypes.

PEO3: Ability to develop sustainable solutions for real time computational challenges.

Faculty Profile

S. No.	Name	Areas of Specialization
1.	**PROF. LALIT K. AWASTHI (DIRECTOR)**	Mobile distributed systems, Fault tolerance, Sensor Networks, P2P networks, Network Security
2.	**DR. KAMAL KUMAR (HEAD)**	WSN, Security, Cloud Computing, Deep Learning, Artificial Intelligence.
3.	**DR. ABHIMANYU KUMAR**	Cryptography, Cryptographic Key Establishment, Secure Multicasting.
4.	**DR. MAROTI DESHMUKH**	Cryptography, Secret Sharing Schemes, Machine Learning
5.	**DR. MAHEEP SINGH**	Network Security, Image Processing, Computer Vision.
6.	**DR. SURENDRA SINGH**	Computer Networks, Secure Real Time System, Network Security, Vehicular and Mobile Ad-hoc network.
7.	**MS. SNEHA CHAUHAN**	Network Security, Cryptography, Logical Analysis of Data, Machine learning

Laboratories

The Computer Science and Engineering department of the institute consists of five which are equipped with software's such as C/C++ compilers, Java RunTime Environment, Python, Oracle 11g, MATLAB, Weka, Cisco Packet Tracer, PHP with MySQL, Microsoft Office, Quick Heal Antivirus, Ubuntu 22.04 etc.

S. No.	**Name of Laboratory**	**No. of Computer Systems**	**Software Installed**
1	Programming Lab	25	C/C++, JAVA,Mysql,Python
2	Linux Lab	32	C/C++,JAVA,Mysql,Python
3	Network Lab	33	C/C++,JAVA,Mysql,Python
4	Software Lab	30	C/C++,JAVA,Mysql,Python MATLAB
5	Project Lab	17 Workstations	Matlab, Weka,Cisco Packet Tracer • PHP with MySql

Programming Laboratory:

Name of Laboratory	**Hardware Configuration**	
Programming Lab	Operating System	Windows 10, Ubuntu 22.04
	Processor	Intel core i3
	RAM	4 GB
	Hard Disk	500 GB
	Graphics Card	Inbuilt
	Display	19 inch
	Switch	Dlink


Software Lab I: CSP 501

List of Experiments:

1. Design of Secure Recommender System.
2. Image based Recommender System using Transfer Learning.
3. Code for Markov chain.
4. Code for k-Means clustering.
5. Code for Diffie-Hellman Key Exchange.
6. Code for elliptic curve cryptography.
7. Code for edge detection.
8. Code for Shamir secret sharing.
9. Code for LDA (Linear Discriminant Analysis).
10. Code for image to comma separated value in python.
11. Code for El Gamal Cryptosystem.
12. Code for perceptron learning algorithm.
13. Project 1 (MTech 1st year)
14. Project 2 (MTech 1st year)
15. Final evaluation assessment project.

Network Laboratory:

Name of Laboratory	Hardware Configuration	
Network Lab	Operating System	Windows 10, Ubuntu 22.04
	Processor	Intel core i3
	RAM	4 GB
	Hard Disk	500 GB
	Graphics Card	Inbuilt
	Display	19 inch
	Switch (Manageable)	Netgear 48 Port

List of Experiments:

Computer Network Lab CSP 255

1. Using TCP sockets or network socket programming.
2. Client-server application for chat.
3. PC to PC file transfer using serial port.
4. Implementation of shortest path routing.
5. Implementation of Sliding Window Protocol.
6. Implementation of Address Resolution Protocol.
7. Implementation of Open Shortest Path First Protocol.
8. Using n/w simulators like: NS2, DLC/DLL simulator.
9. Implementation of multithreaded client server application.
10. Implementation of TCP/IP Echo.
11. Using simple UDP.

Compiler Design Lab (CSP352)

1. Write a program by taking input as C files.
    a. Identify the total number of tokens as output.
    b. Identify the total number of unique tokens as output.

c. Identify whether a given line is a comment or not.

2. Write a separate program for finite automata that accepts identifiers for C, Java, Python and PHP.
3. Tokenizing a file using C.
4. Implementation of Lexical Analyzer using Lex Tool.
5. Study the LEX and YACC tool and evaluate an arithmetic expression with parentheses, unary and binary operators using Flex and Yacc (CALCULATOR).
6. Write a program to check whether a grammar is left recursive or not.
7. Write a program to remove left recursion.
8. Write a program to remove left factoring.
9. Program to implement LL (1) top down parser.
10. Program to implement LR(0), SLR(1), CLR(1) and LALR(1) bottom up parser.
11. Program to check semantic analysis for given syntax tree.
12. Program to construct SDT that would give the total no of 1's present in the string.
13. Program to check S-attributed definition and L-attributed definition for given input.
14. Write a program to generate the three address codes for given input.
15. Draw the CFG for a given input program.
16. Write a program to optimize the three address codes for given input.
17. Write a program to generate the machine code for given input.

Network Security Lab (CSP354)

1. Write a program to implement monoalphabetic classical ciphers.
2. Write a program to implement polyalphabetic classical ciphers.
3. Write a program to implement modern block ciphers DES, AES etc.

4. Write a program to implement modern stream ciphers RC4, A5/1 etc.
5. Write a program to implement block mode operations.
6. Write a program to implement RSA public key cryptosystem
7. Write a program to implement ElGamal public key cryptosystem
8. Write a program to implement digital signature using RSA.
9. Write a program to implement digital signature using DSS.
10. Write a program to implement Hash function SHA-512, MD5.
11. Write a program to implement Diffie Hellman key exchange protocol
12. Write a program to implement Kerberos protocol.
13. Write a program to perform DoS and DDoS attacks.
14. Write a program to perform Session Hijacking.
15. Write a program to perform Sql injection.
16. Write a program to perform phishing attacks.
17. Write a program to perform buffer overflow attack
18. Write a program to perform ARP spoofing

Introduction to Programming Lab (CSP253)

1. Write a program using Java Loops to obtain 05 distinct patterns to be specified in Lab sessions.

2. Write a program to realize the concept of encapsulation by designing a Class called STACK with PUSH, POP, PEEK, STACK_EMPTY and STACK_FULL methods with STACK_EMPTY and STACK_FULL as private methods.

3. Write a program to implement the concept of Circular Queue and Implement Insert, Delete, Traverse, Queue Empty, Queue Full operations. Queue Empty, Queue Full methods should be private methods.

4. Define outer class STACK. Demonstrate the concept of inner class and implement STACK_EMPTY and STACK_FULL as methods of inner class and remaining methods should be implemented in outer class STACK.

5. Define two classes Queue and Stack, add them to separate packages. Import packages for use by one program. Create a new package called data structure and add Queue and Stack to it as sub packages. Demonstrate the usage though program to use only Stack Class from one of the sub packages. Add sufficient codes to permit queue and stacks of 03 data types at least.

6. Use String Class to demonstrate all the functionality available in Java for string manipulation. Apply the concepts to obtain the frequency of certain characters,

words, and count of words, count of sentences, number of punctuation marks, and number of paragraphs in a given text. Use Java Program to reverse a string without using String inbuilt function reverse () to revert all the text you are working upon.

7. Use the concept of Inheritance and implement vehicle categories on the basis of kind of fuels, number of wheels and category of usage such as passenger and commercial vehicles. Demonstrate the concept of Run time Polymorphism and Compile time Polymorphism.

8. Demonstrate the usage of varargs through a program which computes the sum of ASCII/Unicode values for different numbers of inputs such as integers and characters. Use separate arrays for different kinds of inputs.

9. Use Java to construct a calculator which may throw exceptions. First Implement the same using built in exceptions and secondly use your own exception class created out of extending Exception class. Also in each case show the usage of finally to complete closing chores.

10. Use generics programming in Java and create a generic stack for integers and doubles only. Also compute the average of the numbers saved on the stack. Take care of the concept of bounded types so that inappropriate data type is not considered. Also, establish that the average of similar magnitude integers and double values are the same through a function.

Software Laboratory:

Name of Laboratory	**Hardware Configuration**	
Software Lab	Operating System	Windows 10, Ubuntu 22.04
	Processor	Intel core i7
	RAM	8 GB
	Hard Disk	1 TB
	Graphics Card	1 GB NIVDIA
	Display	23 inch
	Switch	Dlink


Software Lab (CSP256)

The main aim of the software lab is to prepare the students to develop the software using the appropriate Software Development Life Cycle (SDLC). As a outcome of the course the students are able to work in a project group for developing the software using SDLC phases. The following approach is adopted in the software lab.

List of Experiments:

1. A project group with 2-3 students is formed.
2. A Software Project is assigned to the Project group.
3. The project group has to develop the software using the suitable Software Development Life Cycle (SDLC) and following the various phases starting from Requirement analysis till the Maintenance phase.
4. The output of each phase has to be submitted by the students in the form of a phase outcome/deliverables after performing the required activities in each phase.
5. The deliverables submitted by the students include SRS document, Design documents, Test documents which includes testing approaches along with the test cases and other required documents.
6. Project group has to write the code with proper documentation.
7. Project Group is also required to submit the software usage manual as an external document.
8. All the groups have to submit the output of each phase as a document in the given timeline.
9. After completion of the project, each group has to submit the project report.

Operating System Lab (CSP252)

1. Linux Operating System, components of Linux system.
2. Basic LINUX commands and its Use.
3. Execution of various file/directory handling commands.
4. Commands related to standard I/O, Redirection, Pipes and Filters.
5. Process Management Commands in Linux.
6. Implementation of CPU Scheduling Algorithms.
7. Implementation of Semaphores.
8. Implementation of Banker's Algorithm for Deadlock Avoidance.
9. Implementation of the page replacement algorithms.
10. Implementation disk scheduling algorithms.

Data Structure Lab (CSP251)

1. WAP for insertion and deletion of nodes from the sequence: A, B, C, D, E, F, G, H, I, J, K, L, M, N, O. using binary search tree algorithm.
2. WAP to implement max heap sort for the sequences: A, B, C, D, E, F, G, H, I, J, K, L, M, N, O.
3. Implementation of Quick sort, Insertion Sort, Selection, Bubble and Merge sort.
4. Implement Polynomials with Arrays and supporting Addition, Multiplication, Scalar Multiplication and Subtraction.
5. Implement Polynomials with Linked List and supporting Addition, Multiplication, Scalar Multiplication and Subtraction.
6. Implement Doubly Linked Lists with all possible Addition and Deletion cases. Consider Linked List Header/start node.
7. Implement Stacks with Arrays and Linked Lists.
8. Implement Queue with Arrays and Linked Lists.
9. Implement Circular Queue with Arrays and Linked Lists.
10. Implement Linear and Binary Search on Arrays of Elements.
11. Demonstrate matrix addition, Subtraction, rank, multiplication operations through modularization concept.
12. Implementation of Binary Search Tree with:

a. In-order traversal

b. Pre-order Traversal

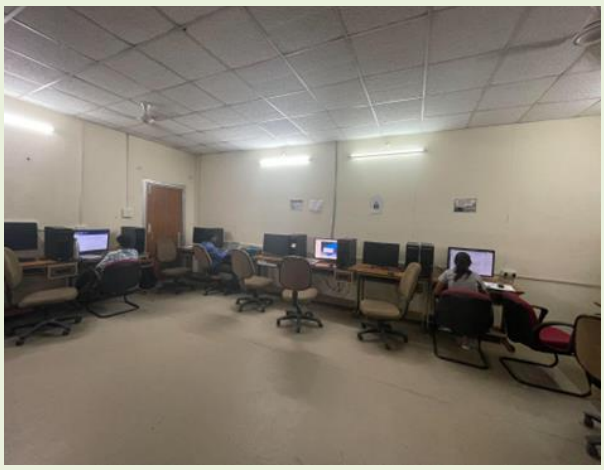
c. Post-order traversal

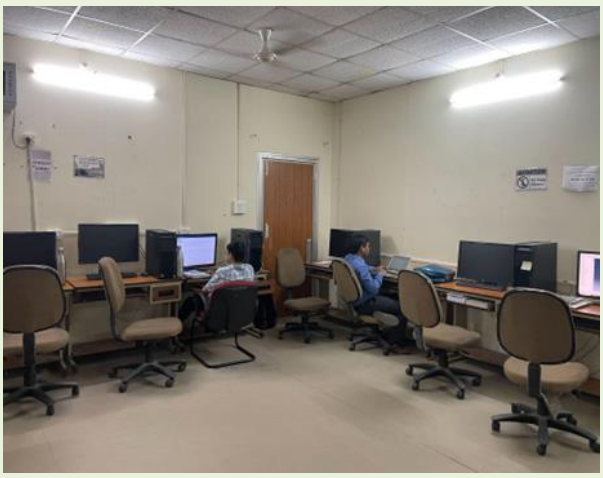
13. Implementation 4-way B-Tree using 12, 13, 76, 77, 89, 94, 48, 19, 55, 35, 35, 87, 11.

14. Implementation of Heap Sort using Binary heap on 12, 13, 76, 77, 89, 94, 48, 19, 35, 35, 87, 11, 32, 31.

Project Laboratory:

Name of Laboratory	**Hardware Configuration**	
Project Lab	Operating System	Windows 10/11, Ubuntu 22.04
	Processor	Intel Xeon(R)E52620 v3
	RAM	16 GB
	Hard Disk	1 TB
	Graphics Card	2 GB NIVDIA
	Display	23 inch
	Switch (Manageable)	Netgear 24 Port





List of Experiments:

Artificial Intelligence Lab (CSP355)

1. Take one graph of 20 Cities in India with distance as cost of edges. Use an Undirected graph. Compute all states that your agent will be in while exploring one goal/destination city. I/P Map, Output Goal state, Operation Expanding current state, Action is moving to the next city. State is defined as current exploration status.
2. Consider a graph of Romania as per Text Book and apply A*, IDA* and RBFS Search strategies to arrive at Goal States. Goal state is the City of Bucharest. Start City is ARAD. Use Straight Line Distance Heuristic and Distance between cities as path cost. Generate Goal Path to Optimal Solution? Display results.
3. Take one task assignment problem with a different burst time. Consider Multiprocessor CPU or a Cloud Environments with few numbers of VMs with different MIPS/FIPS. Apply Local Beam Search and GA to obtain a schedule which reduces the makespan of the set of tasks.
4. Considering any heuristic such as Nearest Neighbor/KNN etc. generate initial population for GAs.
5. Compare the performance of GA, Local Beam Search and Scenario above.
6. Use Minimax and Alpha-Beta Pruning to implement Adversarial Search in game trees. Consider any tree of at least 5 depth and use both Bad Ordering and Good Ordering as possible cases.
7. Implement Bidirectional Search on any map of cities in Uttarakhand with the State Dehradun and Goal State Rudrapur. Provide a map to students.
8. Implementation of 4 Queen Solution and generate at all intermediate states from some given random initial state.
9. Implementation of A* Algorithm on Uttarakhand Map with start state Dehradun and Goal State Rudrapur. Provide a map to students.
10. Implement the CSP paradigm based upon the concepts such as Backtracking, Ordering of Variables and Value heuristics to solve the N-Queen Problem or N-Puzzle. Display the positions of Queens/Tiles on the board.
11. Implement one AI Agent based upon Proposition Logic which can draw conclusions on the basis of Forward Chaining, Backward Chaining, Resolution
12. Implement the algorithm to implement the conversion of Predicates to Clausal Form.
13. Implement the algorithm to implement the concept of Unification in Predicate Logic.
14. Implement one AI Agent based upon Predicate Logic which can draw conclusions on the basis of

a. Backward Chaining

b. Resolution

Linux Laboratory:

Name of Laboratory	**Hardware Configuration**	
Linux Lab	Operating System	Windows 10, Ubuntu 22.04
	Processor	Intel core i3
	RAM	4 GB
	Hard Disk	500 GB
	Graphics Card	Inbuilt
	Display	19 inch
	Switch (Manageable)	Netgear 48 Port

List of Experiments:

Database Management System Lab (CSP351)

1. Perform Data Definition Language (DDL) sql queries.
2. Perform Data Manipulation Language (DML) sql queries.
3. Perform Data Control Language (DDL) sql queries.
4. Perform different types of sql functions with the help of relations.
5. Perform different types of sql operations with the help of relations.
6. Implementation of different types of Join operations.
7. Implementation of different types of sql constraints
8. Draw an E-R diagram for NIT Uttarakhand database.

9. Convert an ER diagram of NIT Uttarakhand database to relations.
10. Write a program to identify the highest normal form (1NF, 2NF, 3NF, BCNF, 4NF, 5NF) for the given relation.
11. Write a program to check the decomposed relations are lossy or lossless
12. Write a program to check if the decomposed relations preserve dependency or not.
13. Write a program for mysql/postgresql/ms access/oracle etc database connectivity.
14. Write a program for data insertion and deletion from the database.
15. Write a program for executing DDL, DML sql queries by using mysql database through front end.
16. Write a program to implement B and B^+ trees.
17. Write a program to implement sparse and dense indexes.
18. Implementation of query optimization techniques
19. Implementation of locking protocol in transaction management
20. Implementation of timestamp based protocol in transaction management

Ph.D Research Facilities:

1.	**Project Lab**	17 Workstations	Software Installed: Matlab, Weka,Cisco Packet Tracer • PHP with MySql
		Operating System	Windows 10/11, Ubuntu 22.04
		Processor	Intel Xeon(R)E52620 v3
		RAM	16 GB
		Hard Disk	1 TB
		Graphics Card	2 GB NIVDIA
		Display	23 inch
		Switch (Manageable)	Netgear 24 Port

Electrical Engineering

The Department of Electrical Engineering was established during the inception of the Institute in 2010 and has a fine blend of young and dynamic faculty. The Department is currently offering B.Tech. in Electrical & Electronics Engineering and M. Tech program in Electrical Engineering with two specializations i.e., Power System & Control, and Power Electronics & Drives. The department is also offering Ph.D. program in the emerging areas of Electrical Engineering for both full time and part time researchers. The major areas of expertise of faculty of department are Power Systems, Power Electronics, and Control Systems. The faculty of the department has been constantly carrying out research on state of art technologies and regularly publishing research work in top international journals and conferences. The department is well equipped with laboratories and research facilities for B.Tech., M.Tech. and Ph.D. programs. The department is also running IEEE student branch chapters.

VISION:

To be a centre of eminence in Electrical Engineering and contributing sustainable development for industry and society by nurturing human resources.

MISSION:

The department aims to realize the vision through the following mission:

- To empower the students and professionals with state of art knowledge and technological skills in Electrical Engineering.
- To enable industries to adopt effective solutions in the domain of Electrical Engineering through research and consultancy.
- To inculcate the sustainable technical development for social needs.

Program Educational Objectives (PEOs) for UG Programme

PEO1: To develop the ability to resolve the practical problems of Electrical Domain as per the society needs.

PEO2: Imbibed with the state of art knowledge to adapt ever transforming technical scenario.

PEO3: Encourage the students to become entrepreneur by providing inter-disciplinary course curriculum.

Program Specific Outcomes (PSOs) for UG programme

PSO1: To acquire the understanding of electrical components and circuits applied for practical engineering.

PSO2: Develop the competence to provide professional engineering solutions as per the societal and industrial needs.

Program Educational Objectives (PEOs) for PG Programme

PEO1: To strengthen the cognizance in the specialization of Power System, Power Electronics & Drives and Control System thereby enhancing the employability of the graduates in various organizations.

PEO2: To inculcate the ability to model, analysis and evaluation of challenges in accordance with various opportunities in the industry, research and development.

PEO3: To enhance the communication skills and willingness to work as team for realization of multidisciplinary projects.

Program Specific Outcomes (PSOs) for PG programme

PSO1: To develop the proficiency in use of professional simulation software & its use to provide challenges in Electrical Engineering.

PSO2: To impart state of art knowledge in the specialized domain of Electrical Engineering by developing the course curriculum to satisfy the current needs of Industry & Society.

Faculty

S.No.	Name of Faculty	Specialization
1.	**DR. SOURAV BOSE**	Power Electronics, Electric Drives & Renewable Energy
2.	**DR. PRAKASH DWIVEDI**	Control System
3.	**DR. MAHIRAJ SINGH RAWAT**	Power System & Renewable Energy
4.	**DR. SURYANARAYANA GANGOLU**	Power System

5.	**DR. TRIPURARINATH GUPTA**	Power Electronics
6.	**MR. NITESH KUMAR**	Electric Drives
7.	**DR. ROHIT KUMAR**	Power Electronics
8.	**MR. HIMESH KUMAR**	Power System

Laboratories:

S.No.	Laboratory Name	S.No.	Laboratory Name
1.	Basic Electrical Circuit Laboratory	**7.**	Measurement Laboratory
2.	Control System Laboratory	**1.**	Power Electronics Laboratory
3.	Electrical Drives Laboratory	**2.**	Simulation Laboratory
4.	Electrical Machine Laboratory	**3.**	Switch Gear & Protection Laboratory
5.	Elementary Electrical Engineering Laboratory	**4.**	Advanced Electrical Drives Laboratory
6.	Electrical Workshop	**5.**	

Basic Electrical Circuit Laboratory:

List of Experiments

1. To verify and finding the equivalent circuit of a Thevenin's theorem.
2. To verify and finding the equivalent circuit of a Norton's theorem.
3. To verify Maximum Power Transfer theorem.
4. To verify Super Position theorem.
5. To study the operation of Series and Parallel Resonance of a RLC circuit.
6. To find the power of a 3-Ø balanced and unbalanced system.
7. To study the operation of a Transformer as a Coupled circuit and determination of its
   a) Self-Inductance

b) Mutual Inductance

c) Coupling Coefficient.

8. To verify Telligen's theorem.
9. Transient response of a RL and RC Circuits.
10. To find the various Two- Port network parameters of a given network.

List of Major Equipment's

1. Maximum Power Transfer Theorem kit
2. Series and Parallel Resonance of a RLC circuit kit
3. Verification of Telligen's theorem kit
4. Two- Port network parameters Kit

Control System Laboratory:

List of Experiments

1. Error Detector Using Potentiometer and Synchros.
2. Time Response Behavior of Different Blocks of Control System.
3. System Identification.
4. Ziegler-Nichols tuning of PID Controller.
5. To study the effect of addition of pole on transient response to the second order closed loop control system by using MATLAB & LABVIEW.
6. To study the stability analysis of linear system.
7. To study the effect of addition of zero & pole to open loop transfer function of second order unity feedback control system by using root locus technique (using MATLAB& LABVIEW).
8. Additional Experiments

9. To study the effect of addition of pole on frequency response to the second order closed loop control system by using MATLAB & LABVIEW.
10. To study the frequency response of Lag, Lead, Lag-Lead network.
11. To study the speed characteristics of BLDC Motor.

List of Major Equipment's

1. Temp. Control System Trainer
2. BLDC Motor trainer system
3. PID Controller
4. Relay Control System
5. Stability analysis of Linear System
6. Transducer Instrumentation & Control trainer
7. Qbot
8. AERO
9. Inverted Pendulum

Electrical Drives Laboratory:


List of Experiments

1. Study of chopper/DC-DC converter-controlled DC Drive.
2. Study of Rectifier controlled DC Drive.
3. Study of PWM controlled Inverter fed Induction Motor
4. Study of electrical braking operation of DC Motor
5. Study of electrical braking operation of AC motor
6. Study of V/f control operation of 3phase induction motor drive.
7. Study of permanent magnet synchronous motor drive fed by PWM Inverter.

8. Study of Closed-Loop Control of DC Drives.
9. Study of slip power recovery control of induction motors.
10. Study of two-quadrant operation of DC-DC Converter.

List of Major Equipment's

1. DC-Motor Gen System (3kw)-NI LabVIEW based
2. Induction Generator System- NI LabVIEW based instruments.
3. 3-phase Synch motor gen System, 3 kW
4. Three Phase Squirrel Cage Induction –Controlled by NI-LabVIEW and VFD Drives
5. Switched reluctance Motor kit 0.3 kW
6. 3-Phase Universal Motor Controller
7. PM Synch Motor Kit 3 kW
8. PMBLDC- Kit 0.25 kW
9. Solar and Wind Power Trainer Kit (NI LabView)
10. Smart Grid Monitoring Module
11. Three-phase half and fully controlled rectifier.
12. Variable frequency drives.
13. Voltage Source Inverter.

Electrical Machine Laboratory-I:

List of Experiments

1. To determine the efficiency of single-phase Transformer by conducting Sumpner's back- to- back test.
2. To conduct load test on DC shunt generator and to draw the external and internal characteristics of DC shunt generator.

3. To conduct Hopkinson's test on a pair of identical DC machines to pre-determine the efficiency of the machine as generator and as motor.
4. To perform the scott connection of transformer and to obtain the two-phase supply from three phase supply.
5. To determine the efficiency of the two given dc series motors which are mechanically coupled.
6. To study of the speed control of a dc shunt motor using conventional Ward- Leonard method.
7. To draw the magnetization characteristics of dc shunt generator.
8. To conduct brake test on DC compound motor for long shunt cumulative &differential connections and to draw the performance characteristics.
9. To perform parallel operation of two dissimilar Transformer and determine combined and individual transfer efficiency.
10. To perform the Swinburne's test of the DC machine and pre-determine the efficiency of the machine as generator and as motor.

Electrical Machine Laboratory-II:

List of Experiments

1. To determine speed- torque characteristics of single-phase Induction motor and study the effect of voltage variation.
2. To draw the circle diagram of 3-phase induction motor by conducting no load and blocked rotor test.

3. To study speed control of three phase Induction motor by varying supply voltage and keeping v/f constant.
4. To determine V-curve and inverted V-curve of a three-phase synchronous motor.
5. To predetermine the regulation of 3-phase alternator by EMF and MMF methods and also draw the vector diagram.
6. To determine the efficiency of 3-phase induction motor by performing load test.
7. To study synchronization of an alternator with infinite bus using
   (A)Dark lamp method
   (B)Two bright and one dark lamp method
8. To determine the percentage regulation of an alternator by ZPF method.
9. To study the power angle curve of synchronous generator.
10. To determine x_d and x_q of a salient pole synchronous motor using the slip test.

List of Major Equipment's

1. 3-Phase Rectifier
2. DC Shunt Motor
3. Squirrel Cage IM
4. Dc Power Supply SCR Based
5. DC compound Gen Set
6. Slip Ring Motor
7. Synchronous Motor 4 pole coupled with DC Shunt Generator
8. Synchronous Motor, with Induction motor Coupled Dc Shunt gen. 220V,3 kW, 1500rpm
9. Synchronous Motor, 1HP, Coupled Dc Shunt gen. 220V, 3kW, 1550 rpm
10. Servo Stabilizer 3-ph
11. Multi Winding Transformer

Elementary Electrical Engineering Laboratory:

List of Experiments

1. To study and verify Kirchhoff's current and voltage laws for a circuit.
2. To study the performance & phasor diagram of RLC series circuit.
3. To study the speed control of DC shunts motor.
4. To perform the open circuit & Short circuit test for measuring the losses of the transformer.
5. To study the performance & phasor diagram of RLC parallel circuit.
6. Study of different types of machines.
7. To test the polarity of the single phase transformer.
8. Determine B/H curve for magnetic material.
9. To calculate the efficiency & voltage regulation of a single phase transformer.
10. Calculation of slip(s) of Induction motor for clock wise and anti-clock wise rotation of rotor.

List of Major Equipment's

1. DC Supply 110-220 V.
2. Ammeter DC 1-0-1 Amp.
3. DC 0.5-1 Amp.
4. Rheostat 110Ω, 2.8 Amp; 1089 Ω, 0.6 Amp.
5. Variac Input 220 V, output 270V, 5 Amp
6. Ammeter AC 2.5-5 Amp.
7. Voltmeter 150-300 V.

8. Transformer 220 V, 1KVA, 4.5 Amp.
9. Wattmeter 2.5-5 Amp, 75-150-300 V.
10. Capacitor 0-10 µF
11. Single Phase lamp load input 220 V

Measurement Laboratory:

List of Experiments

1. Measurement of unknown medium resistance by using Wheat Stone Bridge
2. Measurement of unknown small resistance by using Kelvin Double Bridge
3. Measurement of unknown medium inductance by using Maxwell Bridge
4. Measurement of unknown high inductance by using Hay' Bridge
5. Study of analog meters—PMMC, Electro Dynamo Meter, Moving Iron
6. Measurement of small distance variations by using LVDT
7. Measurement of weight by using Strain Gauge
8. Measurement of Torque
9. Study of CRO (Cathode Ray Oscilloscope)
10. Measurement Wind using Digital Anemometer
11. Measurement of solar irradiance using Digital Pyranometer (Solar Power meter)

List of Major Equipment

1. **Wheat Stone Bridge** Source-5V R1 -1KΩ, 10KΩ, 100KΩ. R2- 10K. R3-, 10Ω, 100Ω, 1KΩ, 10KΩ, 100KΩ

2. **Kelvin Double Bridge** Source-5V. R1 -1KΩ, 10KΩ, 100KΩ. R2- 100Ω, R3-1KΩ, 10KΩ, 100KΩ.
3. **Maxwell Bridge Source**-1KHz Oscillator R1-10K. R2-0.1mf. R3 -10Ω, 100Ω, 1KΩ, 10KΩ, 100KΩ
4. **Hay' Bridge Source**-1KHz Oscillator R2 -10Ω, 100Ω, 1KΩ, 10KΩ, 100KΩ. R3 -10Ω. R4 -10Ω
5. PMMC, Electro Dynamo Meter, Moving Iron
6. **LVDT** Input 203 AC Display 0-10 V Displacement range 0-20 mm
7. **Strain Gauge** Measuring Range-0-5,Kg Non-linearity Error - ±1% Excitation Source-D.C. Excitation (5Volts) Display- 3(1/2) Digit LED
8. **Torque** Measuring Range-0-2.5Newton meter. Non-linearity Error - ±1% Source-D.C. Excitation (5Volts) ; Working Temperature-0-500C Display- 3(1/2) Digit LED
9. **CRO (Cathode Ray Oscilloscope)**
10. **Anemometer** Display-LCD ,Size-65x25 mm Operating Temperature-0-500C(32-1220F) Air Velocity Sensor Structure- Conventional twisted vane arms and low friction ball-bearing design. Power supply-006P DC 9V battery Power Consumption-Approx DC 9mA Weight-325g/0.72lb(Including Battery)
11. **Pyranometer** (Solar Power meter) Sensor-High Sensitivity Silicon Photodiode Range-0~2000W/m2(0~634BTU/ft2.h) Tilt angle range- 00~90 Store temp .&relative humidity- -100C~600 C(140F~1400FLess than 85%RH) Memory-20 point memory Accessories-9V battery

Power Electronics Laboratory:

List of Experiments

1. To study the V-I characteristics of SCR.
2. To study the V-I characteristics of TRIAC.
3. To study UJT characteristics.
4. To study SCR phase control.
5. To study SCR commutation techniques.
6. To study the performance of boost converter.
7. To study the performance of buck converter.
8. To study the operation of full bridge-controlled converter with R-Load.
9. To study single phase full bridge inverter.
10. To study single phase ac voltage controller
    a. Based on SCR
    b. Based on TRIAC

List of Major Equipment's

1. PEC16M1B Trainer Kit
2. PEC16M1C Trainer Kit
3. ME547D Trainer Kit
4. SCR-06 Trainer Kit
5. SCR commutation (ME-793) Trainer Kit
6. DC-DC Boost converter (VSMPS-06A)
7. DC-DC Buck converter (VSMPS-05A)
8. SPBC-101 Trainer Kit
9. PEC16M3 & 16HV2B Trainer Kit
10. PEC14M14AC Trainer Kit

Simulation Laboratory:

List of Experiments (Soft Computing Techniques Lab)

1. Programs on Matrix operations to understand the basic concepts of MatLab.
2. To print all the Continues Discrete Membership Functions by using MatLab.
3. To perform different fuzzy operations on Membership Functions by using MatLab.
4. Design a Fuzzy controller for Air conditioning system/Washing Machine.
5. Identification of a system using Perceptron/Radial Base Function Network (RBFN).
6. Identification of a system by using Backpropagation algorithm.
7. Minimizing the objective function by using Genetic Algorithm (GA)
8. Minimizing the objective function by using Particle Swarm Optimization (PSO)
9. Minimizing the objective function by using Cuckoo Search Algorithm (CSA)
10. Minimizing the objective function by using Ant Colony Optimization (ACO)
11. Minimizing the objective function by using Differential Evolutionary (DE) algorithm
12. Minimizing the objective function by using Cat Swarm Optimization (CSO)

List of Experiments (Power System Lab)

MATLAB/SIMULINK Based Experiments

1. Static Load Flow Analysis of Standard IEEE bus system using N-R method.
2. Dynamic Analysis of IEEE 9 bus System.
3. Small signal Stability Analysis of Single Machine Infinite Bus System.
4. Short circuit Analysis of IEEE 9 bus power system.

DIgSilient Power Factory Based Experiments-

1. Modeling and Analysis of Low Voltage Distribution Network (Mesh and Radial).
2. Study of Relay Coordination and Time grading Calculation using PowerFactory.
3. Power Quality and Harmonics Analysis of Power System.
4. Modeling IEEE 8 bus power system and analyzing/creating different operation Scenarios using PowerFactory.
5. Transient stability & Voltage Stability Analysis of Standard Power System.
6. Contingency Analysis of standard Power System.

List of Software

1. DigSalient PowerFactory 2018

2. MatLab 2019b
3. LabView 2013

Desktop Computer Details

Total No of Computer- 27

Specification Intel Core I i5-4590 CPU @3.30 GHz, RAM – 4GB, OS-64bit Microsoft Windows 10

Switch Gear & Protection Laboratory:

List of Experiments

1. To study the protection of transformer with percentage biased differential relay (Microcontroller based numerical relay).
2. To study IDMT over current relay (single phase) and to determine the pickup and reset value and determine the time and current characteristics.
3. To study the working of Buchholz relay.
4. To analyze the underground cable fault using Varley loop test.
5. To study the directional over current protection.
6. To study the breakdown voltage of transformer oil by adjusting electrode gap length.
7. To study and draw the characteristics of numerical overcurrent relay.
8. To study and analyze the different type of symmetrical and unsymmetrical faults occurs in transmission line.
9. To study microcontroller based over/under voltage relay.

10. To study the complete protection of alternator unit.
11. To study the protection of feeder system.
12. To study the principle of reverse power protection.

List of Major Equipment's

1. IDMT over current relay kit (ME2471R)
2. Buchholz relay unit
3. Varley loop test kit (VPL-83A)
4. Transformer oil test kit
5. Feeder protection unit
6. Symmetrical and unsymmetrical fault analysis (NVI57065)
7. Microcontroller based over/under voltage relay (VPL-05)
8. Reverse power protection Panel
9. Protection of Alternator unit (PWS-3012A)
10. Percentage biased differential relay
11. (ME2473RD)
12. Directional overcurrent relay (JRP 011)
13. Numerical overcurrent relay (ANSI NO. 50&51)

Advanced Electrical Drives Laboratory:

List of Experiments

1. Design simulation of Single phase rectifier with R, RL and RLE loads using MATLAB.

2. Study and analysis of open and closed loop control of three phase induction motor using DSP microcontroller board.
3. Study and analysis of open and closed loop control of BLDC motor using DSP microcontroller board.
4. Study and analysis of open and closed loop control of Switch Reluctance Motor using FPGA.
5. Study and analysis of open and closed loop control of PMDC motor using DSP microcontroller board.
6. Study and analysis of three level diode clamp three phase MLI for open and closed loop control of Induction motor using FPGA Board.
7. Study and analysis of five level cascaded MLI operation through FPGA control Board.
8. Study and analysis of various operation by Matrix Converter through FPGA Controlled Board.
9. Study and analysis of closed loop control of BLDC and Three Phase Induction Motor parameter on Real Time GUI FPGA platform.

List of Major Equipment's

1. Real Time – GUI FPGA Controller Based
    I. Induction Motor Set up
    II. DC Motor Drive Set Up
    III. BLDC Motor Drive Set up
    IV. SR Motor Drive Set up.
2. Matrix Converter Power Module
3. Three Phase Five Level Cascaded Multilevel Inverter.
4. Three Phase Three Level Diode Clamped Multilevel Inverter Power Module.
5. DSPIC4011 Microcontroller Based PWM Controller.
6. FPGA PWM Controller
7. AC/DC Current Measurement Cards with auxiliary power supply
8. AC/DC Voltage Measurement Card with auxiliary power supply
9. Single IGBT Project card with Opt coupler based driver circuit
10. Dual IGBT Project card with Opt coupler based driver circuit
11. Opal RT Real Time HIL Simulator and HIL Controller

12. Typhoon HIL Simulator.
13. Workstation Dell
14. Power Quality Analyzer
15. DC Electronics Load

Ph.D. Research Facilities

1	Aero
2	Qbot
3	Inverted Pendulum
4	FPGA PWM Controller
5	OPAL-RT-Real Time Digital HIL Simulator for Power System, Power Electronics Machine and Drives Applications
6	Typhoon HIL Hardware in the Loop Real Time Simulator Power Electronics and Renewable Energy (Simulator)-
7	Digital Signal Processor (TMS320F28335)
8	Matrix Converter Power Module
9	Three Phase Five Level Cascaded Multilevel Inverter.
10	Electrical Vehicle (E-Rickshaw)
11	PCB Prototype Machine
12	Power Quality Analyzer
13	DC Electronic Load
14	Analog and Mixed Channel Oscilloscope
Software	
1	MatLab 2019b
2	DigSalient PowerFactory 2018
3	Labview 2013

Industry Collaborative Laboratory

The Department of Electrical Engineering, NIT Uttarakhand has an Industry Collaborated lab established by Mitsubishi Electric India Pvt. Ltd. under MoU between NITUK and MITSUBISHI Electric India Pvt. Ltd. The following equipment's/software are provided to the Electrical Engineering Department of NIT Uttarakhand under MoU between NITUK and MITSUBISHI Electric India Pvt. Ltd.

1. MELSOFT MX OPC Server (Integrated solution for plant engineering)
2. MELSOFT MC Works 64 (Integrated solution for plant engineering)
3. FA learning kit; Inverter (FR-A820)and Servo Amplifier(MR-J4W3).

Electronics Engineering

Department of Electronics Engineering, N.I.T. Uttarakhand was established in 2013 with an intake of 60 students. The department offers a four-year course leading to the bachelor's degree in Electronics Engineering. Department of Electronics Engineering has advanced academic structure with core course and variety of elective courses so that the students' knowledge is not only enhanced in core discipline but also in the related disciplines. The department also offers postgraduate courses in Microelectronics & VLSI Design, Communication Engineering along with Ph. D. degree program in all the specialization of Electronics Engineering.

VISION:

To offer academic excellence in the field of Electronics and Communication Engineering with a strong emphasis towards research and development to cater to the needs of the society.

MISSION:

(i) Establish a vibrant learning environment for the students of Electronics and Communication Engineering.

(ii) Enable students to develop skills to solve complex technological problems by promoting collaborative and multidisciplinary activities.

(iii) To establish the Centre of Excellence to nurture the spirit of innovation and creativity among faculty and students.

(iv) Provide ethical and value based education by promoting activities addressing the societal needs.

Programme Educational Objectives (PEOs)

PEO1: To understand and apply the fundamental concept of Electronics and Communication engineering for designing and developing modern electronic systems

PEO2: To make students capable of being as innovators, researchers, technologists and entrepreneurs by engaging themselves in relevant multidisciplinary projects.

PEO3: To prepare the graduates as professionals with effective communication skills, leadership qualities and imbibing concern for eco-system for uplifting of society

PEO4: To inculcate the habit of life-long learning needed for research and higher studies to develop new methodologies and technologies for solving real life problems.

Programme Specific Outcomes (PSO)

PSO1: To identify and categorize problems so as to recommend suitable solutions.

PSO2: To apply the experience of using modern tools (both hardware and software) in the areas of VLSI, Signal Processing and Microwave for industrial and research purpose.

PSO3: To communicate effectively in order to adapt, understand and solve the practical problems as an individual as well as in a team with a responsible view towards the society and environment.

Faculty Profile

Sr.No.	Name of Faculty	Areas of Research
1	**DR. SARIKA PAL (HEAD)**	Optical Communication
		Optical Sensors, Plasmonics
		Applications of nanomaterials in sensing field
		Magneto -optic surface plasmon resonance sensor
2	**DR. HARIHARAN MUTHUSAMY**	Biomedical Signal and Image Processing
		Hyperspectral Image Processing
		Soft Computing Methods for Microwave and Millimeter-Wave Design
		Application of AI Techniques in VLSI Design and Communication Systems

3	**DR. SIVA KUMAR TADEPALLI**	Multidimensional Systems
		Finite Wordlength Effects
		Delayed and Uncertain Systems
		Robotics
6	**DR. TUSHAR GOEL**	Planner Antennas
		Microwave energy Harvesting
		Radar Image Processing
		Microwave Hazards
8	**DR. PANKAJ KUMAR PAL**	Novel MOS Based Device/ Circuits Design
		Design of Advance Spin Based Memories for Cache Application
		Semi-Conductor Device Modeling
		Low Power & Energy Efficient Memories
9	**DR. SARITA YADAV**	Semi-Conductor Device Modeling
		Novel MOS Based Device Circuit
		3D Interconnects Indirection
		Low Power Design
10	**DR. NITANSHU CHAUHAN**	Novel Nano-Scale Devices & Circuits Design
		In Memory Computation
		Reliability of Semiconductors Memories & Novel Devices
		Self-heating in Novel Devices
		Negative Capacitance FETs
11	**MR. VIVEK KUMAR**	Nano-scale Device Simulator
		Thermal Modeling of Nano-scale Device

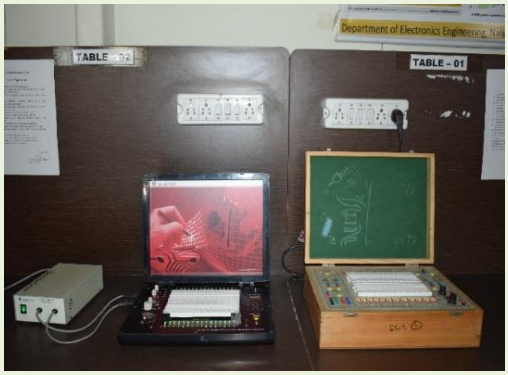
		RF Nano-scale Device
		Reliability of Nanosheet

Department Labs:

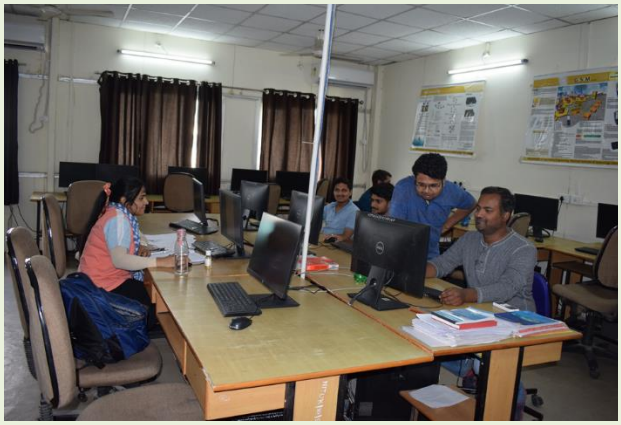
Analog Electronics Lab

Communication Lab

Digital Electronics Lab



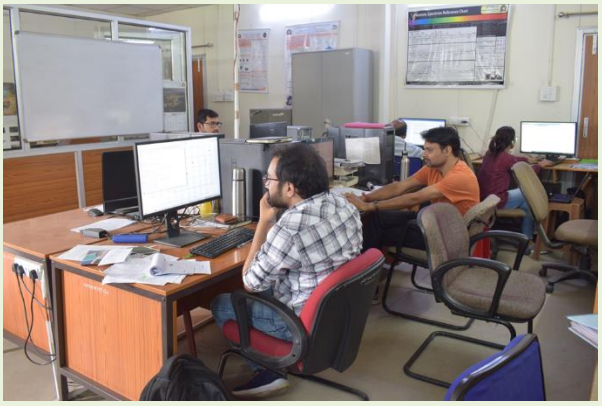
Digital Signal Processing Lab

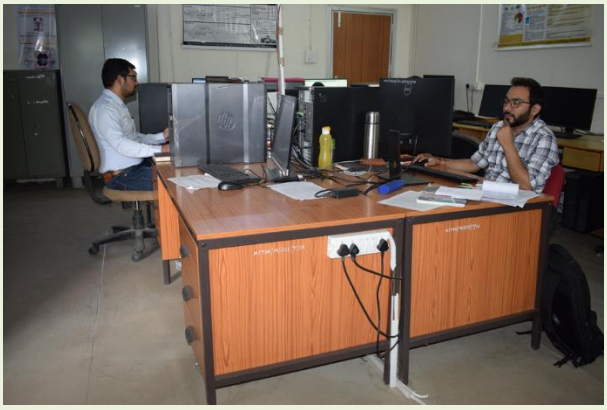


Electronic System Design Lab

Microprocessor Lab

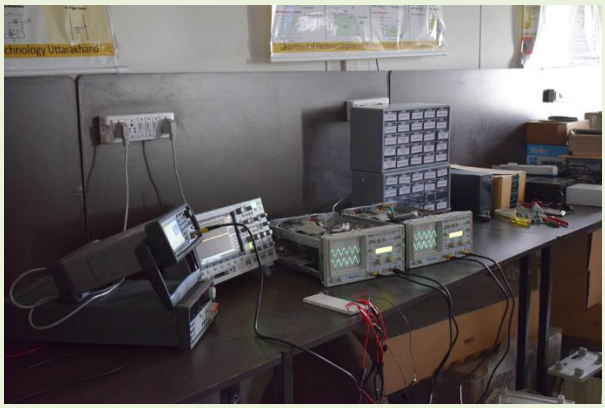
Research Lab





Microwave Lab

Electronics Workshop Lab



List of Experiment (Communication lab)

1) Study of DSB Amplitude modulation (AM).

2) Study of DSB Amplitude demodulation.

3) Study of SSB Amplitude modulation.

4) Study of SSB Amplitude Demodulation.

5) Study of Frequency modulation (FM) using Varactor Modulator

6) Study of Frequency modulation (FM) using Reactance Modulator.

7) Study of Frequency demodulation.

8) Study of Pulse amplitude modulation. (PAM)

9) Study of Pulse width modulation. (PWM)

10) Study of Pulse position modulation. (PPM)

11) Study of Time-division multiplexing. (TDM)

List of Experiment (Digital Electronics Lab)

1) To verify operation of basis logic gates.

2) Realization of Logic functions with the help of Universal Gates (NAND /NOR Gate).

3) Design a BCD to Excess 3 code /Binary to Gray code converter.

4) Simplify the Boolean function using K-map and implement it using logic gates.

5) To construct half adder, full adder and subtractor circuit and verify it's working.

6) Implementation of Full adder using half adder.

7) Implementation of a 4-bit adder using 7483 IC.

8) Implementation of a Boolean function using 4:1 Multiplexer.

9) Realize a 1-bit and 2-bit magnitude comparator.

10) To construct a 4-bit ripple counter using two 7476 ICs.

11) Verify the truth tables of S-R, J-K, T and D type flip-flops.

12) Design a 4-bit left/right shift register.

13) Design and verify a 4-bit synchronous counter.

14) Design and Verify a 4-bit asynchronous counter.

15) Design and verify a BCD counter.

List of Experiment (Microcontroller & Interfacing Lab)

1) To perform Addition of Two 8 Bit Numbers.
2) To perform Subtraction of Two 8 Bit Numbers.
3) To perform Addition of Two 16 bit Numbers.
4) To perform Subtraction of Two 16 bit Numbers.
5) To perform multiplication of two 8 bit Numbers.
6) To perform Division of two 8 bit Numbers.
7) To Arrange given no. of arrays in ascending order.
8) To Arrange given no. of arrays in descending order.
9) To perform square of a given Number.
10) To find Factorial of a given Number.
11) To print Fibonacci series.
12) To find Smallest Number from given array.
13) To find square root of a given Number.
14) To find largest number from given array.
15) To find 1s 2s compliment of a given Number.

List of Major Equipment Available:-

1) Banch type LCR Meter
2) Proto type PCB meachine
3) Logic Analyser,34 Channel, 250 MHz State (2015)
4) HP Workstation Z840 and Z440
5) Dell Workstation with Intel Xeon silver 4214 Processor 64GB (Precision 7920DT)
6) Spectrum Analyzer 1GHZ
7) 100 MSPS Analog Discovery Kit.
8) DSO (TDS-2024C, 200MHZ, 4channel color Display)

9) Multimeter 4.5 digital Model - U1252B

10) ARM9 Development board (ST6201)

11) Arbitrary Waveform Generator, Keysight 33521B, 30MHz, 1CH

12) Weller Non-integrated Temperature Controlled Soldering Station with platinum sensor

13) Programmable Triple Output DC Power Supply (Model- 2230G-30-3)

14) Data Gloves (Left hand), Data Gloves (Right hand), Wireless Kit for Data Gloves

Software Available with Department

1) Synopsys AsiaPAC Advance TCAD (3D) University Bundle

2) Advanced Design System Software (ADS)

3) CAD Tool

4) Optisystem V15.1

5) CST Studio Suite Electromagnetic Solver/Simulator

6) Cadence Front End and Backend Tools with 5 licenses. (2015-16)

7) Mentor Graphics Front End and Backend Tools with 1000 licenses (2015-16)

8) Xilinx HLS Vivado with 25 licenses. (2015-16)

9) NI Academic site license lab view software (2013)

10) Mat Lab Software

Mechanical Engineering

The Department of Mechanical Engineering at the National Institute of Technology, Uttarakhand was established in 2012 and currently has an intake of 20 students per year. The Department offers a four-year B. Tech. course, M.Tech. Program in Thermal Engineering and Machine Design and a Ph.D. program. The department has flexible academic structure with numerous core and elective courses, to facilitate the students to opt for the courses of their interest.

Presently, the department has Three Associate Professors, Twelve Assistant Professors. All the faculty members are well qualified from reputed institutions like IITs and NITs. The area of specialization of all faculties has a lot of diversity that covers various aspects of Mechanical Engineering and is capable to mold young minds into successful professionals.

The department is fully equipped with laboratories for core courses such as Machine Tools Laboratory, Strength of Materials Laboratory, Fluid Mechanics and Machines Laboratory, Applied Thermodynamics Laboratory, Heat Transfer Laboratory, Kinematics and Dynamics of Machines Laboratory, Computer Aided Design Laboratory and Mechanical Workshop. These laboratories have state of the art experimental setups and machineries for enhancing the practical knowledge of students at par with the cutting edge technology. The department is now expanding its wings towards elective course laboratories such as Additive Manufacturing, Measurement Laboratory, Robotics Laboratory, Mechatronics Laboratory, Automobile Laboratory, CNC Laboratory, Vibration Laboratory etc.

Apart from academics, the department has collaboration with industries and research institutions to setup specialized laboratories and joint research programs. Such initiatives will provide an opportunity to the students to have feel of real on sight situations in the industries and how to handle them. The Department is working on innovative ideas in collaboration with Design Innovation Centre-NITUK for the rural development in the state of Uttarakhand.

VISION:

To become a Centre of Excellence in Mechanical Engineering education and research for sustainable socio-economic development

MISSION:

- To develop a state-of-the-art infrastructure for imparting quality education.
- To impart technical skills and professional ethics to the students for making them employable and thus contributing in nation building.

- To perform inter-disciplinary as well as collaborative research in the frontier areas of technology for sustainable development of the society.
- To promote leadership, innovation and entrepreneurship among the students.

Program Educational Objectives (PEOs):

PEO1: Imparting engineering skills among the students for the sustainable development of the society.

PEO2: Developing communication skills, leadership and professional ethics among the students.

PEO3: Inculcating the design capability among the students and promote product development, innovation and entrepreneurship.

Program Specific Outcome (PSOs) for UG Programme:

PSO1: Apply innovative ideas for design and development of devices to solve real world problems related to Mechanical Engineering

PSO2: Utilize the renewable energy resources for sustainable development of the society

Faculty Profile:

S.No.	Name	Specialization
1	**DR. SANAT AGRAWAL**	Design Engineering
2	**DR. LALTA PRASAD**	Thermal Engineering
3	**DR. GURINDER SINGH BRAR**	Manufacturing Engineering
4	**DR. VINOD SINGH YADAV (HEAD)**	Thermal Engineering
5	**DR. PAWAN K. RAKESH**	Manufacturing Engineering
6	**DR. VIKAS KUKSHAL**	Design Engineering
7	**DR. APURBA MANDAL**	Design Engineering
8	**DR. NIRAJ K MISHRA**	Thermal Engineering
9	**DR. YOGESH K PRAJAPATI**	Thermal Engineering
10	**DR. DUNGALI SREEHARI**	Manufacturing Engineering
11	**DR. HITESH SHARMA**	Manufacturing Engineering

12	**DR. T. SUDHAKAR**	Thermal Engineering
13	**DR. DEEPAK KUMAR**	Thermal Engineering
14	**DR. GAURAV KUMAR**	Manufacturing Engineering
15	**DR. PRASANT TIWARI**	Design Engineering

Department Laboratories

1. Heat Transfer Lab


- Refrigeration Test RIG.
- Thermal Conductivity of Metal Rod.
- Stefan's Law Apparatus.
- Heat Transfer from a pin fin.
- Force Convection App.
- Boiling curve App.
- Heat transfer through logged pipe
- Cooling Tower Test RIG.
- Conduction composite cylinder experiment.
- Pool boiling apparatus.
- Air conditioning Test RIG.
- Tubular Heat Exchanger Experimental Kit.
- Heat conduction unit
- Digital Bomb Calorimeter
- Air Duct Unit
- Shell and Tube Heat Exchanger

- Hygrometer
- Constant Temperature Bath
- Vapour Absorption Refrigeration System

List of Experiments

1. To determine Stefan Boltzmann constant for radiant heat transfer.
2. To determine efficiency and effectiveness of the fin by natural using Pin fin apparatus.
3. To determine efficiency and effectiveness of the fin by forced convection using Pin fin apparatus.
4. To determine forced convection heat transfer coefficient for flow through the given Horizontal tube.
5. Determination of thermal conductivity of pipe insulation by lagged pipe apparatus.
6. To study the pool boiling phenomenon up to critical heat flux apparatus.
7. To determine thermal conductivity of metal rod.
8. To determine heat transfer coefficient in parallel and counter flow in a tubular heat exchanger.
9. To determine performance of cooling tower
10. Shell and tube heat exchanger

2. Applied Thermodynamics Lab

List of Equipment's

- One Cylinder 4 Stroke Diesel Engine Test Rig.
- One Cylinder 4 Stroke Diesel Engine Test Rig 7.5 kW.
- Red wood Viscometer
- One Cylinder 2 Stroke Petrol Engine Test Rig.
- Single stage Air compressor test Rig.
- Double stage Test Air Compressor.
- Four stroke single cylinder water cooled Diesel Engine (Model).
- Four stroke Diesel Engine
- Two Stroke one Cylinder Petrol Engine (Actual Cut Section).
- Fuel Supply System of A petrol Engine (Model).
- Gate Value, Fusible Flug, Gate Valve Lever Safety Valve, Lever Safety Valve, Steam Injector,
- Spring Loaded Safety valve.
- Babcock & Wilcox Boiler Model
- Lancashire Boiler Model.
- Vertical Water Tube Boiler Model.
- Model of Cornish Boiler.
- VCR Multifuel Engine

List of Experiments

1. Study of different type of boilers
2. To study the working and function of mountings & accessories in boiler.
3. To determine the viscosity of lubricating oil by Redwood Viscometer.
4. Determination of calorific value of liquid and solid fuels using oxygen bomb calorimeter
5. To study the construction and working of 2-stroke petrol engines.
6. To study the construction and working of 4-stroke diesel engine
7. To Study of fuel supply system for petrol engine.
8. To study the fuel supply system of diesel engine
9. To draw the valve timing diagram of the given four stroke diesel engine
10. To find out the volumetric efficiency of double stage air compressor

11. To find out the volumetric efficiency of an air compressor.
12. To study the performance of 2-Stroke Single cylinder Petrol engine connected to a rope brake dynamometer.
13. To study the performance of 4-Stroke Single cylinder diesel engine connected to an electric brake dynamometer.
14. To prepare a heat balance sheet for 4-Stroke Single cylinder diesel engine connected to an electric brake dynamometer.

3. Fluid Mechanics Lab

List of Equipment's

- Bernoulli's Theorem kit.
- Loses in pipe kit.
- Orifice, venture's kit.
- Corelli's force Demonstration.
- Metacentric height kit.
- Notches kit.
- Impact of Jet kit.
- Reynolds's Apparatus.
- Free and forced vortices.
- Orifice and Mouthpiece.
- Pelton wheel Turbine test Rig.
- Axial flow Runner, Francis Runner model.
- Francis Turbine test Rig.

- Gear Pump Set Up
- Centrifugal Pump Test Rig.
- Cut section model Centrifugal pump, Cut section model gear pump.
- Reciprocating Pump Test Rig.
- Pelton Turbine Model, Centrifugal Pump model, Cut section Gear pump suction.
- Series & Parallel Pump setup
- Centrifugal pump model, Piston pump cutaway model, gear pump model
- Magnetic Stirrer
- Overhead Stirrer

List of Experiments

1. To study of the different types of hydraulic turbines.
2. To verify the momentum equation experimentally.
3. To study the performance characteristics of a centrifugal pump and to determine the characteristic with maximum efficiency.
4. To study the performance characteristics of a reciprocating pump and to determine the characteristic with maximum efficiency.
5. To draw the characteristics curves of gear oil pump and also to determine efficiency of given gear oil pump.
6. To conduct load test on pelton wheel turbine and to study the characteristics of pelton wheel turbine
7. To conduct load test on Francis turbine and to study the characteristics of Francis turbine.
8. To study the two pump performances, both in series and parallel operation and to draw the characteristics curves in both series and parallel arrangement.
9. To verify Bernoulli's equation.
10. To reproduce the dye line experiment as performed by Reynolds and to obtain the criteria for Laminar and Turbulent flow.
11. Determination of coefficient of discharge, coefficient of contraction, coefficient of velocity of orifice & mouthpiece.
12. To calculate coefficient of discharge, Cd of Venturi meter.
13. To calculate coefficient of discharge, Cd of Orifice meter.

14. To compare theoretical and actual value of flow over notch.
15. To study free and forced vortices.
16. To find the Coriolis component of acceleration and verify the result.
17. To determine the friction factor of a given pipe of circular cross section.
18. To determine the Metacentric height of a floating body (i.e. a model of ship) and to locate the center of Buoyancy, metacenter and center of gravity.
19. To determine the percentage error in Rotameter with the actual flow rate.

4. Mechanical Workshop

List of Equipment's

- Are Welding Machine-1.
- Gas Welding Setup
- Spot Welding Machine.
- Muffle Furnace -1
- Anvil Big & Small
- Carpentry Vice-4
- Bench Vice-2
- Bench Vice-9
- Carpentry Vice-8
- Cope & Drag-3
- TIG Welding Machine
- Wood Lathe Machine
- Reciprocal Shaker

- Jack Planer-2
- Arc Welding Machine
- Moulding Box-03

List of Experiments

1. To file the given two Mild Steel pieces in to a square shape of 48 mm side as shown in Figure.
2. To file the given Mild Steel pieces in to a stepped cut piece of having equal step-dimention E1
3. To make V- fit from the given two MS plates as shown in Figure -E2
4. To make a T-lap joint
5. To make a dovetail lap joint
6. To make a mortise and tenon joint
7. To make a single v-butt joint, using the given mild steel pieces of by arc welding.
8. To make a double lap joint, using the given mild steel pieces and by arc welding.
9. To make a corner joint, using the given mild steel pieces and by arc welding.
10. To make a T- joint, using the given mild steel pieces and by arc welding
11. To make a cylinder using the given G-I SHEET joint by the spot welding process.
12. To prepare a wooden pattern (solid pattern).
13. To make a square tray of given dimension (75 mm x 75 mm) using given GI sheet.

5. Kinematics of Machine Lab

List of Equipment's

- Static and Dynamic Balancing
- Whirling of Shafts Apparatus
- Motorized Gyroscope
- V-Belt Drives Model.
- Double Hook Coupling
- Winch Apparatus
- Combined Flat & V belt friction Apparatus
- Worth Quick Return Mechanism
- Smart Structure Instrument
- Vibration Shakers
- Universal Vibration Apparatus

List of Experiments

1. To calculate the efficiency of Single Start Worm and Worm Wheel.
2. To determine the coefficient of friction between a belt and pulley with the help of a combined coil and belt friction apparatus
3. To determine the moment of inertia of sample object by using Tri-filar suspension system.
4. To calculate the mechanical advantage, velocity ratio and efficiency of double purchase winch crabs machine.
5. To check experimentally the method of calculating the position of counter balancing weight in rotating mass system.
6. To perform experiment on Watt Governors to prepare performance characteristic Curves, and to find stability & sensitivity.
7. To determine the whirling speed of shafts with various diameters experimentally and compare it with theoretical values.
8. To analyses the motion of a motorized gyroscope when the couple is applied along its spin axis.
9. Experimental studies of vibration of a cantilever beam on mode shapes.
10. To study gyroscopic effects through models.
11. To study the various types of dynamometers.

12. To perform the experiment for static balancing on static balancing machine.

6. Computer Aided Design Lab

List of Equipment's/Software

- Desktop Computer-30
- ANSYS Software installed on 30 systems
- CATIA Software installed on 30 systems
- AUTOCAD Software installed on 30 systems
- MATLAB installed on 30 systems
- Lab View Software (NI Instruments)

List of Experiments

1. To draw a part drawing in CATIA
2. Make 3D model and practice the detailed part drawing and assembly of Belt roller Support using AutoCAD software tool. All dimensions are in mm
3. Make 3D model and practice the detailed part drawing and assembly of universal coupling using AutoCAD software tool. All dimensions are in mm
4. Make the assembly of the given parts in AutoCAD software tool. All dimensions are in mm.
5. Complete the assembly of the following exercises using AutoCAD software tool
6. Make 3D model and practice the part design using following data. Extract the front view, side view and elevation of the part using AutoCAD software tool. All dimensions are in mm.
7. Practice the following exercises using AutoCAD

8 Practice the following exercises using AutoCAD software tool.

7. Measurement Lab

List of Equipment's

- Microscope.
- Sine Bar, Slip Gauges
- Vernier height gauge
- Micrometer
- Vernier caliper
- Go &No-Go-gauges
- LVDT Apparatus
- Microwave for Material Processing

List of Experiments

1. To understand construction of Vernier Caliper and calculate its least count.
2. To understand construction of outside micrometer and calculate its least count
3. Study & Observe Vernier Height gauge, Digital Height gauge and Vernier Depth gauge.
4. Study of Depth micrometer
5. Direct and indirect measuring instruments like Screw pitch gauge, radius gauge, small hole gauge, Telescopic gauge and Feeler gauge.
6. To study and use Vernier Bevel Protractor.
7. To find unknown angle of a given component using Sine Bar.
8. Micrometer calibration by Slip Gauges

9. To study characteristic graph of LVDT sensor.

8. Machine Tool Lab

List of Equipment's

- Lathe Machine
- Milling Machine
- Wood Turning machine
- Shaper Machine
- Surface Grinder
- Drilling Machine
- Hydraulic Punching Machine
- Fly Press

List of Experiments

1. Study about the machining processes
2. To study the characteristic features of lathe Machine
3. To perform the Turning, Facing, Grooving and Threading operations on given mild steel rod
4. To study the characteristic features of Milling Machine
5. To study the characteristic features of Shaper Machine
6. To machine a V block
7. To drill and tap holes on the mild steel rod as shown in the sketch
8. To perform the grinding operation on surface grinder Machine

9. Introduction about non-conventional machining processes

9. Strength of Material Lab

List of Equipment's

- Brinell hardness testing.
- Universal Testing Machine.
- Impact Testing Machine.
- Buckling behavior bars apparatus.
- Hook's law apparatus.
- Deformation of curved axis beam.
- Deformation of the straight beam apparatus.
- Deformation of U/S shaped from apparatus.
- Euler column experiment apparatus.
- Try filler suspension.
- Izod & Charpy testing M/C
- Torsion Testing Machine
- Fatigue Testing Machine
- Digital Weigning Balance
- Shore Hardness Tester

List of Experiments

1. To verify Hooke's law for a spring and to determine the spring's elastic constant by static deformation
2. To study the Brinell hardness testing machine and the Brinell hardness test
3. To determine the impact strength (toughness) of steel by Izod impact test.
4. To determine the impact strength (toughness) of steel by Charpy impact test.
5. To conduct tensile test on mild steel specimen using Universal Testing Machine
6. To find the compressive strength of given specimen.
7. To determine experimentally the value of flexural (EI) rigidity for a cantilever beam carrying point loads and to verify the result with analytical method.
8. To determine experimentally the deflection at mid-point on a simply-supported beam carrying point loads and to verify the result with analytical method.
9. To conduct torsion test on mild steel specimens to find out modulus of rigidity.
10. To determine the endurance limit of given specimen under fatigue loading or cyclic loading.
11. To determine the moment of inertia of sample object by using Tri-filar suspension system.

10. Vibration Lab under KOM Lab


List of Equipment's

- Universal Vibration Setup
- Multi channel Sensing and Actuation Unit
- Multi channel Band Pass Filter
- Dynamic Vibration Shaker with Power Oscillator

List of Experiments

1. To verify the relation of simple pendulum
2. To determine the radius of gyration 'k' of a given compound pendulum

3. To determine the radius of gyration of given bar by using Bi-Filer suspension.
4. To study the Torsional Vibrations of single rotor system.
5. To study the Free Vibration of Two Rotor System and to determine the Natural Frequency of Vibration Theoretically & Experimentally.
6. To study the Damped Torsional Oscillation & to determine the damping co-efficient C.
7. To verify the Dunker ley's Rule Viz.
8. To study the longitudinal vibration of helical spring and to determine the frequency and time period of oscillation theoretically and actually by experiment.
9. To study the undamped free vibration of equivalent spring mass system and To find the frequency of undamped free vibration of equivalent spring mass system.
10. To study the Forced damped Vibration of Equivalent Spring Mass System and To find the frequency of forced damped equivalent spring mass system and To find amplitude of vibration.
11. To study the forced vibration of the beam for different damping. and
12. To find frequency of beam at different damping.

Department of Physics

VISION:

To impart quality education and focus on interdisciplinary research in Physics and Nanotechnology to meet the global standards.

MISSION:

1. To develop state of art educational and research environment for students.
2. To educate undergraduate students about principles & applications of Physics in Engineering.
3. Excel in scientific R & D and consultancy.

The Department of Physics is established in June 2019. Earlier it was the part of Department of Sciences and Humanities. Department offers core and elective courses in Physics for undergraduate B.Tech. programme of the Institute. Our courses are created in such a way

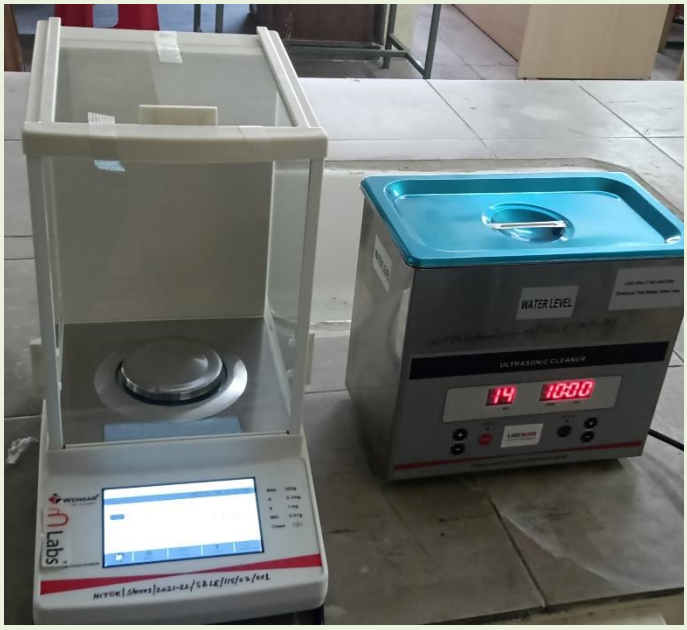
that they are interdisciplinary in nature and can be chosen from any department within NIT UK, so one can tailor their degree to their interests. In addition, the department offers Ph.D. programme in Physics. Doctoral research is carried out in all major areas of Physical sciences. Major thrust areas are Condensed Matter Physics, Optics and Theoretical Physics. The Department has a dedicated team of distinguished faculty and staff members, trained at renowned Institutes in India and abroad. The Department offers a vibrant atmosphere to students and faculty to nurture the spirit of scientific inquiry and to pursue cutting-edge research in a highly encouraging environment.

Faculty Profiles

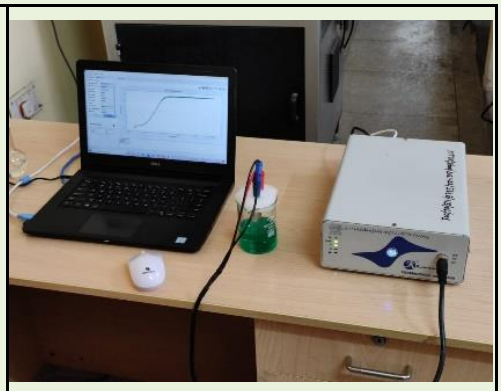
Sr. No.	Faculty Profile	Specialization
1.	**DR. MANVENDRA SINGH KHATRI (HEAD)**	Thin films, Nanowires, Multilayers, Composite Materials
2.	**DR. INDRAJIT M. NAGPURE**	Optical, Biomedical, Solar Cell Materials and Devices
3.	**DR. HARDEEP KUMAR**	Magnetism, Thin films, Spintronics, Nanotechnology, Sensors
4.	**DR. JAGRATI SAHARIYA**	X-Ray Scattering, Charge and Magnetic Compton Profile, Ab-Initio Calculations, Density Functional Theory, Solar Cell Materials

Laboratories

Physics laboratory was established in 2010 for 1st year B.Tech courses and are fully functional. Following experimental facilities are available for B.Tech students.



S. No.	List of Major Equipment Available	
1	Spray Pyrolysis	

2	Electrochemical Workstation	
3	Diffraction Grating Set-up	
4	Magnetic Stirrer with Hot Plate	

Equipments in Physics Lab

Sr. No.	Equipment
1	Newton's Ring Set-up
2	Steward Tangent Galvanometer
3	Plank Constant By LED
4	Standard Spectrometer for Determination of Wavelength of Sodium Light

5	Semiconductor Zener Characteristic Apparatus
6	Faraday Effect Set-up
7	CdS Cell
8	Hall Effect Experiment Kit
9	Four Probe Experiment Set-up
10	Platinum Resistance Thermometer
11	Copper Constant Thermocouple
12	Sonometer
13	Solar Cell Experimental Kit
14	Optical Fiber Kit
15	Dielectric constant Kit
16	PN Junction Kit
17	Laminar Air Flow Cabinet

List of Experiments

1. To study the I-V characteristics of a PN junction diode
2. Determination of Planck's constant using LED
3. To study the Hall Effect and to determine
   (i) Hall voltage VH
   (ii) Hall coefficient
   (iii) Charge carrier density
4. To standardize the grating and to determine the wavelength of sodium light by normal incidence method
5. To determine the resistivity and band gap of a semiconductor using four probe method
6. To determine the wavelength of sodium using Newton's ring
7. To determine the reduction factor of the given tangent galvanometer (K) and to find out the horizontal component of earth's magnetic field (Bh).
8. To determine the frequency of alternating current using a sonometer
9. To determine the wavelength of He-Ne laser using diffraction grating
10. To determine the rotation of polarization plane (ϕ) as a function of the magnetic field
11. To find the numerical aperture of a given optic fibre and hence to find its acceptance angle
12. To determine the dielectric constant of a given material

Department of Chemistry

VISION:

To build an interdisciplinary education and research platform of global standard in the field of sciences and humanities to achieve the comprehensive development of society and nation.

MISSION:

1. To facilitate fundamental understanding of basic sciences and ignite young minds to deliberate upon critical matters of inquiry in sciences through an interdisciplinary state-of-art facility.

2. To ease and foster the learning process of the students through soft-skills to hone their professional skills and to let them achieve growth with value-based orientation.

3. To promulgate various ideologies and conceptions of society and industry to further contribute towards the sustainable development of these entities.

4. Conduct interdisciplinary research for their possible application addressing science and technology programmes and potential societal problems of the nation.

5. To constitute a system and culture capable of achieving holistic development of students and researchers by strengthening interdisciplinary learning.

Department of Chemistry was established in the year 2019 and erstwhile it was an integral part of Department of Science & Humanities since 2010. Department is teaching Applied Chemistry course and Applied Chemistry Lab Course for B. Tech 1st year (first and second semester). Courses. Faculty from the department are also teaching Engineering Chemistry and Quantum Chemistry courses to other than 1st year B. Tech. Department also offers various open elective courses for PhD course work. The main goal of offering these courses is to develop requisite proficiency and abilities to meet the challenges in engineering field to succeed in engineering career.

Department comprises well-equipped Chemistry Laboratory along with state-of-the-art research laboratory. Currently ten PhD students are working in the department whereas one PhD student has been awarded with PhD degree.

FACULTY:

Sr. No.	Faculty Profile	Specialization

1	**DR. RAMPAL PANDEY (HEAD)**	Inorganic & Supramolecular Chemistry and Catalysis
2	**DR. SAROJ RANJAN DE**	Organic Synthesis & Catalysis
3	**DR. RAKESH KUMAR MISHRA**	Organic Chemistry & Responsive Materials
4	**DR. PANKAJ KANDWAL**	Membrane Science & Theoretical Calculations
5	**DR. KAMAL KANT TIWARI**	Inorganic Chemistry & Ground water Research

Patents:

1. **Rampal Pandey**, Neha Thakur, Mrituanjay D. Pandey, $Co(NO_3)_2$ Autocatalyzed Decarboxylation of Itaconic Acid Leads to the Formation of Methacrylic Acid and Co(II)-MOFs: Fluorescent Co(II)-MOFs Detect Hg^{2+}, Fe^{3+} and Cu^{2+} Ions, ***Indian Patent***, **2021** (**Granted**, Patent. No. 355202; Appl. No. 201811018132).

2. A. Ajayaghosh, A. Mal, **Rakesh K. Mishra**, D. B. S. Kumar, J. Jacob, S. Shankar "A Process for Carbon Dioxide Adsorption Induced Switchable Antibacterial Activity of a Smart Covalent Organic Framework". Indian Patent Application No. 202211000696, 2022 (Filed on 6th January, 2022).

3. R. Kumar, P. S. Behra, D. Tripathi, and **Rakesh K. Mishra**, "Portable Stair Climbing Mechanism For The Conventional Trolley", Indian Patent Application No. 202111055446, 2021 (Published on 10th December, 2021).

4. Design Number: 374256-001, Date: 16/11/2022, Title: Real Time peripheral bed system for Relaxing spine of patient using stretches intensity and position.

Laboratories:

1. **B. Tech Applied Chemistry Laboratory:**

(a) Conductometer

Experiment

- To find the strength of hydrochloric acid solution by titrating it against sodium hydroxide solution conductometrcally

(b) pH-meter

Experiment

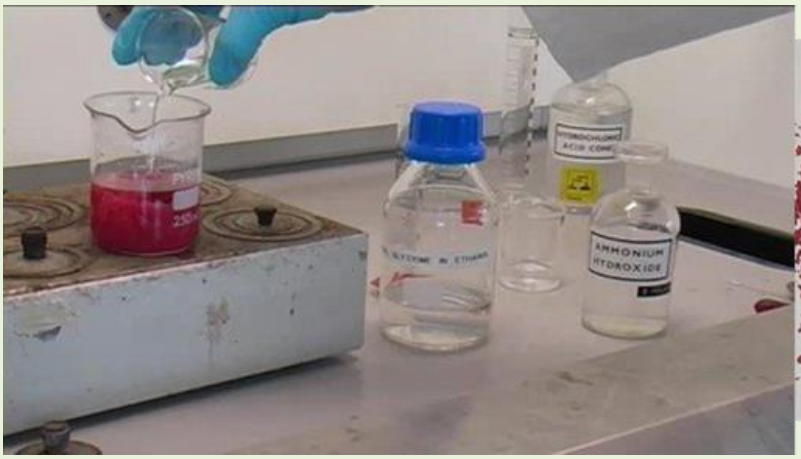
- To determine the dissociation constant of acetic acid using pH meter.

(c) Titration Set-up

Experiments

1. To determine the hardness do the given hard water sample by EDTA method
2. To determine the rate constant of hydrolysis of ethyl acetate catalyzed by HCl
3. To determine of dissolved oxygen (D.O.) in the given sample of water
4. To determine the strength of given solution of ferrous ammonium sulphate (Mohr's salt) by titrating it against potassium dichromate Solution

(d) Synthesis



Experiment

- To Estimate the nickel content in the given sample using Dimethylglyoxime (DMG).

2. PhD Research Laboratory:

(a) Schleck line reaction setup

Experiments/Uses

1. To perform diverse reactions for safely and successfully manipulating moisture- and air-sensitive compounds.
2. To remove the last traces of solvent from a sample.

(b) Synthesis of Inorganic Compounds

Experiments

1. To perform various reactions to synthesize new ligands, workup and purification.
2. To execute the synthesis of diverse metal-complexes, sensor molecules, soft materials, covalent organic frameworks and metal-organic frameworks, their workup, purification and crystallization.

(c) Synthesis of Organic Compounds

Experiments

1. To make various reactions for preparing new organic molecules followed by workup and purification.
2. To perform the reactions for developing new catalysts suitable for enhancing the yield of organic products.

List of Major Equipment for PhD research

1. NMR Spectrometer

- NMR is used for analysis of organic compounds and diamagnetic inorganic metal complexes

2. Fume-Hood

- Fume-Hood is a reaction chamber employed for performing various dangerous reactions.

3. Rotary Evaporator.

- Rotary Evaporator is used for vacuum evaporation/drying of solvents/chemicals.

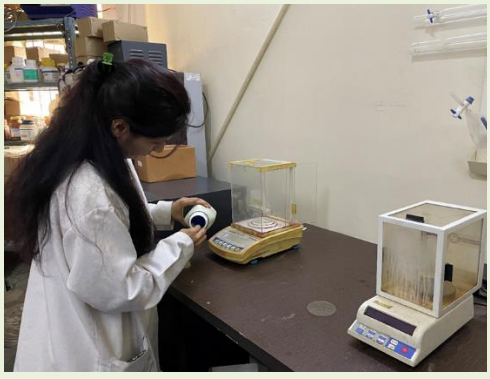
4. Schlenk line reaction setup

- It is used for performing various reactions for handling moisture- and air-sensitive compounds.

5. **Chiller.**

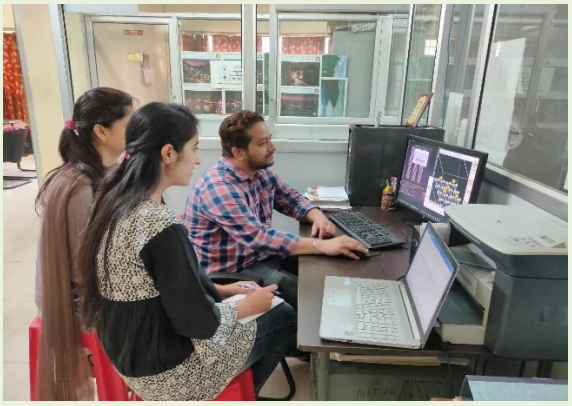
- Chiller set-up is created to perform various low temperature reactions which may be explosive at high temperature.

6. **Weighing Balance.**



- These balances are used for weighing of compounds with 0.0001 gm accuracy.

7. **Gaussian 16 & GaussView 6.**

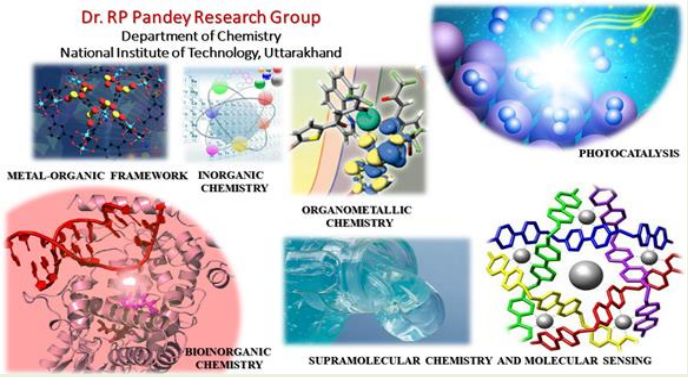


These software are used for theoretical calculations of inorganic and organic compounds.

8. **UV-Chamber**

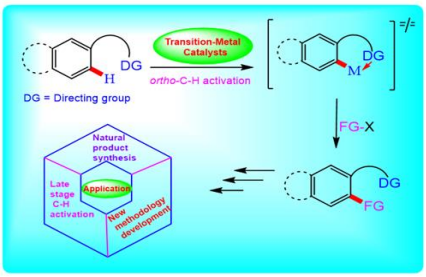
- It is useful for irradiation of samples, monitoring TLC and observing fluorescent compounds both in the solid and solution state.

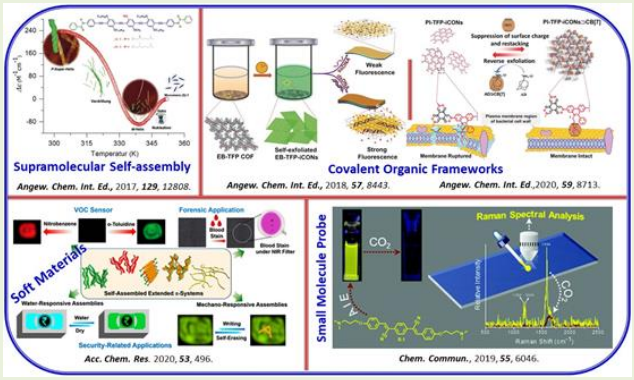
RESEARCH GROUP INFORMATION

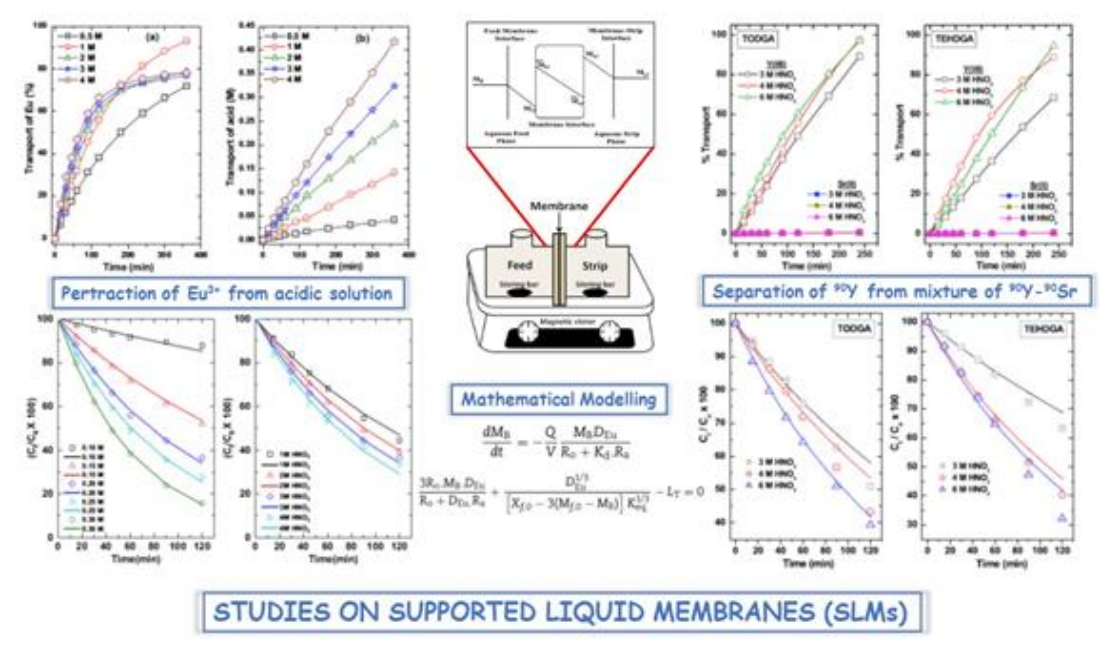


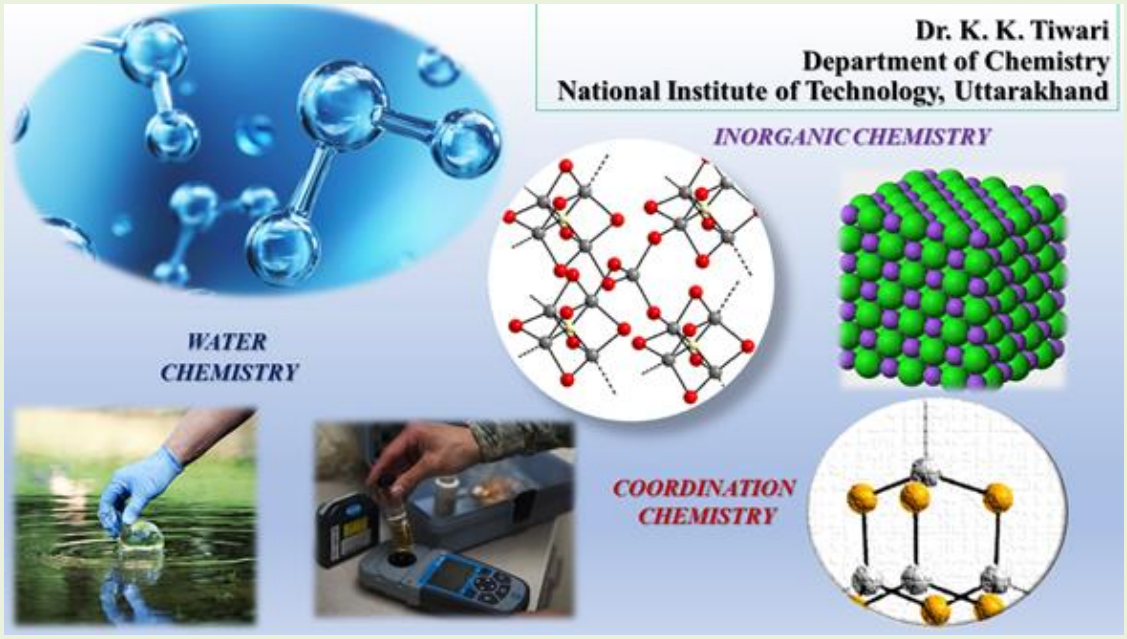
S. R. De Research group

- Total Synthesis of Bioactive Natural products.
- Development of New Methodology Reactions.
- Transition-Metal-Catalysed *ortho*-C-H bond Functionalization reactions of Arenes.









Department of Mathematics

With persistent commitment towards quality education, the Department of Mathematics came into existence in June 2019. Earlier it was the part of Department of Sciences and Humanities. The department has strength of 05 faculty members including one Associate Professor and four Assistant Professors to cater the needs of the Under-Graduate and Post-Graduate programs in the Institute. The department offers core as well as elective courses for B. Tech, M. Tech. and PhD programs of the Institute. The department offers Ph.D. program focusing on contemporary areas of fundamental importance and also involved in conducting workshops, seminars, expert lectures etc. to give extra edge to professional growth of students from time to time. As far now, four students have been successfully awarded with PhD degree in Mathematics and total 09 no. of students are currently pursuing their PhD degree in the department.

The Faculty members have published more than 100 research papers in various reputed national and international journals and presented many papers in international conferences. They are regularly invited for delivering guest lectures and invited lectures at many institutes.

Dr. Tripathi listed in top 100,000 scientists by c-score (with and without self-citations) or a percentile rank of 2% or above in the sub-field as per September 2022 data-update for updated science-wide author databases of standardized citation indicators.

Area of specialization of the faculty includes Mathematical Biology, Molecular Dynamics, Biofluid–Mechanics, Mathematical Modelling, CFD, Pumping Flow, Bone Mechanics, Microfluidics, Nanofluids, Non-Newtonian fluids, Computational Mechanics, Numerical Methods, Nonlinear Wave propagation, Gas-dynamics, Approximation Theory and Summability Theory.

VISION:

To be among one of the best Mathematics Department across the globe by application oriented teaching and research in Mathematics.

MISSION:

1. Offering undergraduate and postgraduate integrated programs in multi-disciplinary / inter disciplinary and emerging areas of Mathematics.
2. Developing the world class infrastructure for the teaching and research environment for the students in the area of interdisciplinary Mathematics.
3. Escalating the interest of students in the discipline of Mathematics for applying it in complex engineering and scientific problems for the development of the nation.

Faculty Profile

S. No.	Faculty Name	Specialization
1.	**DR. KULDEEP SHARMA (HEAD)**	• Computational Mechanics • Numerical Methods & Analysis • Finite Element Method • Extended Finite Element Method • Computational Mechanics in Smart Materials
2.	**DR. DHARMENDRA TRIPATHI**	• Bio-fluid Mechanics • Peristaltic Transport • Microfluidics and Nano fluidics • Non-Newtonian Fluids • Nano-fluids
3.	**DR. D. B. SINGH**	• Nonlinear Waves • Quasi-linear hyperbolic systems of PDEs • Shock Waves and Riemann Problems • Computational Fluid Mechanics
4.	**DR. NITIN SHARMA**	• Mathematical Modelling • Mathematical Biology • Population Dynamics • Epidemiology • Infectious Diseases
5.	**DR. KUSUM SHARMA**	• Mathematical Analysis • Operator Theory • Fourier Analysis • Harmonic Analysis

Computational Laboratory:

Computational Laboratory was established in 2022 for UG/PG and PhD students for carrying out the research activities related to computational techniques & algorithms and also for educating the B.Tech students in mathematics through computer programming and symbolic software.

Following experimental facilities are available in this Lab.

Equipment	Quantity	Specifications
Desktop Computers	21	Processor: Intel Core i7-12th generation, 32 GB RAM

Workstation-1	01	Processor-Intel(R) Xeon(R), CPU E5-2650 v4@2.20GHz, Dual Processor (12 Cores), RAM-8GB
Workstation-2	01	Processor-Intel(R) Xeon (R), W-2245 CPU@3.90GHz, 8 Cores, 16 Logical Processor, RAM-32GB
Online UPS	01	10KVA

Department of Humanities and Social Sciences

With a persistent commitment towards value-oriented education, the Department of Humanities and Social Sciences came into existence in June 2019. It had been striving to reach the higher goals of global standards as a part of department of Sciences and Humanities since 2010 up to its inception as a separate department. The department facilitates multifarious and valued added learning to B. Tech, M. Tech. and PhD students. The department offers various courses in Communication English, Social Sciences, Literature and Cinema, Screenwriting and Creative Writing catering to the academic and extra-curricular needs of the students. These courses proliferate and strengthen the professional and personal growth of students. The department strives to create learning environment that is inclusive and diverse and promotes better learning experience and outcome. It conducts workshops, seminars, conferences to give extra edge to professional growth of students from time to time. It also organizes expert lectures, curriculum

development workshops by inviting eminent experts from IITs, NITs and Central Universities.

VISION:

To achieve humanistic development of techno-savvy students into socially responsible individuals in the service of community and nation at large.

MISSION:

- Facilitating students with communicative excellence and life skills and preparing them to achieve glocal competence.
- Igniting young minds to build critical thinking and creative perception towards their social surroundings.
- Promulgating social values and ethical behavior and to contribute towards the sustainable development of industry and society.
- Fostering inter-disciplinary research in the discipline of humanities and social sciences, contributing towards the growth of community and nation at large.

Faculty Profile

S.No.	Name	Specialization
1.	**Dr. Renu Bhadola Dangwal (HoD)**	Postcolonial Studies, Environmental Studies, Cultural Studies, Children's Literature, Indian English Writing, ELT & Communication
2.	**Dr. Ajay Kumar Chaubey**	On Lien
3.	**Dr Rashmi Raina (Teaching Associate)**	Sociology of Planning and Development, Sociology of Media and Communication

Communication Skills Laboratory

The department has well equipped Communication Skill Laboratory. It is a platform which offers an assortment of tools to sharpen basic LSRW skills of students. It caters to students' unique needs by which each student feels confident, secure and appropriately challenged. The lab is furnished with 25 computers and audio-visual technical tools. Lab facilitators locate and incorporate a variety of resources to accommodate students via audio-visual,

tactile and kinesthetic methods. The English language communication skills laboratory course is a great booster for the students. Some important features of laboratory are:

- Fully interactive lab with teacher to learner, learner to teacher and learner to learner interactions.
- It helps students to learn pronunciation, stress accent, intonation, rhythm, and all other nuances of the phonetics of English language.
- The learners have freedom to record and playback their own voice recordings, assess them and store it and then re-play it whenever needed. They can perform personal assessments
- Introduction of earphone/headphone/microphone provides a student his/her privacy that creates a better environment for their speaking practice with-out hesitation.
- The students can also do a periodical self-evaluation to measure the progress as well as evaluate his/her language with that of the expert

List of Experiments/Exercises:

Multifarious activities are conducted in the language lab to foster language competency among the students:

1. Listening Skills Activity- To help students acquire necessary listening skills in order to follow and comprehend discourse such as lectures, conversations, interviews, and discussions.
2. Reading Comprehension- To acquaint the students with reading comprehension strategies and skills that facilitate their understanding and analysing of written texts effectively and easily.
3. Basics of Grammar (Applied grammar usage)- To develop the basic knowledge of parts of speech and help student's develop technical efficiency in English language communication.
4. Story Writing- To assess students' imagination through collaborative writing and to develop writing skills as well as the ability to identify and use narrative tenses when writing.
5. Writing Job Application, Cover Letter and Resume- To help students draft impressive cover letters and Resume, aligning with the job position and organization.
6. Public Speaking & Presentation Skills (PPT/Oral) - To help students deliver effective presentations through PPTs in order to prepare them for placement and job interviews.

7. Group Discussion Activity- To evolve students' thinking ability through the process of discussions and help them gain clarity of their own thoughts, views and opinion and to prepare them for placement interviews where soft skills are evaluated.
8. Interview Skills- To help students deliver effective interviews guided by tips on body language and soft skills.
9. Articulatory Phonetics (Consonant Sound Identification/ Vowel Sound Identification/ IPA) - To help students identify the places of articulation in human speech producing system and to improve their pronunciation by identifying the correct consonant sound and manner of its articulation; to help students read the correct phonetic spelling for any word, in order to improve English pronunciation.
10. Intonation and Stress- To help students improve their speaking skills through proper usage of stress and intonation.

Lab Equipment:

25 computer systems equipped with audio-video tools.

Research: Presently there are six research scholars in the department who are pursuing research in the field of postcolonial studies, posthumanism and children's literature, climate change and eco-disaster studies and disability studies. The students hail from Jammu Kashmir in north to Kerala in distant south. In past few years, the department has achieved tremendous growth in scholars' participation on globally acclaimed platforms including Association for the Study of Literature and Environment (ASLE), American Comparative Literature Association (ACLA), Association for Commonwealth literature and Language Studies (ACLALS).

S.No.	Name of the Scholar	Area of Research

1.	Joe Philip	Subaltern Studies
2.	Satyanarayan Tiwari	Postcolonial Studies
3.	Dona Soman	Posthumanism & Children's Literature
4.	Manvi Sharma	Anthropocene and Popular Culture
5.	Sonalika Chaturvedi	Eco-disaster Studies
6.	Samir Gorai	Disability Studies

Career Counselling and Placement Section

No. of Students placed in different companies (Last Three Years)

B.Tech. 2017-21 Batch					
S. No.	**Branch Name**	**Total No. of Students**	**Total Students Eligible for Placement**	**Total Students Placed**	**Placement %**
1	Computer Science & Engg.	57	52	45	86.54
2	Civil Engg.	37	37	4	10.81
3	Electronics Engg.	55	50	32	64.00
4	Electrical Engg.	39	37	15	40.54
5	Mechanical Engg.	46	44	15	34.09
Total		**234**	**220**	**111**	**50.45**

B.Tech. 2018-22 Batch					
S. No.	**Branch Name**	**Total No. of Students**	**Total Students Eligible for Placement**	**Total Students Placed**	**Placement %**
1	Computer Science & Engg.	28	28	25	89
2	Civil Engg.	18	18	06	33
3	Electronics Engg.	29	28	22	79
4	Electrical Engg.	27	27	14	52
5	Mechanical Engg.	26	26	18	69
Total		**128**	**127**	**85**	**67**

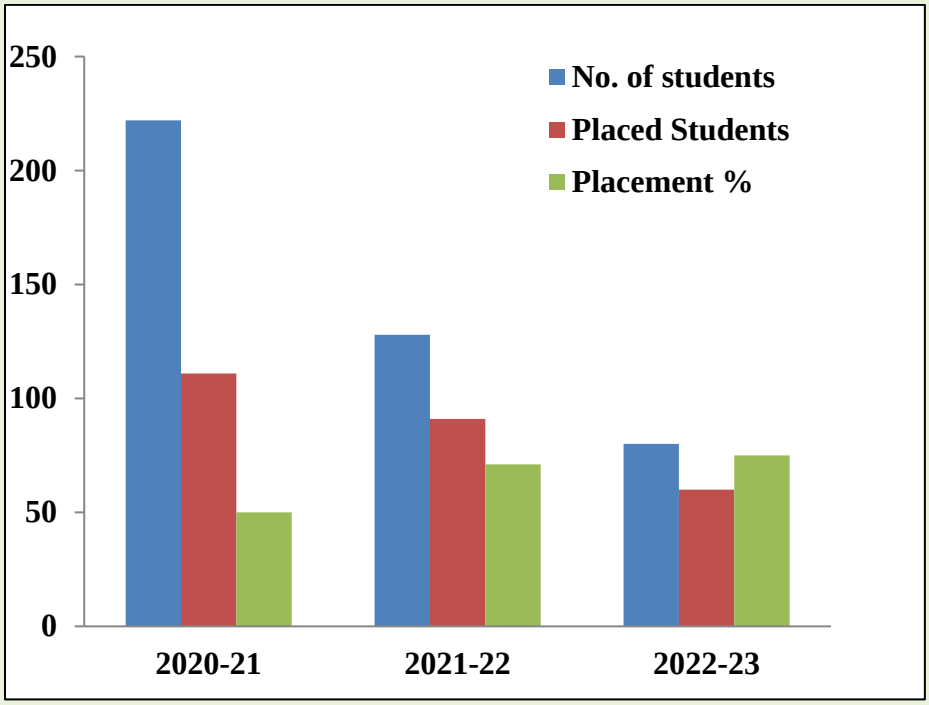
B.Tech. 2019-23 Batch					
S. No.	**Branch Name**	**Total No. of Students**	**Total Students Eligible for Placement**	**Total Students Placed**	**Placement %**
1	Computer Science & Engg.	16	11	7	63.64
2	Civil Engg.	20	19	16	84.21
3	Electronics Engg.	19	19	15	78.95
4	Electrical Engg.	19	19	12	63.16
5	Mechanical Engg.	14	12	10	83.33
Total		**88**	**80**	**60**	**75.00**

List of Placed B.Tech. Student (Batch 2019-23)

S. No.	Name	Roll No	Company Name	Package(LPA)
1	Deepanshu Taneja	BT19CSE005	C-DOT	19
2	Shivam Bindal	BT19CSE008	C-DOT	19
3	Anuj Saxena	BT19CSE007	Fanatics	18
4	Ujjwal Kumar	BT19CSE001	C-DOT	19
5	Navita Nautiyal	BT19MEC012	L&T	6
6	Jagatpal Singh Gusain	BT19CIV019	L&T	6
7	Arjun Singh Bisht	BT19EEE013	L&T	6
8	Rahul Raikuni	BT19ECE002	L&T	6
9	Akankshi Naugain	BT19ECE006	L&T	6
10	Akshay Kumar	BT19MEC002	L&T	6
11	Rajat Manswal	BT19EEE006	L&T	6
12	Amit Bhatt	BT19EEE007	L&T	6
13	Animesh Singh	BT19CIV006	L&T	6
14	Ashok Kumar Sharma	BT19CIV007	Nexturn	6
15	Purvi Goyal	BT19CSE011	Publicis Sapient	18
16	Anupam Panwar	BT19CSE002	Publicis Sapient	18
17	Deepak Garg	BT19CSE009	Publicis Sapient	18
18	Ankit Kumar	BT19CSE012	Publicis Sapient	18
19	Afzal Ali	BT19MEC005	Renishaw	6.5
20	Yashvi Verma	BT19ECE014	Samsung Engineering	7.2
21	Bhavna Sharma	BT19EEE002	Samsung Engineering	7.2

22	Priyanka Bohra	BT19CIV005	Samsung Engineering	7.2
23	Abhinav Bhatnagar	BT19ECE004	Samsung R&D	14.5
24	Neha Dhyani	BT19CSE003	Samsung R&D	14.5
25	Sanyam Jain	BT19ECE020	Thoughtspot	21
26	Sachin Shah	BT19CSE015	C-DOT	19
27	Dudekula Reshma	BT19ECE021	Torcai	18
28	Kunal Aswani	BT19MEC008	Torcai	18
29	Nikhil Kumar Singh	BT19ECE017	Valuable Group	7
30	Bhanu Pratap Singh	BT19EEE003	Valuable Group.	7
31	Ojaswi Sharma	BT19CSE018	Optym	18
32	Sagar Prajapati	BT19ECE007	optym	18
33	Rajaram Yadav	BT19EEE005	L&T	6
34	Apoorv Arora	BT19EEE009	Evigway	6
35	Vipul Giri	BT19EEE020	JSW (Jan)	8.5
36	Dharmapuri Pavanchytanya	BT19MEC016	JSW	8.5
37	Kailash Shah	BT19EEE012	Cyfuture	6
38	Sintaj	BT19MEC011	RCC Developers	4
39	Himanshu Patel	BT19MEC014	Maruti Suzuki	8.88
40	Ankit Taniwal	BT19MEC015	Maruti Suzuki	8.88
41	Babul Sarkar	BT19EEE015	Byju	7.25
42	Ajay kumar	BT19CIV016	Byju	7.25
43	Nishant	BT19ECE005	Sagacious Research	8
44	Praveen Kumar Singh	BT19ECE012	Sagacious Research	8
45	Pranshu Sinha	BT19CIV004	C-DAC	7.5
46	Kanika Singh	BT19ECE015	Mahindra & Mahindra	8
47	Jai Surya	Bt19ECE001	C-DAC	4.62
48	Arman Ansari	BT19CSE017	C-DAC	4.62
49	Pranjal Uniyal	BT19EEE011	Mahindra and Mahindra	8
50	Anubhav Verma	BT19EEE021	TCS	9
51	Dinesh Ponnada	BT19CSE016	Mahindra and Mahindra	8
52	Rohit Singh Negi	BT19MEC014	Mahindra and Mahindra	8
53	Krishna Nandan Goswami	BT19CSE010	BEL	11
54	Sandeep Rana	BT19CSE014	BEL	11
55	Luvkush Meena	BT19CSE006	BEL	11

56	Akhil Yadav	BT19CIV018	Speed labs	5.3
57	Aryaman Jaiswal	BT19ECE018	Shorthills	6.6
58	Sunil Prajapat	BT19MEC001	Plan realty(Homiwise)	7.2
59	Manoj Moond	BT19ECE008	HL Mando	5
60	Ritesh Kumar Bhanja	BT19ECE019	HL Mando	5



List of Internship of B.Tech. Student (Batch 2019-23)

S. No.	Name	Roll No	Company Name	Stipend(₹)
1	Ujjwal	BT19CSE001	Optym	40000
2	Deepanshu Taneja	BT19CSE005	Thoughtspot	100000
3	Shivam Bindal	BT19CSE008	Optym	40000
4	Ojaswi Sharma	BT19CSE018	Optym	40000
5	Purvi Goyal	BT19CSE011	Adobe, Oracle	100000
6	Navita Kukreti	BT19MEC010	College Dunia	6000
7	Sagar Prajapati	BT19ECE007	Optym	40000
8	Harsh Singh Chauhan	BT19EEE018	Unnicommerce	25000
9	Anupam Panwar	BT19CSE002	Grow Simplee	40000
10	Sachin Shah	BT19CSE015	Torcai	100000
11	Afzal Ali	BT19MEC005	Renisaw	20000
12	Dudekula Reshma	BT19ECE021	Torcai	100000

13	Kunal Aswani	BT19MEC008	Torcai	100000
14	Abhinav Bhatnagar	BT19ECE004	Samsung R&D	40000
15	Neha Dhyani	BT19CSE003	Samsung R&D	40000
16	Anuj Saxena	BT19CSE007	Fanatics	50000
17	Apoorv Arora	BT19EEE009	Evigway	30000
18	Mr. Siddharth Saxena	BT19EEE017	Lucas Indian Services Ltd	5000
19	Ms. Saroj Saini	BT19ECE016	INDITECH Technology Services Pvt. Ltd	15000
20	Mr. Sandeep Rana	BT19CSE014	Samsung Data Systems	30000
21	Mr. Priyanshu Upadhyay	BT19CSE020	Bakai Tech Pvt. Ltd. (subsidiary of Foyer Tech, Inc)	40000
22	Mr. Aryaman Jaiswal	BT19ECE018	Billfree Labs Pvt. Ltd.	15000
23	Mr. Akshat Saini	BT19EEE019	ITER France	60000
24	Mr. Chirag Nagar	BT19CIV010	RCC Developers Ltd.	18000
25	Mr. Sanyam Jain	BT19ECE020	Thoughspot	35000
26	Mr. Prashant Gaurav	BT19MEC017	Aakash Byju's	30000

		
Sachin Shah (C-DOT& Torcai)	**Shivam Bindal (C-DOT)**	**Ujjwal (C-DOT & Fanatics)**
		
Deepanshu Taneja (C-DOT)	**Purvi Goyal (Oracle,Publicis Sapient)**	**Amit Kumar (Publicis Sapient)**
		
Deepak Garg (Publicis sapient)	**Ojaswi Sharma (Optym)**	**Anuj Saxena (Fanatics)**

		
Sanyam Jain (Thoughtspot)	**Reshma Dudekula(Torcai)**	**Kunal Aswani (Torcai)**
		
Neha Dhyani (Samsung R&D)	**Abinav Bhatnagar (Samsung R&D)**	**Bhavana Sharma(Samsung Engg)**
		
Priyanka Bohra(Samsung Engg)	**Yashvi Verma (Samsung Engg)**	**Babul Sarkar (Byju's)**

Our Recruiters

Adobe · LOWE'S · SAMSUNG · Google
accenture · unicommerce · ATLASSIAN · planetspark
NVIDIA · cogoport · Tredence Connect the Dots · ZS
cvent · Deloitte. · Capgemini · aptym
wipro · TCS TATA CONSULTANCY SERVICES · virtusa · infoedge

Research and Consultancy

Research Project

S.No.	Research Projects	PI	Co-PI	Funding Agency	Total Sanctioned amount (Rs)	Status
01	Synthesis and development of polymeric compounds (phenylated quinolone based) for OLED (Organic light emitting devices) applications	Dr. I. M. Nagpure		DST-SERB, New Delhi	22.49	Completed

02	Study of FeRh epitaxial films and heterostructures for spintronics applications	Dr. Hardeep Kumar	-	UGC-DAE CSR Indore	11.98 Lakhs	Ongoing
03	Design Innovation Center	Dr. Pawan Kumar Rakesh	-	MoE, New Delhi, IIT Roorkee	100 Lakhs	Ongoing
04	Fabrication and Testing of Lower Limb Prosthesis for Transtibial Amputee using Biocomposites with Energy Restoring Capability	Dr. Pawan Kumar Rakesh	Dr. Sanat Agarwal	ICMR, New Delhi	28 Lakhs	Ongoing
05	Development and Analysis of Cancelable Biometric Template Generation for Person Identification	Dr. Nitin Kumar	-	UCOST, Dehradun	2.09 Lakhs	Completed
06	Fabrication and characterization of Co- based CoPt/Pt multilayered films by Electrodeposition	Dr. Manvendra Singh Khatri	-	UGC-DAE CSR, Mumbai	1.35 Lakhs	Ongoing
07	Regioselective Synthesis of Fused Polyaryl Compounds via	Dr. Saroj Ranjan De	-	DST-SERB	23.70 Lakhs	Completed

	Nucleophilic Addition to Borylbenzyne: Application to the synthesis of Topopyrone C & D					
08	Development of domestic cooking stove based on biomass gasification with porous radiant burner	Dr. Niraj Kumar Mishra	-	DST-SERB	22.13 Lakhs	Ongoing
09	Solar powered robust E-Rickshaw control with bidirectional DC-DC converter using regenerative cycle boost charging	Dr Prakash Dwivedi	Dr Sourav Bose	MeitY	30.03 Lakhs	Completed
10	Development of empirical model for fundamental natural period of buildings constructed in hilly terrains	Dr. Smita Kaloni	Dr. Shashank Bhatra	SERB DST	40.8 Lakhs	Ongoing
11	Synthetic, Structural and Optical Aspects of Photoactive MOFs	Dr. Rampal Pandey	--	DST	35.0 Lakhs	Completed
12	Special Manpower	Dr. Pankaj Kumar Pal	Dr. Tushar Goel	Ministry of Electronics	124.09 Lakhs	Completed

	Developement Programme - Chip to System Design (SMDP-C2SD)			& Information Technology, GoI		
13	Deconet- "Deconet- Development Of Indigenous System For Deciphering Envisioned Speech From Eeg Signals Using Optimized Deep Convolutional Nerual Network Models	Dr. Hariharan Muthusamy	Dr. Niraj Kumar Singh, AIIMS, Rishikesh	CRG, DST-SERB	40.70 Lakhs	On-going
14	A novel power on pilot IC for ultra-low power wireless IoT devices	Dr. Nitanshu Chauhan	Dr. Sarita Yadav, Mr. Vivek Kumar, Dr. Hariharan Muthusamy	Meity	411.44	Ongoing
15	VLSI Design and Implementation of imagined speech based neuroprosthesis : an application in the health care system under chips to start up programs of Meity.	Dr. Hariharan Muthuswamy	Dr. T. S. Arora, Dr. Nitanshu Chauhan, Mr. Vivek Kunar and Mr. Himanshu Kumar	Meity	84.70 Lakhs.	Ongoing

Consultancy

S.No.	Consultancy Project Title	PI	Co-PI	Funding Agency	Consultancy Amount	Status
1.	Testing of Cement	Dr. Shashank Bhatra	Dr. Muskan Mayank	M/s Rahee Infratech Limited	Rs. 5900/-	Completed
2.	Testing of River Water	Dr. Laiju A. R.	Dr. Muskan Mayank	M/s Rahee Infratech Limited	Rs. 44,604/-	Completed
3.	Kanvashram - Retaining wall vetting	Dr. Amardeep	Dr. Devesh Punera	M/s Sincere Architecture Pvt Ltd	59000	Completed
4.	ROB Vetting	Dr. Amardeep	-	Welspun Pvt Ltd	200000	Completed
5.	Vetting of Structural Design and Drawing of Barrack and Dining Block at Supremen Courst of India	Dr. Shashi Narayan	-	M/s Keslec Design Solution	₹ 20,060	Completed
6.	Vetting of Structural Design and Drawing of various school sites Phase -I	Dr. Shashi Narayan	Mr. Amardeep	M/s Keslec Design Solution	₹ 9,38,100	Completed
7.	Technical vetting/approval for GFC Design and Drawing of hospital buildings Lakhimpur and Bulandshahar	Dr. Shashi Narayan	Dr. A.K. Anupam	M/s NKG Infrastructure	₹ 7,08,000	Completed

8.	Technical vetting/approval for GFC Design and Drawing of ARS, Buland Shahar	Dr. Shashi Narayan	Dr. A.K. Anupam	M/s RCC Developers Ltd	₹ 1,41,000	Completed
9.	Compression test of concrete cubes for 2.70 MLD STP Marwari	Dr. Shashi Narayan	Dr. Amardeep	M/s Eco Protection Engineers Pvt. Ltd	₹ 11,800	Completed
10.	Consultancy Charges for Vetting of structural Drawing for tension fabric	Dr. Shashi Narayan	-	M/s M.N. Construction Co.	₹ 23,600	Completed
11.	Vetting of Detailed Project Report (DPR) of project "Rehabilitation and Strengthening of 63.75m Span Steel Truss Bridge in Rudraprayag, Uttarakhand"	Dr. Shashi Narayan	Dr. S. Bhatra /Dr. Amardeep	M/s Festal Consulting Engineers Pvt. Ltd.	₹ 1,53,400	Completed
12.	Vetting of Structural Design and Drawing of school project at various sites Part-II	Dr. Shashi Narayan	Dr. Amardeep	M/s Keslec Design Solution	₹ 4,13,000	Completed

13.	Construction of balance work of group housing project mix design of M25 and M30	Dr. A.K. Anupam	Dr. Amardeep	M/s P K Construction Simla Pvt. Ltd. (Hindustan Steel Works Ltd.)	141600	Completed
14.	Design mix of M25	Dr. A.K. Anupam	Dr. Amardeep	M/s Mittal Construction Unit (Hindustan Steel Works Ltd.)	70800	Completed
15.	Testing of samples for DPR work of heliports at Srinagar, Gochar and Chinyalisaur.	Dr. A.K. Anupam	-	M/s RITES Ltd., Airports Division-Gurugram	138060	Completed
16.	Job mix design for WMM 7.5cm thick work	Dr. A.K. Anupam	Mr. Neeraj KumR	66 Road Constr Cop (GREF), PIN: 930066, C/o 56 APO	23600	Completed
17.	Testing of cement-Physical test (Fineness, soundness, consistancy, settimg time,compressive strength.	Dr. A.K. Anupam	Dr. Kranti Jain	M/s Rahee Infratech Limited (RVNL)	47200	Completed
18.	Testing of cement-Physical test (Fineness, soundness, consistancy, settimg time,compressive strength & sp. gravity test	Dr. A.K. Anupam डॉ. ए. के. अनुपम	Dr. Shashi Narayan Dr. Shashank Bhatra	M/s Rahee Infratech Limited (RVNL)	23600	Completed

19.	1. Unconfined compressive strength with OMC & MDD 2. Proctor Test	Dr. A.K. Anupam	-	Hindustan Roads Technologies	27730	Completed
20.	Testing of items-WMM & CTGSB, DBM & BC, checking of road geomatic data and charge of data collection.	Dr. A.K. Anupam	-	M.G. Contractor Pvt. Ltd	302080	Completed
21.	Design Mix (M-25 & M35) vetting	Dr. A.K. Anupam	-	LNA Infraprojects Private Limited, Vidhya Nagar, Jaipur	59000	Completed
22.	Technical vetting/approval for GFC drawings/design documents under smart city project (GFC drawings/design)	Dr. A.K. Anupam	Dr. Prakash Dwivedi	M/s RCC Developers Limited	231280	Completed
23.	1. जनपद पौड़ी गढ़वाल के विधानसभा श्रीनगर में डुंगरीपंथ-छातीखाल-खेड़ाखाल मोटर मार्ग के km 1.00 से	Dr. A.K. Anupam	-	PWD Srinagar,Uttarakhand	82600	Completed

	km 3.00 में soil testing (Liquid limit,Plastic limit CBR & grain size distribution) 2.जनपद पौड़ी गढ़वाल के विधानसभा श्रीनगर में डुंगरीपंथ-छातीखाल-खेड़ाखाल मोटर मार्ग के km 1.00 से km 6.00 में soil testing (Liquid limit,Plastic limit CBR & grain size distribution)					
24.	Vetting of soil investigation (Establishment of new medical college-Bulandshahar, UP)	Dr. A.K. Anupam	Dr. Bibhash Kumar	NKG Infrastructure, New Delhi	177000	Completed
25.	Vetting of soil investigation (Approval/ vetting of soil investigation report for construction	Dr. A.K. Anupam	Dr. Bibhash Kumar	RCC Developers limited, Meerut, UP	47200	Completed

	of Atal residential school at Sonbhadra UP)					
26.	Material testing (Proctor test, 7day unconfined compressive strength & grain size analysis	Dr. A.K. Anupam	-	URBAN SOLUTIONS	47200	Completed
27.	Soil report vetting (vetting of GSI Dharitri building at salt lake,Kolkata	Dr. A.K. Anupam	Dr. Bibhash Kumar	RK VATS	88500	Completed
28.	Third Party Visit & test (Cement, Aggregate, Concrete) for Atal residential school at Sonbhadra & Kanpur, UP	Dr. A.K. Anupam	-	M/s RCC Developers Limited	82600	Completed
29.	Conducting of Job Mix Desin for WMM work (7.50 cm thick)	Dr. A.K. Anupam	-	66 Road Constry Coy (GREF)	23600	Completed
30.	Test Report of Stone Boulder regarding Crushing Value, Impact Value & Water Absorption.	Dr. A.K. Anupam	-	M/s Rajshri Construction, Ghaziabad	23600	Completed

31.	Job Mix Design Roads	Dr. A.K. Anupam	Dr. Abhinav Kumar	M/s RCC Developers Limited	177000	Completed
32.	Vetting of Structural Drawings	Dr. Kranti Jain	-	Nayak Nayak Associates	236000	Completed
33.	Trap Cage Design	Dr. Vinod Singh Yadav	Dr. D Sreehari	Uttarakhand Forest Department (DFO, Pauri)	Rs 20060/-	In process
34.	Vehicle Design	Dr. Vinod Singh Yadav	Dr. Vikas Kukshal	Uttarakhand Forest Department (DFO, Pauri)	Rs 11800/-	In process
35.	Testing of Oil Well Cement	Dr. Amardeep	Dr. Shashi Narayan	Birla Corporation	23600	In process
36.	Time and motion study (TMS)-MGNREGA	Dr. A.K. Anupam	Dr. Shashi Narayan Dr. Bibhash Kumar Dr. Shashank Bhatra	Ministry Of Rural Development, Government of Uttarakhand,(MGNREGA)	2290000	Report submitted
37.	Third party visit for medical college and hospital project of Bulandshahar, Atal residential school Muzzaffarnagar & Bulandshahar.	Dr. A.K. Anupam	-	M/s RCC Developers limited, Meerut	141600	Under Process
38.	Third party visit for design, engineering, procurement and construction	Dr. A.K. Anupam	-	NKG Infrastructure, New Delhi	118000	Under Process

	on EPC basis for establishment of new medical college at Lakhimpur Khiri, U.P.					

Patent

S.No.	Patent Application No.	Title of the Patent	Inventor(s) and Co-Inventors Name	Patent Filed Date (DD/MM/YYYY)	Status of Patent (Filed, Published / Granted)
1	202111055446 A	Portable Stair Climbing Mechanism For The Conventional Trolley	Dr. Rakesh Kumar, Mr. Palash Suresh Behra, Dr. Dharmendra Tripathi, and Dr. Rakesh K. Mishra	30/11/2021	Published
2	201811035222 A	Highly-Directional Compact Semicircular Angular-Phased Antenna Array in 9.35-42.89 GHz 9.35-42.89	Amalendu Patnaik, Tushar Goel	19/09/2018	Published
3	201911037065 A	A Solar heating apparatus	Vinod Singh Yadav, Vineet Singh, Manoj Kumar Singh, Niraj Kumar, Anurag Maheswari, Vishwa Ratna Mishra,	14/09/2019	Published

			Vinod Yadav, Akash NIGAM		
4	201911003426 A	An Economical, Automated, Non-Invasive Device For Spinal Curvature Measurement	AK Tiwari, Shivam Saini, Anil Sharma, Manish Rawat, Dharmendra Tripathi	28/01/2019	Published
5	201911024269 A (Patent Number :393640)	A hybrid iron sulfide impregnated anion exchanger (HISIIX) for selective removal of hexavalent chromium from contaminated water	Prof. Sudipta Sarkar, Dr. Laiju A. R.	19/06/2019	Granted
6	201811018132 A	Co(NO3)2 Autocatalyzed Decarboxylation of Itaconic Acid Leads to the Formation of Methacrylic Acid and Co(II)-MOFs: Fluorescent Co(II)-MOFs Detect Hg2+, Fe3+ and Cu2+ Ions Co(NO3)2	Rampal Pandey, Neha Thakur, Mrituanjay D. Pandey	15/05/2018	Granted
7	201811040311 A	A System And A Micromachining Process Using Cow Urine (Gau-Mutra)	Pankaj Kumar Gupta, Kishore Debnath, Krrishnakant Dhakar	25/10/2018	Published
8	201711019223 A	Fluorescence Readout for Identification of Hg2+by Anthraimidazoledione Based Probe in Real Water Samples	Dr. Mrituanjay D. Pandey,Rampal Pandey,Neha Thakur,Manzoor Ahmad Wani	06-01-2017	Granted

9	US Patent Application no. 62/789,406	Open vs. enclosed spatial environment classification for a mobile or wearable device using microphone and deep learning method	Mahesh Chowdhary, Arun Kumar, Ghanapriya Singh, Rajendar Bahl	Date of Patent Filing: 7th Jan. 2019	Granted (US)
10	US Patent 9870535	Method and apparatus for determining probabilistic context awareness of a mobile device using a single sensor and/or multi-sensor data fusion	Mahesh Chowdhary, Arun Kumar, Ghanapriya Singh, Kashif R. J. Meer, Indra Narayan Kar, Rajendar Bahl	Date of filing: 26.05.2015	Granted (US)
11	US Patent Publication No. 20190227096	Context awareness of a smart device through sensing transient and continuous signals	Mahesh Chowdhary, Arun Kumar, Ghanapriya Singh, Rajendar Bahl	Date of Patent Filing:25th January 2018	Granted (US)
12	US Patent Application No. US11096593B2	Method for generating a personalized classifier for human motion activities of a mobile or wearable device user with unsupervised learning	Mahesh Chowdhary, Arun Kumar, Ghanapriya Singh, Rajendar Bahl	Date of Patent Filing: 19th May 2017	Granted (US)
13	US Patent Application No. US10748075B2	Method and apparatus for energy efficient probabilistic context awareness of a mobile or wearable device user by switching between a single sensor and multiple sensors	Mahesh Chowdhary, Arun Kumar, Ghanapriya Singh, Kashif R. J. Meer, Indra Narayan Kar, Rajendar Bahl	Date of Patent Filing: 21st October 2016	Granted (US)

14	202111000280	Hybrid Solar Air Heater for Space Heating and Crop Drying	Dr. Vinod SIngh Yadav, Manoj Kumar Singh, Vineet Singh, Anurag Maheshwari	4-Jan-2021	Filed
15	202111000580	Solar Pump Irrigation Based on Photovoltaic (PV) Cell Technology	Dr. Vinod SIngh Yadav, Vineet Singh, Manoj Kumar Singh, Anurag Maheshwari	5-Jan-2021	Filed
16	202022100430	A system for improved long-range surface plasmon resonance sensor with ultrahigh imaging sensitivity and figure of merit	Sarika Pal, Maneesh Kumar Singh, Vipin Kumar Verma, Yogendra Kumar Prajapati	25-Jan.-2022	Published (German)
17	202011021129	"Personal Portable Air-Circulating System for PPE Suits or Similar Uniforms/Dresses" 202011021129	Tushar Goel, Rajesh Saha, Amalendu Patnaik,	19-05-2020	Published
18	202211020472 (Patent No. 415820)	POWER DRIVEN STAIR CLIMBING TRI-WHEELED SPIDER-WHEEL SYSTEM	Vinod singh Yadav, Nishant Kumar	04-05-2022	Granted
19	202211032781	Solar Power integrated bidirectional non-isolated DC-DC converter for E-Rickshaw	Prakash Dwivedi, Sourav Bose, Rakesh Thapliyal, Satyaveer Negi	06-08-2022	Granted
20	201631037245	Self-Aspirated Pressurized Kerosene Cooking	Mishra SC, Muthukumar P, Sinha GS,	31/10/2016	Published

		Stove with a Porous Radiant Burner	Sharma M, Mishra NK, Mahanta P		
21	202011045179	System for disposing agriculture waste	Varshney A, Mishra NK, Singh V, Manoj Kumar, Niraj KUMAR	16/10/2020	Published
22	202211032621	A Desk Mounted Air Purification Device	Agrawal S and Mishra NK	06-07-2022	Published (FER)
23	202022100826	A Composition for fabricating of pine needle ash particulates reinforced surface composite.	Dr. Manoj Gupta, Dr. Nitesh Singh, Dr. Pawan Kumar Rakesh	14.02.2022	Published (German)
24	202211028590 A	An Analyzing Method For Use Of Recycled Aggregates In Concrete	N Kumar, Rajbahadur, M.S. Rawat, V Trivedi, N Trivedi, S Kaloni , BS Khati	18/05/2022	Published
25	374256-001 (Design)	Real Time Peripheral Bed System For Relaxing Spine of Patient Using Stretches Intensity And Position	Dr. Man Vir Singh, Aman Bansal, Ham Lata, R K Tripathi, Ajay Singh Verma, Dr. Yogesh Kumar, Dr. Kamal Kant Tiwari	16/11/2022	Filed
26	202211000696	A Process for Carbon Dioxide Adsorption Induced Switchable	A. Ajayaghosh, A. Mal,	06-01-2022	Filed

		Antibacterial Activity of a Smart Covalent Organic Framework	Rakesh K. Mishra, D. B. S. Kumar, J. Jacob, S. Shankar		
27	20220914163140 00DE	System for synthesizing KMgSO4Cl nano-crystallite KMgSO4Cl	Dr. Indrajit M. Nagpure	14/09/2022	Granted (Germa n)

MOUs Signed

S. No.	NATIONAL / राष्ट्रीय	DD/MM/YYYY
1	Eotvos Lorand University, Hungary	26-06-2019
2	National Formosa University, Taiwan	20-08-2019
3	Indian Institute of Technology Roorkee, India	24-09-2020
4	Indian Institute of Technology Kanpur, India	07-12-2020
5	National Highways Authority of India (NHAI)	13-08-2020
6	Mitsubishi Electric India Private Limited	02-07-2018
7	Powerforge, (PWSIM Engg. Solutions Pvt Ltd.), Bengaluru	10-02-2020
8	EMTP (Alliance Software & Services)	19-07-2021
9	All India Institute of Medical Sciences (AIIMS) Rishikesh	21-07-2020
10	Semi-Conductor Laboratory (SCL) – ISRO, Mohali, India	23-09-2020
11	Bharat Heavy Electricals Limited (BHEL), Haridwar, India	02-09-2020
12	Central Manufacturing Technology Institute (CMTI), Bengaluru	21-05-2021
13	Institute of Informatics & Communication, University of Delhi, New Delhi for Implementation of Non-SaaS SAMARTH ERP(SHSM) system	26-11-2020
14	Indian Institute of Technology Delhi, India	13-07-2020
15	CSIR-Indian Institute of Petroleum (CSIR-IIP), Dehradun, India	03-08-2020

16	Manipal University, Jaipur	18-09-2019
17	Malaviya National Institute of Technology Jaipur, Rajasthan, India	30-06-2020
18	Hemvati Nandan Bahuguna Garhwal University (A Central University) Srinagar Garhwal Uttarakhand	16-03-2021
19	Indian Institute of Technology, Ropar	02-09-2021
20	Pawan Hans Limited, Noida	08-10-2021
21	The Institution of Engineering (India), Kolkata	24-03-2022
22	Jawaharlal Nehru Government Engineering College (JNGEC), Sundernagar, HP	12-04-2022
23	Indian Institute of Technology Roorkee, India @175 Partnership	27.05.2022
24	Indian Institute of Technology, Ropar	21-06-2022
25	Maharaja Ranjit Singh Punjab Technical University, Bathinda, Punjab	29-08-2022
26	Asia University, Taiwan	19-10-2022
27	Himachal Pradesh Technical University, Hamirpur	27-10-2022
28	National Highways & Infrastructure Development Corporation Ltd	31-10-2022
29	National Institute of Technical Teachers Training and Research Chandigarh	23.01.2023
30	THDC Institute of Hydropower Engineering & Technology	27-01-2023
31	National Institute of Technology, Hamirpur, Himanchal Pradesh	06-02-2023
32	Government Hydro Engineering Collage Bilaspur Himachal Pradesh	20-02-2023
33	Covalience India Pvt Ltd	22.02.2023
34	Graphic Era University , Dehradun	23.03.2023

Research Journals Publications (2022-23)

1. V. Kumar, J. Patel, A. Datta, and S. Dasgupta ,"FEM Modeling of Thermal Aspect of Dielectric Inserted Under Source & Drain of 5nm Nanosheet" 26th International Symposium on VLSI Design and Test (VDAT-2022), Indian Institute of Technology, Jammu (IIT Jammu),2022 . (Accepted)
2. P. Bharti, H. Muthusamy, and V. Kumar,"Thermal Resistance Extraction of 14 nm SOI FinFET:A Machine Learning Based Approach" 2nd IEEE International Conference on Emerging Frontiers in Electrical and Electronic Technologies, NIT Patna,2022. (Accepted)
3. Shrivas, Nikhil Vivek, Abhishek Kumar Tiwari, Dharmendra Tripathi, and Santosh Patil. "Low-Amplitude and High-Frequency Loading Influences Interstitial Fluid Flow in Osteogenesis Imperfecta Osteon." In Advances in Mechanical and Materials Technology, pp. 769-778. Springer, Singapore, 2022.
4. Amit Soni, D. Tripathi, Jagrati Sahariya, and Kamal Nayan Sharma, Energy Conversion & Green Nanotechnology, CRC Press (In Press 2022).
5. Nikhil Vivek Shrivas, Abhishek Kumar Tiwari, Dharmendra Tripathi, Santosh Patil, Low-Amplitude and High-Frequency Loading Influences Interstitial Fluid Flow in Osteogenesis Imperfecta Osteon, Book: Advances in Mechanical and Materials Technology, Editors:
6. Prof. Kannan Govindan, Dr. Harish Kumar, Dr. Sanjay Yadav, Publisher: Lecture Notes in Mechanical Engineering Springer Singapore, ISBN: 978-981-16-2793-4, 2022.
7. Singh V., Yadav V. S. Application of Response Surface Methodology (RSM) to optimize solar pump LCOE and Power output. IETE Journal of Research, doi:10.1080/03772063.2022.2069165. 2022, (2.3 SCI) Print ISSN: 0377-2063 Online ISSN: 0974-780X
8. Dharmesh Yadav, Rahul Goyal and Vinod Singh Yadav, Automotive evaporative emissions and refueling losses from Indian two wheelers, Materialstoday Proceedings, 2022, https://doi.org/10.1016/j.matpr.2022.04.748. (SCOPUS) ISSN: 2214-7853.
9. Singh V., Yadav V. S., Optimizing the performance of solar panel cooling apparatus by application of Response Surface Methodology (RSM). Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, 2022, https://doi.org/10.1177/09544062221101828 (1.762 SCI) Print ISSN: 0954-4062, Online ISSN: 2041-2983.
10. Suman Srivastava, Neha Thakur, Namyashree Nayak, Neha Garg and Rampal Pandey* Development of ferrocene-appended benzimidazopyridine and pyrroloquinoxaline probes for structure regulated distinct signalling of Fe3+ in aqueous media and HeLa cells, Applied Organometallic Chemistry, 2022, 36 (7), e6700.
11. Himani Sharma,Vaishali Singh,Arpna Tamrakar,Kamlesh Kumar Nigam,Mrituanjay D. Pandey,Kamal Kant Tiwari and Rampal Pandey* Development of highly selective fluorescent ferrocenyl-iminopyridine chemosensor for biologically relevant Fe3+, 3+

12. Ankur Srivastava1, Jay Singh, Rampal Pandey* and Mrituanjay D. Pandey*, Preparation and Characterization of Nanohybrid La2O3-K Complexes for Electrochemical Study, ECS Trans. 2022, 107, 15771.
13. Rana, Hukam Singh, Thipendra P. Singh, Kamal Kumar, and Krishan Kumar. "Partially Visible Lane Detection with Hierarchical Supervision Approach." IETE Journal of Research (2022): 1-9.
14. Kamal Kumar, Sandeep Chand Kumain, "Quantifying Salt and Pepper Noise Using Deep CNN", in Journal of The Institution of Engineers (India): Series B, 2022, pp. 1-11, India. (SCOPUS)
15. K. Singh, N. Chauhan, A. Bulusu, S. Dasgupta, "Physical Cause and Impact of Negative Capacitance Effect in Ferroelectric P(VDF-TrFE) Gate Stack and Its Application to Landau Transistor" Accepted in OJFFC.
16. Chauhan, S., Gangopadhyay, S. (2022). Design of Intrusion Detection System Based on Logical Analysis of Data (LAD) Using Information Gain Ratio. In: Dolev, S., Katz, J., Meisels, A. (eds) Cyber Security, Cryptology, and Machine Learning. CSCML 2022. Lecture Notes in Computer Science, vol 13301. Springer, Cham. https://doi.org/10.1007/978-3-031-07689-3_4.
17. Dr. Jagrati Sahariya is one of the editor of E-book on "Intelligent Computing Techniques for Smart Energy Systems" eBook ISBN: 978-981-19-0252-9; Print ISBN: 978-981-19-0251-2.
18. Pandit, Vishal, Smita Kaloni, Shagun Sharma, and Ghanapriya Singh. "Damage Identification in High-Rise Buildings Using Deep Learning Techniques." In Proceedings of Data Analytics and Management, pp. 393-402. Springer, Singapore, 2022.
19. Verma V., Pal S., Pal N., Kumar D. (2022) Performance Evaluation of SPR Sensor on Using Graphene/TMDCs in Visible and Near Infrared Wavelength Regime. In: Dhawan A., Tripathi V.S., Arya K.V., Naik K. (eds) Recent Trends in Electronics and Communication. Lecture Notes in Electrical Engineering, vol 777. Springer, Singapore. https://doi.org/10.1007/978-981-16-2761-3_15.
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21. Tiwari, Satyanarayan and Ajay Kumar Chaubey. "Binaries of Justice/Injustice in Literary Imagination: A Critical Reading of Rohinton Mistry's A Fine Balance." IUP Journal of English Studies, vol. 17. no.1, 2022, page. 1-12. (Accepted).
22. Soman, Dona and Renu Bhadola Dangwal. "When the Ganga Descends: A Posthuman Exploration of a Religious Myth toward Planetary Sustainability." Journal of Dharma, vol. 47 No. 2 (April-June 2022), pp.217-234. http://dvkjournals.in/index.php/jd/issue/view/289.
23. Pooja Yadav, T. N. Gupta, and M. S. Rawat, " Power Quality Improvement of Three - Phase Grid Interfaced WEGS Based on TOFFA Filter", IEEE 2022 7th International

Conference for Convergence in Technology (I2CT),Pune, Maharashtra, India (Presented) [07-09 April 2022].

24. Shiv Shambhu Choudhary, T. N. Gupta, M. S. Rawat, I. Hussain, and M. Ud Din Mufti, "Investigation on Power Quality Improvement using ML-FOGI and JLHCAF based VSC control", IEEE 2022 7th International Conference for Convergence in Technology (I2CT),Pune, Maharashtra, India (Presented) [07-09 April 2022].
25. R. Pandey and T. N. Gupta, "FOFSE based Power Quality Improvement of 3-phase Solar Energy Conversion System", 2022 International Conference on Intelligent Technologies (CONIT), Hubli, India, (Accepted).[24-26 June 2022].
26. Pooja Yadav and T. N. Gupta, "Wind Energy Generation for Local Load with Improved Power Quality," 2nd IEEE International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET- 2022), (Accepted) [24-25 June 2022].
27. R. Pandey, T. N. Gupta, and M. S. Rawa, "A SOGI-AQSG-Based Control Technique for Improving Power Quality in Unusual Grid Conditions," 2nd IEEE International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET- 2022), (Accepted) [24-25 June 2022].
28. Shiva Prasad Chintada, Sandeep G. Abbagouni, Himesh Kumar, "Investigation on Loss Allocation in Distribution Network with Distributed Generation", 2nd IEEE ICEFEET 2022, NIT Patna. (paper accepted).
29. Sandeep G. Abbagouni, Shiva Prasad Chintada, Himesh Kumar, "Loss Allocation in Three Phase Unbalanced Distribution Network Using Current Summation Approach", 2nd IEEE ICEFEET 2022, NIT Patna. (Paper accepted).
30. Snehalatha and Suryanarayana Gangolu; "DC Transient Current Polarity Based Protection Scheme for Grid Connected PV System (Accepted) " 2nd IEEE International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET- 2022).
31. Snehalata and Suryanarayana Gangolu; " Phase Current Ratio Based Protection Scheme for Grid Connected Renewable System (Accepted)' International Conference on Intelligent Technologies (CONIT)),Hubballi, Karnataka, India (IEEE 2nd CONIT 2022).
32. S. Gupta, M. S. Rawat and T. N. Gupta, “Optimal Placement and Sizing of Various C-Rate Type of BESS for Radial Distribution Network”, IEEE 2022 2nd edition of the International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET- 2022) at the Department of Electrical Engineering, National Institute of Technology Patna during 24th-25th June 2022. (Paper Accepted for online presentation)
33. S. Gupta, M. S. Rawat and T. N. Gupta, "Optimal Placement and Sizing of Various C- Rate Type of BESS for Minimizing the Impact of Intermittent DG Output on Hourly Peak Load Variation in Radial Distribution Network”, IEEE 2022 2nd edition of the International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET- 2022) at the Department of Electrical Engineering, National

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34. S. Gupta, M. S. Rawat and T. N. Gupta, “Optimal Placement and Sizing of Various C-Rate Type of BESS for Minimizing Reverse Power Flow in Radial Distribution Network”, IEEE 2022 2nd edition of the International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET- 2022) at the Department of Electrical Engineering, National Institute of Technology Patna during 24th-25th June 2022. (Paper Accepted for online presentation)
35. Subhadip Sadhukhan, Rakesh Thapliyal, Satyaveer Singh Negi, Prakash Dwivedi, "A Constant Current Charging approach for a lead-acid battery using the Ćuk Converter", 2nd IEEE International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET 2022), 2022.
36. Alok Singh Bhandari, Dr. Sourav Bose, Dr. Prakash Dwivedi, and Dr. Sandeep Pandey, “Standalone PV Based BESS Using Bidirectional DC-DC SEPIC/ZETA Converter” accepted in 2nd IEEE ICONAT (The International Conference for Intelligent Technologies), Hubballi, Karnataka, India during 24th-26th June 2022.
37. Alok Singh Bhandari, Dr. Sourav Bose, Dr. Prakash Dwivedi, "Enhanced Dynamic Characteristics Of Bidirectional DC-DC SEPIC/ZETA Converter Based BESS” accepted in 2nd IEEE International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET- 2022), at the Department of Electrical Engineering, National Institute of Technology Patna during 24th -25th June 2022.
38. Sunil Singh Negi, Nitin Sharma, and Pankaj Singh Rana, “A SEIAR Mathematical Model to Analyse the Effect of Covid-19 Pandemic Over the Crowded and Dense Populated Regions”, accepted for the publication in the “Journal of Interdisciplinary Mathematics (JIM)”,Taylor and Francis, (ESCI/SCOPUS).
39. Sunil Singh Negi, Pankaj Singh Rana, Nitin Sharma, and Manvendra Singh Khatri “A novel SEIAHR compartment model for accessing the impact of vaccination, intervention policies, and quarantine on the COVID-19 pandemic: a case study of most affected countries Brazil, India, Italy, and USA”, accepted for the publication in the journal of “Computational and Applied Mathematics, Springer, DOI: https://doi.org/10.1007/s40314-022-01993-1. (SCI/SCIE/SCOPUS, I.F.: 2.998).
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41. Dharmendra Tripathi, D. S. Bhandari, and O. Anwar Bég, Thermal Effects on SARS-CoV-2 Transmission in Peristaltic Blood Flow: Mathematical Modelling, Physics of Fluids, In Press (2022), [IF: 3.521]
42. Ramesh, Katta, Dharmendra Tripathi, Muhammad Mubashir Bhatti, Kaouther Ghachem, Sami Ullah Khan, and Lioua Kolsi, Mathematical modeling and simulation of electromagnetohydrodynamic bio-nanomaterial flow through physiological vessels, Journal of Applied Biomaterials & Functional Materials 20 (2022): 22808000221114708.

43. Sunil Singh Negi, Pankaj Singh Rana, Nitin Sharma, Manvendra Singh Khatri, A Novel SEIAHR Compartment Model for Accessing the Impact of Vaccination, Intervention policies, and Quarantine on the COVID-19 Pandemic: A Case Study of Most Affected Countries Brazil, India, Italy, and USA", doi.org/10.1007/s40314-022-01993-1.
44. Dr. Krishan Kumar published an article titled “Approach of a Multilevel Secret Sharing Scheme for Extracted Text Data” in an international conference during July 01-03, 2022.
45. P. Yadav and T. N. Gupta, "Improvement of Power Quality of Grid Interfaced WEGS System using HRFOFFM Filter", 2022 IEEE Region 10 Symposium (TENSYMP), Mumbai, India, 2022.[01-03 July 2022].
46. Pooja Yadav and T. N. Gupta, "Power Quality Improvement of Three-Phase Wind Energy Conversion System Under Abnormal Grid Condition," The second edition of International Conference on Next Generation Intelligent Systems(ICNGIS 2022). [29-31 July 2022].
47. H. Soni and V. G. D. Rayudu, "ANFIS-Controlled Voltage Source for Vigorous Speed Control of BLDC Motor Drive for Utilization in Smart Electric Vehicles," 2022 2nd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET), 2022, pp. 1-6, DOI: 10.1109/ICEFEET51821.2022.9847996.
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50. J. Kumar, R. Kumar and R. Kumar, "Grid Interfacing for DC Microgrid using Three Level Diode Clamped Inverter by SVPWM Technique," 2022 2nd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET), 2022, pp. 1-6, doi: 10.1109/ICEFEET51821.2022.9848053
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66. Abhilasha Sharma and Lalit Kumar Awasthi, "Ob-EID: Obstacle aware event information dissemination for SDN enabled vehicular network," in Computer Networks, Volume 216, 2022.

67. Ansari, M., Pal, K., Govil, P. and Lalit Kumar Awasthi,"A statistical analysis of SAMPARK dataset for peer-to-peer traffic and selfish-peer identification. Multimed Tools Appl (2022).
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85. Kumar, Deepak, and Sudhakar Subudhi. "Numerical Investigation of Twin Fins of Different Materials on Buoyancy-Induced Convection in Magnetite Nanofluid under Magnetic Field." Computational Thermal Sciences: An International Journal 15.1 (2022).
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207. Suryanarayana Gangolu "Additional logic for Alpha Plane Algorithm under Ground faults" IEEE International Conference on Computer, Electronics and Electrical Engineering and Their Applications (IC2E3 2023).
208. Rohit Kumar, Rajendra Kumar Prajapati "Investigation on photovoltaic cells with battery integration" IEEE International Conference on Computer, Electronics and Electrical Engineering and Their Applications (IC2E3 2023).
209. P. Dwivedi, S. Bose, rakesh Thapliyal "Grid Connected Photovoltaic using Modular Multilevel Converter as Shunt Active Power Filter" IEEE 14th International Symposium on Power Electronics and Distributed Generation Systems (PEDG 2023).
210. P. Dwivedi, S. Bose, rakesh Thapliyal "Modified Zeta Bidirectional Non-Isolated DC-DC Converter with Wide Voltage Gain for E-mobility"IEEE 14th International Symposium on Power Electronics and Distributed Generation Systems (PEDG 2023).

Seminar/Workshop/Conferences/STC Organized (2022-23)

Department of Computer Science and Engineering	Convener Dr Kamal Kumar	Soft Skill Development	12-13th Sep 2022
Department of Computer Science and Engineering	Convener Dr Kamal Kumar, Coordinators: Dr. Nitin Kumar, Ms. Sneha Chauhan, Dr.	Article and Thesis Writing using Latex	19-23 Sep 2022

	Abhimanyu Kumar, Dr. Krishan Kumar		
Department of Computer Science and Engineering	Convener Dr Kamal Kumar	Agri-Food Supply Chain Management	31 Oct - 11 Nov 2022
Department of Electrical Engineering	Convener- Mr. Nitesh Kumar	Workshop and hands on training on PLC module of Mitsubishi FA Learning Kit	14 September, 2022
IPR Cell, NITUK	Coordinator: Dr. Pankaj Kumar Pal	2-Days hands-on Workshop on “Patent Search and Drafting”	29th- 30th August 2022
IPR Cell, NITUK	Coordinator: Dr. Pankaj Kumar Pal	FREE Online workshop on IPR & Patents, Designs filing jointly with RGNIIPM	20th Sept. 2022
Department of Mathematics	Convener-Dr. D Tripathi and Dr. Kuldeep Sharma	Workshop on Hands-on-Training on Solving Differential Equations inEngineering Sciences	June 21-25, 2022
Dept of electrical engineering	Convenor- Dr. sourav Bose, Coordinator- Dr. T.N. Gupta-Dr. Suryanarayana Gangolu	Workshop on Recent Trends in microgrid	27th Sept to 1st Oct 2022
Dept of electrical engineering	Convenor- Dr. sourav Bose, Dr. T.N. Gupta; Coordinator- Dr. Rohit Kumar	workshop on Microgrid: Issues and Challenges	27th Oct to 31st Oct 2022
Mech Engg Deptt	Coordinator -Dr. G.S Brar, Dr. Pawan Kumar Rakesh, Dr. Hitesh Sharma	Workshop on Novel materials: Processing, Characterization and Application"	23May to 27 May 2022
Mech Engg Deptt	Convenor - Dr. Sanat Agrawal coordinator - Dr. Prashant Tiwari	Workshop on Employability skills/mock interview	26th - 31st August 2022
Mech. Engg.	Convener-Dr. Vinod Singh Yadav & Dr Sanat Agarwal, Coordinator-Dr. Yogesh Prajapati, Dr. T Sudhakar & Dr. Deepak Kumar	Renewable Energy: Pathways and Technologies	31st Oct. to 04th Nov., 2022
Electronics Engineering	CONVENER(S): DR. SARIKA PAL DR. PANKAJ KUMAR PAL COORDINATOR(S):	(05) days online STC entitled as "Research Opportunities and Challenges in Nano-electronics and Advanced Communication Systems"	28th Sept. – 1st October 2022

	DR. TUSHAR GOEL DR. GHANAPRIYA SINGH		
Department of Electrical Engineering	Convener: Dr. Sourav Bose, Coordinator: Dr. Prakash Dwivedi, Dr. Rohit Kumar	Electric Vehicle: Impact and Recent Advancement	14th-18th Nov 2022
Department of Mechanical Engineering	Coordinator: Dr. Dungali Sreehari & Dr. Gaurav Kumar	Micromachining Technologies for Industrial Applications	09 - 13 May 2022
Physics	Conveners: Dr. Manvendra Singh Khatri, Coordinators: Dr. Hardeep Kumar, Dr. I. M. Nagpure	STC on “Optical Materials and Characterization Techniques & Synchrotron Radiation and Neutron based Characterization Techniques	24/02/2023 to 03/03/2023
Department of Electrical Engineering	Convener: Dr. Sourav Bose and Dr. Mahiraj Singh Rawat, Coordinator: Dr. Suryanarayana Gangolu, Dr. Tripurari Nath Gupta	Recent Trends in Microgrid	27/09/2022 to 01/10/2022
Electronics Engineering	CONVENER(S): Dr. Hariharan Muthusamy Dr. Sarika Pal, Dr. T.S. Arora COORDINATOR(S): Dr. Sarita Yadav, Dr. Nitanshu Chauhan, Mr. Vivek Kumar	“Opportunities in Semiconductor Industries after B.Tech and M.Tech”	13 th February- 17 th February 2023.
FW Section	Convener Dr. Dharmendra Tripathi Coordinators Dr. Vinod Singh Yadav Dr. Abhinav Kumar	Capacity Building for Productivity Enhancement	May 31 - June 04, 2022
Department of Physics, Chemistry and Mathematics	Conveners: Dr. Jagrati Sahariya, Dr. Dharmendra Tripathi	4th National Conference on Recent Advancement in Physical Sciences	December 19-20, 2022
Department of Elecetrical, Electronics and Computer Science Engineering	Dr. Prakash Dwivedi, Dr. Sourav Bose, Dr. Pankaj Pal, Dr. Tushar Goel, Dr Surendra singh, Dr. Rohit Kumar, Dr. Krishan Kumar (NIT Kurukshetra), Mr. Varun Kakar (IEEE UP Sec)	International Conference on Computer, Electronics and Electrical Engineering and Their Applications (IC2E3 -2023)	June 8th-9th, 2023

Other Faculty Achievements

Department of Computer Science and Engineering

- Prof. Lalit Kumar Awasthi received the best paper award for a paper titled "Fog Intelligence for Energy Optimized Computation in Industry 4.0", International Conference on Artificial Intelligence of Things (ICAIoT), NITTTR Chandigarh.
- Session Chaired by Dr. Surendra Singh in "2nd International Conference on Innovative Sustainable Computational Technologies (CISCT-2022)", organized by Graphic Era Deemed to be University, Dehradun, 23rd – 24th December, 2022.
- Session Chaired by Dr. Surendra Singh in "International Conference on Computational Intelligence and Sustainable Engineering Solutions (CISES-2022)", organized by the department of MCA, G L Bajaj Institute of Technology, Greater Noida, Delhi-NCR India on 20-22 May 2022.
- Session Chaired by Dr. Krishan Kumar in Online International Conference on Computational Intelligence and Sustainable Engineering Solution (CISES-2022) at G. L. Bajaj Institute of Tech. & Mgt., Greater Noida, on May 20, 2022.
- Dr. Kamal Kumar has published 08 SCI publications in 2022-23.
- Dr. Kamal Kumar supervised two Phd in trending areas and the thesis submitted are under review.

Department of Electronics Engineering

- Dr. Hariharan Muthusamy has been appointed as Academic Editor in PLOS ONE Journal.
- Dr. Hariharan Muthusamy has been appointed as Associate Editor in International Journal of Biomedical and Clinical Engineering, IGI Global Publishing House.
- Dr. Hariharan Muthusamy was the General Chair, Asian Conference on "Intelligent Computing and Data Science (ACIDS-2020), 24 – 25 May, 2021, Malaysia.
- Dr. Sarika Pal has organized online Alumni meet successfully on 26th March 2022 as Institute Alumni Coordinator.
- Dr. Sarika Pal has reviewed SCI indexed Journals of Nature Scientific reports, IEEE Acess and Optical and Quantum Electronics.
- Dr. Tajinder Singh Arora received the recognition as Fellow Member from Indian Society for VLSI Education (ISVE) Ranchi.
- Dr. Tushar Goel was invited as Session Chair, "Three Days International Conference on Artificial Intelligence and smart communication", AISC 2023, 27-29 January 2023.
- Dr. Tushar Goel was invited Session Chair, "Three Days International Conference on Microwave, Antenna and Communication", MAC 2023, 24-26 March 2023.
- Dr. Tushar Goel was appointed as Chairman for Industrial Collaborations, IEEE Sensors Council UP Section office bearers 2022.

- Dr. Tushar Goel was appointed as Member, Technical program Committee, International Conference on Microwave, Antenna and Communication, March 24-26 MNIT Allahabad.
- Dr. Tushar Goel collaborated with Dr. Ajeet Kumar, researcher Level IV, CNIT Italy on the project Analysis of Polarimetric SAR Data for Natural/Man-made Impact Assessment, along with Phd Scholar Mr. Avinash Bhatt.
- Dr. Tushar Goel collaborated with Dr. Santosh Kumar, Associate Prof, School of Physics Science and Information Technology, Liaocheng University, China on the project THz sensors and devices for biomedical applications along with Phd Scholar Mr. Mahesh Kumar Aghwariya.
- Dr. Tushar Goel collaborated with IIT BHU Varanasi (research proposal submitted at SMDP-C2SD) with Dr. Shivam Verma, ECE Dept.
- Dr. Tushar Goel collaborated with G B Pant IET Pauri, Research Collaborations in designing of Antennas for future communications systems.
- Dr. Tushar Goel collaborated with Dr. Gaurav Mittal, Scientist E, Project Manager, Deal DRDO Dehradun, on project decrement of Size weight and power (SWAP) of defense communication equipment by using flexible wearable solar panels integrated with microwave energy harvesting systems along with PhD scholars Mr. Satendra Pathak.
- Dr. Tushar Goel collaborated with Dr. Arun Jugran, Scientist E, GB Pant National Institute of Himalayan Environment, Srinagar, on project generating income source to locals of Uttarakhand by providing remotely monitored smart agriculture solution in hardly accessible fertile regions of Uttarakhand to prevent migration, along with PhD Scholars Mr. Avinash Bhatt and Mr. Satendra Pathak.

Department of Electrical Engineering

- Session Chair of the “7th International Conference for Convergence in Technology (I2CT-2022) during April 07-09, 2022 (VIRTUAL MODE), organized by IEEE Bombay Section.
- Session Chair of the "7th Students' Conference on Engineering & Systems (SCES-2022)", during July 01-03 July, 2022 (Online Mode), organized by Department of Electrical Engineering, MNNIT Allahabad.
- Dr. Prakash Dwivedi chair a session in the "International Conference on Robotics, Control, Automation and Artificial Intelligence (RCAAI 2022)", during November 24-26, 2022 (Online Mode), jointly organized by Manipal Institute of Technology, Manipal Academy of Higher Education (MAHE), Manipal and National Institute of Technology Karnataka, Surathkal, India.
- Dr. Prakash Dwivedi received Young Professional Star of the Month Awards by IEEE UP Section.
- Dr. Prakash Dwivedi was in a Advisory Committee of International Conference on Robotics, Control, Automation and Artificial Intelligence (RCAAI 2022)", during November 24-26, 2022 jointly organized by Manipal Institute of Technology, Manipal Academy of Higher Education (MAHE), Manipal and National Institute of Technology Karnataka, Surathkal, India.

- Dr. Prakash Dwivedi and Dr. Sourav Bose has been granted a patent (415099) on Solar Power integrated bidirectional non-isolated DC-DC converter for E-Rickshaw.

Department of Mechanical Engineering

- Research project entitled, "Fabrication and testing of lower limb prosthesis for transtibial amputee using bio-composites with energy restoring capability" granted to Dr. Pawan Kumar Rakesh (PI) and Dr. Sanat Agarwal (Co-PI), Department of Mechanical Engineering on Jan 25, 2022 for three years with a total outlay of Rs. 27.7 Lakhs by the Indian Council of Medical Research (ICMR), New Delhi.
- "A desk mounted air purification device", patent filed as a co-inventor on June 07, 2022 to The Office of the Controller General of Patents, Designs & Trade Marks (CGPDTM), Mumbai, published subsequently and referred for examination u/s 12 as on Aug 07, 2022, application no. 02211032621, with Dr R B Kalia, Additional Professor, Department of Orthopaedics, AIIMS and Ms J Kalia, Rishikesh, as applicants; and Dr S Agrawal, NIT Uttarakhand and Dr N Mishra, NIT Uttarakhand as inventors.

Department of Mathematics

- Dr. Tripathi and Dr. Kusum Sharma received Grant of Rs 100000/- by SERB and Rs. 50000/- from UCOST for 4th National Conference on Recent Advancement in Physical Sciences organized on 19-Dec-2022 to 20-Dec-2022 under the scheme Assistance to Professional Bodies & Seminar / Symposia Scheme.
- Dr. Dharmendra Tripathi got "Best Faculty Award" for Year 2022 based on the evaluation of APARS for Academic Year 202l-22 awarded by NIT Uttarakhand.
- Dr. Tripathi listed in top 100,000 scientists by c-score (with and without self-citations) or a percentile rank of 2% or above in the sub-field as per September 2022 data-update for Updated science-wide author databases of standardized citation indicators.
- Dr. Tripathi got "Best Paper Award" (Title: Study of unsteady flow in a porous medium with rhythmic membrane propulsion, Paper id: 181) in International Conference on Advancements in Interdisciplinary Research (AIR-2022) held on 6 th -7 th May 2022 at MNNIT Allahabad, Prayagraj, India.
- Dr. Tripathi listed in Year 2022 Edition of Research.com Ranking of Top 1000 Scientists in the field of Mechanical and Aerospace Engineering. Ranked #809 in the world and #11 in India (https://research.com/scientists-rankings/mechanical-and-aerospace-engineering).

Other Student Achievements

- Mr. Rajeev Kumar has submitted his Ph.D thesis synopsis seminar entitled as "MXene (Ti3C2Tx) based Surface Plasmon Resonance Sensors: Performance Improvement and

Engineering towards Biochemical Sensing" on 11/05/2023 under the guidance of Dr. Sarika Pal, Asst. Professor, ECE.

- Mr. Rahul Raikuni (BT19ECE002) got All India Rank 50 in GATE Exam – 2023.
- Mr. Maneesh Kumar Singh (DT19ECJ004) has successfully defended Ph.D Theis "Design and Modeling of Surface plasmon Resonance Sensor Based on Two Dimensionl Nanomaterial Antimonene" on 12th Nov., 2022 under the guidance of Dr. Sarika Pal, Asst. Professor, ECE.
- Mr. Yogendra Pratap Pundir (DT17ECJ001) has successfully defended Ph.D Theis "Performance Analysis of Nanosheet Transistors for Analog Applications" on 17th Nov., 2022 under the guidance of Dr. Pankaj Kumar Pal, Asst. Professor, ECE.
- Mr. Rajesh Saha (DT17ECE002) has submitted his Ph.D thesis entitled as "Design of Energy-Efficient Spin Based Memories for Cache Applications" on 26th July 2022, under the supervision of Dr. Pankaj Kumar Pal.
- Mr. Sachin Tiwari (DT19ECJ003) has submitted his Ph.D thesis synopsis seminar entitled as "Generation of Linear and Non-Linear Applications Employing Active Building Blocks" on 25th July 2022, under the supervision of Dr. Tajinder Singh Arora.
- Satyam Jain placing with CTC 21LPA

Invited Lectures Delivered by External Experts (2022-23)

S.No	Department	Convener/Coordinator	Title	Event Date
1	Department of Computer Science and Engineering	Convener Dr. Kamal Kumar	Expert Lecture on Cyber Security and its Applications	02 Nov, 2022
2	Mech Engg Deptt	Dr Sanat Agrawal - Convener	The Music of the Primes	Sep 17, 2022
3	Mech Engg Deptt	Dr Gaurav Kumar	Design for Manufacturing	Nov 03, 2022
4	Mech Engg Deptt	Dr. T Sudhakar & Dr. D. Sreehari	Manufacturing and Design of Jigs and Fixtures	10 Sep. 2022
5	Mech Engg Deptt	Dr. Vikas Kukshal	Design Perspective in Automobile Engineering	24 Sep.2022
6	Mech Engg Deptt	Dr. Hitesh Sharma	Non-Destructive Evaluation of Novel Material	27 Nov, 2022

7	Mech Engg Deptt	Dr. Hitesh Sharma	Surface Alloying	2 Nov. 2022
8	Mech Engg Deptt	Dr. Deepak Kumar	Research and Commercial Aspect of Biomass	25 Feb. 2023
9	Mech Engg Deptt	Dr. T Sudhakar & Dr. Vinod Singh Yadav	BEARING MANUFACTURING PROCESS	28 Feb. 2023
10	Mech Engg Deptt	Dr. Hitesh Sharma	Green Composites Waste of Value Creation	3 Mar. 2023
11	Mech Engg Deptt	Dr. Dungali Sreehari	Advanced Manufacturing in Steel Sector	28 Feb. 2023
12	Department of Electronics Engineering	Dr. Sarika Pal	Spatial Modulation	12 Nov. 2022
13	Department of Electronics Engineering	Dr. Siva Kumar Tadepalli	Image Processsing using FPGA	24th Nov. 2022
14	Department of Electronics Engineering	Dr. Pankaj Kumar Pal	Faculty Interaction & Deptt./Lab Visit by Prof. Rajeev Tripathi, MNIT	19th Nov. 2022
15	Department of Electrical Engineering	Dr. Prakash Dwivedi	Solar Energy and Applications	13th Sep 2022
16	Department of Civil Engineering	Dr. Shashank Bhatra	Biodiversity Conservation in Himalayan Context	21st June 2022
17	Department of Civil Engineering	Dr. Shashank Bhatra	Critical State Soil Mechanics and its applications	17th and 18th November 2022
18	Department of Civil Engineering	Dr. Bibhash Kumar	Advance Failure Criterions for Soils	21st and 22nd November 2022
19	Department of Civil Engineering	Dr. Shashank Bhatra	Climate change and Wetlands research: Nature Society inter-relationship	15th January 2023

20	Chemistry	Dr. Pankaj Kandwal (organizer)	Nuclear Reactor Technology: Overview, Challenges and Opportunity for young Engineers and Scientists	26th December 2022
21	Department of Civil Engineering	Dr. Muskan Mayank	Experience in Structural Design at MNCs	25th Feb, 2023
22	Department of Chemistry	Dr. Pankaj Kandwal	Expert Lecture by Prof. Anindya Dutta on "Basics of Quantum Chemistry"	15th June 2023
23	Department of Physics	Dr. Hardeep Kumar, Dr. M. S. Khatri	From molecules to solids: the notion of an electronic band and its repercussions	06 Feb 2023
24	Department of Physics	Dr. Hardeep Kumar, Dr. M. S. Khatri	Interference and diffraction	10 Feb 2023
25	Department of Physics	Dr. M. S. Khatri	Holography	23 May 2023
26	Department of Physics	Dr. M. S. Khatri	String Theory	24 May 2023

List of B.Tech. Alumni selected for higher studies

Department of Electrical Engineering

Sr. No.	Pass out Batch	Name	Program	Institute	Year of Admission
1	2022	Siddharth Thakur	Ph.D.	IIT Kanpur	2022
2	2022	Ayush Dixit	Ph.D.	IIT Delhi	2022
3	2022	Sujata Roy	MBA	IIT Guwahati	2022
4	2021	Piyush Kumar	M.Tech.	IIT Kanpur	2022
5	2021	Arpit Kumar	M.Tech.	IIT JAMMU	2022

Department of Mechanical Engineering

Sr. No.	Pass out Batch	Name	Program	Institute	Year of Admission
1	2022	Sumit Gusain	Ph.D.	IIT Kanpur	2022
2	2020	Kuber Suryavanshi	MBA	National Institute of Industrial Engineering (NITIE), Mumbai	2022
3	2021	Ambati Gowtham	M.Tech.	Indian Institute of Technology Hyderabad	2022
4	2021	Suneet Mungali	M.Tech	IIT Kanpur	2022
5	2020	Raaz Kumar	M.Tech	IIT Guwahati	2022

Department of Civil Engineering

Sr. No.	Pass out Batch	Name	Program	Institute	Year of Admission
1	2021	Anvi Agarwal	Ph.D.	IIT Roorkee	2022
2	2017	Vishal	Ph.D.	IIT Ropar	2022

Department of Electronics Engineering

Sr. No.	Pass out Batch	Name	Program	Institute	Year of Admission
1	2021	Harsh Puri	MBA	IIM Calcutta	2022

Department of Computer Science and Engineering

Sr. No.	Pass out Batch	Name	Program	Institute	Year of Admission
1	2019	Vikrant Kumar	MBA	International University Of Applied Sciences Berlin, Germany	2022

list of M. Tech. Alumni selected for higher studies

Department of Electrical Engineering

Sr. No.	Pass out Batch	Name	Program	Institute	Year of Admission
1	2022	Jayant Kumar	Ph.D.	IIT Roorkee	2022
2	2022	Subhadip Sadhukhan	Ph.D	IIT Delhi	2022
3	2022	Rituvic Pandey	Ph.D	IIT Jodhpur	2022
4	2019	Shipra Tiwari	Ph.D.	Michigan Technological University, US	2022

Department of Mechanical Engineering

Sr. No.	Pass out Batch	Name	Program	Institute	Year of Admission
1	2022	Gokul Krishnan M U	Ph.D.	IIT Palakkad	2022
2	2022	Garima Raghav	Ph.D.	DTU	2022
3	2018	Viveksheel Yadav	Ph.D.	NIT Uttarakhand	2022
4	2020	Nishu Giri	PhD	NIT Uttarakhand	2022
5	2020	Sudhir Chowdhary	PhD	IIT Mandi	2022
6	2018	Deepika Yadav	PhD	NIT Uttarakhand	2022

Department of Civil Engineering

Sr. No.	Pass out Batch	Name	Program	Institute	Year of Admission
1	2022	Prabhanjan Prasoon	Ph.D.	IIT Jodhpur	2022

2	2018	Aniket Chanda	PostDoc Research	University of Limerick	2022

List of student selected in ESE 2022

Sr. No.	Alumni/Alumna	Department	Batch	ESE 2022 AIR and Specialization	
1	Kunal Saurav	Electrical & Electronics Engg.	2013-2017	2 (Electrical)	
2	Shashank Singh	Civil Engineering	2015-2019	130 (Civil)	

Student Activity & Sports Section

Along with academic excellence, NIT Uttarakhand promotes extra-curricular activities to ensure all-round development of personality. The motto of Section is “Sports for all and all for Sports”. The Student Activity and Sports Section is the central hub for student activities, student organizations, programming, events, sports, recreation and fun at the institute campus. SAS Section of the institute, co-ordinate all the Games & Sports, Adventurous activities, National Celebrations, NSS activities, Fitness Activities, & Yoga training Programs with the collaboration of concerned club coordinators in the Institute.

Sports Facility & Participation Opportunity in Students Activity:

Institution provides Indoor and Outdoor Sports facilities of various Games and Sports. Institute provides the following Sports Facilities: Football, Cricket, Badminton, Table-Tennis, Volleyball, Basketball, Carom, Kabaddi, Kho-Kho, Chess, Gym and much more. The Sports arena is near the boy's hostel and is also with well-equipped facilities. Students have opportunity to play at any time to have fun. In spite of being a new NIT, the Institute has been successful in developing a firm foundation in the field of sports. The section provides and maintains the sports facilities required by the students and the staff. Institute Regular participates in almost all the Games and Sports in All India Inter-NIT Tournament and Other Open Tournaments. Institute also organizes various Intra NIT and open Tournaments like, Cricket, Football, Volleyball, Badminton, T.T Chess, snooker, tug of war & Athletics meet.

Adventurous Activities:

Uttarakhand lies in the Himalayan range with lot of opportunity for Adventurous activities. Adventure sports is the unique feature of the Institute and various adventurous activities

like river rafting, skiing, camping, cycling, tracking and mountaineering are organized by the institute throughout the year with help of professional experts to the students and staffs. These Sports are not only a source of 'thrill and joy' to participants, but also provide a valuable opportunity for developing such traits so as to prepare them for facing challenges against all odds confidently and efficiently. Adventurous activity provide a valuable opportunity to expose the youth to nature, kindling the spirit of adventure, develop personality, character, courage and confidence, to prepare the students for facing challenges against all odds confidently and efficiently.

Sports Achievement:

- Institute Volleyball team won silver medal in All India Inter NIT Volleyball Tournament 2015 held at NIT Kuruksherta.
- Institute Basketball team won the open basketball tournament 2016 organized by the SSB Academy Srinagar.
- Institute Faculties and Officers badminton and Table tennis team won Silver medal in Table Tennis and Bronze in Badminton in All India Inter NIT's Badminton and Table Tennis Tournament 2016 held at SVNIT Surat from 24th to 26th Dec. 2016.
- Sandeep Sharma Won One silver medal in Body Building and one Gold in Power Lifting in All India Inter NIT GYM Tournament 2017 held at MNIT Jaipur.
- Jagdish Singh Won Bronze medal in 1500 m race in All India Inter NIT Athletics Tournament 2017 held at MNIT Jaipur and won silver medal in Athletics (5000m), in All India Inter NIT Athletics competition at NIT Warangal 2019.

- Institute staff and faculty team won 2 Gold in Badminton, 2 silvers in Table Tennis and 01 Bronze Mendel in Chess in All India Inter NIT Tournament at NIT Goa in 2018.
- Institute Table Tennis (M) team got silver medal in All India Inter NIT Table Tennis Tournament 2018 held at VNIT Nagpur.
- NIT Uttarakhand Chess (Women), Volleyball (Men) & Kabaddi (Men) Teams secured 2nd place and Badminton (Men) Teams secured 3rd place in Malaviya Sports Tournament 2019 organized by MNIT Jaipur.
- Institute athletics team secured 1st place, 4th, 7th, 9th and 11th place respectively in 5km Marathon organized by MNIT Jaipur in MST-2019.
- Institute won Gold medal in staff women category (Singles & Doubles) All India Inter NIT Badminton tournament organized by MNIT Jaipur from 17th to 19th Dec. 2019. Miss Sangeeta Basu won Gold medal in women single category and Miss Sangeeta Basu and Mrs. Kumud Sharma won Gold medal in women double category.
- Institute faculty and staff Cricket team secured 2nd place in 1st All India Inter NIT Faculty & Staff tournament organized by VNIT Nagpur from 27th to 30th Dec. 2019.
- Recently our Institute player brought laurel to the institute by winning the gold medal in Javelin throw, silver medal in shot-put in All Inter NIT Athletics competition from 24th to 26th Jan. 2020 at NIT Rourkela.
- Institute won silver medal in Football (M), bronze medal in Volleyball (M), Badminton (W), Table Tennis (M & W) and Chess (M) category in Malviya Sports Tournament organized by MNIT Jaipur from 05th to 07th March, 2020.
- Institute Cricket team secured 2nd place in open cricket team organized by BJYM Srinagar from 05th to 14h Dec. 2021.
- Recently our Institute faculty and staff Cricket team secured 2nd place in 2nd edition of All India Inter NIT Faculty & Staff Cricket tournament organized by VNIT Nagpur from 04th to 07th Dec. 2022. Total 20 Teams of from all over India participated in the same. Dr. Kuldeep Singh SAS Officer awarded best player and best fielder of the Tournament.
- Institute Chess team won silver medal in All India Inter NIT Faculty & Staff Badminton, Chess and Table tennis tournament organized by NIT Hamirpur from 17th to 19th Dec. 2022.
- Institute volleyball team won Open Volleyball Tournament organized by NIT Uttarakhand for 13th to 15th Jan. 2022. Mr. Aditya (B Tech 1st Year) awarded best attacker of the tournament.
- Institute Table Tennis Girls team won the winner trophy in the All India Malviya Sports Tournament (MST 2023) from 23-25 March, 2023 organized by MNIT Jaipur.
- Institute Table Tennis Boys team Table tennis won the runner-up trophy in the All India Malviya Sports Tournament (MST 2023) from 23-25 March, 2023 organized by MNIT Jaipur.
- Mr. Amit, Powerlifting player won gold medal in the All India Malviya Sports Tournament (MST 2023) from 23-25 March, 2023 organized by MNIT Jaipur.
- Mr. Ritesh Kumar Bhanja (BT19ECE019) awarded as a best sports person by Bank of Baroda Srinagar.

National Service scheme:

The National Service Scheme (NSS) is a Central Sector Scheme of Government of India, Ministry of Youth Affairs & Sports. It provides opportunity to the student of schools level and student youth of Technical Institution, Graduate & Post Graduate at colleges and University level of India to take part in various government led community service activities & programmes. The aim of the NSS is to provide hands on experience to young students in delivering community service. NSS allows the students to actively contribute their services for the cause of community and the nation, thus helping them develop their personality. All the youth volunteers who opt to serve the nation through the NSS led community service wear the NSS badge with pride and a sense of responsibility towards helping needy. National Institute of technology Uttarakhand started the NSS Unit for the session 2022-23.

Fortification

Library

"Libraries are essential in a process of giving users access to knowledge. In digital times they are needed more than ever before"

Library & Information Centre is the central library of the National Institute of Technology Uttarakhand. The Library caters to the educational and research needs of the academic community and its resources are consulted by scholars from all over the country.

The Library contains rich collection of text books and reference books on science and technology including chemistry, mathematics, physics, electrical engineering, civil engineering, computer science, electrical and electronics engineering, etc. Also, Library contains a good collection in the areas of social sciences, English literature, Hindi, Sports, Yoga, competitive exam, etc.

The total collection of the Library is as follows

Books	36346
E-Books	26457
Standards	514
Theses/Dissertations	226
Online Databases	04
CDs/DVDs	04
e-Newspapers/Newspapers	10
Magazines/Yearbooks	75
NPTEL video courses	135
Plagiarism Detection Software	01

The Library has Online Public Access Catalogue to search all the bibliographic records available in the library through a web based search i.e. Libsys 10 WebOPAC.

Hostel

The Institute provides a homely environment for students. The Institute has adopted a principle of "Homes away from Home". Hostels have been provided for the students with all the necessary facilities. The Institute provides accommodation facilities for 400 students in the campus. There are Seven boys and two girls' hostels.

- All hostels have been kept under surveillance by security cameras
- Hostel security has been provided 24×7
- Matron/Nurse stays in girl's hostel for 24 hours
- Clean and RO filtered water supply is ensured in the hostel premises.
- Cleanliness and hygienic environment is maintained in regular way
- Wi-Fi facility is provided in the hostel for Internet access
- Mess facility is provided to the students of the Institute

Hostel Details

S. No.	Name of Hostel	Type	No. of Rooms	No. of Seats	Strength of the Hostel
1.	NITUK Hostel-Ganga	Girls	17	2 seater	43
			3	3 seater	
2.	NITUK Hostel-Mandakini	Girls	24	3 seater	72
3.	NITUK Hostel-Yamuna	Boys	22	3 seater	66

4.	NITUK Hostel-Sarswati	Boys	18	2 seater	36
5.	NITUK Hostel-Bhagirathi	Boys	35	3 seater	105
6.	NITUK Hostel-Bhilangana	Boys	12	2 seater	24
7.	NITUK Hostel-Pinder	Boys	18	3 seater	54
8.	NITUK Hostel-Alakananda (New Hostel)	Boys	36 Three seater	3 seater	119
			11 One seater	1/2 seater	
9.	NITUK Hostel-Sarayu (New Hostel)	Boys	36 Three seater	3 seater	119
			11 One seater	1/2 seater	
Total		-	243	-	638

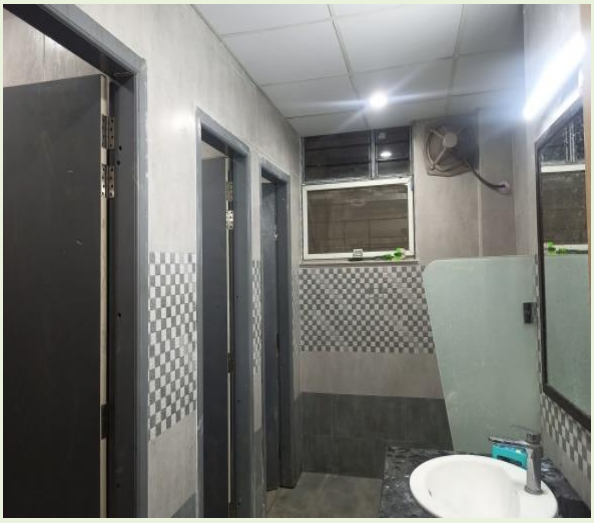
INSTITUTE MESS

"Togetherness is Always a Pleasure"

Institute provides combined mess facility to students. Special care is taken to provide clean and hygienic surroundings in the Premises of the mess. Food quality and water purity is checked regularly by concerned authorities from time to time. Regular meetings are conducted with students' representative sat definite intervals to ensure students' satisfaction


Alaknanda
Hostel
NIT Uttarakhand


Sarayu
Hostel
NIT Uttarakhand



Important Contact Details in Hostel

S. No.	Name	Designation	Mobile Number and Email-ID
1.	Dr. I M Nagpure	Chief Warden	+91-9557750896 imnagpure@nituk.ac.in
2.	Dr. Kamal Kant Tiwari	Warden (Hostel -04)	+91-9460095814 Kamalkanttiwari@nituk.ac.in
3.	Dr. Dheerendra Bahadur Singh	Warden (Hostel -07)	+91-9450924373 dbsingh@nituk.ac.in
4.	Dr. Maroti Deshmukha	Warden (Hostel -New Hostel)	+91-8500173440 marotideshmukha@nituk.ac.in
5.	Dr. Kusum Sharma	Warden (Hostel -01)	+91-9557750899 kusum31sharma@nituk.ac.in
6.	Dr. Sarita Yadav	Warden (Hostel -03)	+91-9410190132 Sarita.yadav@nituk.ac.in
7.	Dr. Dungali Sreehari	Warden (Hostel – 02)	+91-9557750887 sreehari@nituk.ac.in
8.	Dr. T. Sudhakar	Warden (Hostel - New Hostel)	+91-9410131563 sudhakar@nituk.ac.in
9.	Dr. Deepak Kumar	Warden (Hostel -05)	+91-8791671176 Deepak.kumar@nituk.ac.in
10.	Dr. Kamal Kant Tiwari	Warden (Hostel -06)	+91-9460095814 Kamalkanttiwari@nituk.ac.in
11.	Dr. Vineeta Negi Panwar	Assistant Registrar (Hostel)	+91-9410947822 Ar_hostel@nituk.ac.in

12.	Mrs. Neha Raturi	I/c Superintendent (Hostel)	+91-8194024275 Hostel@nituk.ac.in
13.	Mr. Anil Bhatt	I/c Junior Assistant	+91-9760382445 Hostel@nituk.ac.in
14	Dr. Deepak Kumar	Coordinator (Student Mess)	+91-8791671176 Deepak.kumar@nituk.ac.in
15.	Mr. Himesh Kumar	Co-Coordinator (Student Mess)	+91-7895780437 himesh.kumar@nituk.ac.in

Our Pride Alumni Association

Our Alumni

Dev Vrat Joshi, Alumnus of B.Tech. (Civil Engineering) Batch- 2018-2022 got AIR-125 in the UPSC 2022 examination

Maniya Verma, Alumnus of B.Tech. (Electrical and Electronics Engineering) Batch-2016-2020 got AIR- 258 in the UPSC 2022 examination

Meenakshi Arya, Alumnus of B.Tech. (Computer Science and Engineering) Batch-2013-2017 got AIR- 444 in the UPSC 2022 examination

Vipin Dubey, Alumnus of B.Tech. (Civil Engineering) Batch- 2014-2018 got AIR- 444 in the UPSC 2022 examination

Aditya Dohar, Alumnus of B.Tech. (Mechanical Engineering) Batch- 2016-2020 got AIR- 834 in the UPSC 2022 examination

Mr. Kunal Saurav, Alumnus of B.Tech. (Electrical & Electronics Engineering), Batch-2013-2017 got AIR -2 in ELECTRICAL ENGINEERING in Engineering Services Examination (ESE)-2022 conducted by the Union Public Service Commission (UPSC) .

Mr. Shashank Singh, Alumnus of B.Tech. (Civil Engineering) Batch- 2015-2019 got AIR- 130 in CIVIL ENGINEERING UPSC Engineering Services Examination (ESE) 2022 conducted by the Union Public Service Commission (UPSC).

Mr. Ramvilas Patel, Deputy -Manager (TECH), National Highway Authority of India, JABALPUR Alumnus of B.Tech. (Civil Engineering) Batch 2013-2017, got Award for outstanding performance in REWA-SIDHI Tunnel Project by Hon'ble Minister Road Transport and Highways, Sh. Nitin Gadkari ji & MP CM Sh. Shivraj Singh Chouhan ji.

Glimpse of Alumni Meet

The Alumni Affairs, Student Welfare Section, NIT Uttarakhand organized 4th Alumni meet on 12th November 2022 (Saturday) at NIT Uttarakhand premises at Srinagar Garhwal. The program begins with lamp lighting by Prof. Lalit Kumar Awasthi, Hon'ble Director and Chief Guest of the function, Deans and other dignitaries. Prof. Lalit Kumar Awasthi, Hon'ble Director, NIT Uttarakhand and Chief Guest of the function addressed the gathering. At the outset, he extended his cordial greetings to each and every one present in this memorable event of 4th Alumni meet. He said that Dr. R. K. Tyagi ji, Hon'ble Chairman (BoG), NIT, Uttarakhand is not with us due to professional engagements, but he has given his concern for this memorable event. He welcomed all Alumni for attending 4th Alumni Meet. He said that although the alumni have left the institute, but institute will never leave them as the sweet memories of their stay at institute will always with them for whole part of their life.

Alumni Speaks

Mr. Amit Kumar (Senior Engineer), Solar Energy Corporation of India Limited Alumnus of B.Tech. (Electrical and Electronics Engineering) Batch 2012 -2016

Mr. Amit Kumar has delivered the alumni talk on "Career Opportunities in Renewable Energy" on 23rd July 2022. He shares his career journey as Senior Engineer, SECI Ltd. to the students. He said the Renewable energy is one of the biggest emerging sectors in India. As Mr. Amit is involved in framing the policy for solar energy, he talked about lot of facts regarding policy making in this field, State DISCOMS, KUSUM Yojana, CEA, State and Centre policy making process etc. He briefed about regulatory commissions such as CERCs and SERCs to students. Also, he talked about responsibilities of engineers in Power Grid, STUs, POSOCO, SLDC, RLDC, NLDCs, etc. He also informed how future scenario will change related to public and private sector investments in Renewable and power sector. He also talked about online trading platforms of power such as IEX, PXIL, etc.

Mr. Ankit Saini, Technical Lead - Software Development - Portfolio & Commodity Systems, NAV BackOffice Alumnus of B.Tech. (Electrical and Electronics Engineering), Batch 2010 – 2014

Mr. Ankit Saini has delivered the alumni talk on "Opportunities & Challenges as Software Developer " on August 5th, 2022. At First, he talks about his journey as a Software Developer at various Software Companies. He advised the students about joining certain training and test portals such as Geeks4Geeks, E-litmus, etc., where students can work on dedicated projects of big companies and give regular tests.

Mr. Abhishek Kumar, (Design Engineer), Micron Technology Alumnus of M.Tech. (Microelectronics and VLSI Design), Batch 2016 – 2018

Mr. Abhishek Kumar has delivered the alumni talk on "Career Opportunities in Semiconductor Industry" on 30 July 2022. He talked about his responsibilities as a semiconductor design engineer in Micron and about complexities, opportunities, environment, etc. Further he discussed about DRAM, NAND Flash and SRAM. In relation to this, he discussed the SRAM design cycle, challenges and advantages of SRAM. Then, he continued with DRAM design, challenges and advantages. He also explained about DDR4 and DDR5 features and advantages and how these are different from each other.

You Should Know

Board of Governors (BoG)

S. No.	Name	Designation
1	**Dr. R. K. Tyagi**	Chairman
2	**Prof. Lalit Kumar Awasthi,** Director, NIT Uttarakhand	Ex-Officio Member
3	**Additional Secretary/Joint Secretary**, Technical Education, Department of Higher Education Ministry of Education, Government of India	Member
4	**Financial Advisor**, Department of Higher Education Ministry of Education, Government of India Shastri Bhawan, New Delhi-110 001	Member
5	Representative, Nominated by the Govt. of Uttarakhand	Member
6	Representative, Nominated by the Govt. of Uttarakhand	Member
7	Nominated by the Council	Member
8	Nominated (Women) by the Council	Member
9	**Dr. Hariharan Muthusamy,** Associate Professor, NIT Uttarakhand	Member
10	**Dr. Sarika Pal,** Assistant Professor, NIT Uttarakhand	Member
11	**Director**, Indian Institute of Technology, Roorkee-247667	Member
12	**Dr. Dharmendra Tripathi, I/c** Registrar, NIT, Uttarakhand	Secretary

Special Cell (SC)

S. No.	Name	Designation
1	Dean Faculty Welfare	Ex-Officio Chairperson
2	Registrar	Ex-Officio Member Secretary
3	Dr. Sarika Pal, Assistant Professor (Gr-I), Electronics Engg.	Member
4	Liaison Officer (SC/ST/PWD)	Ex-Officio Member
5	Liaison Officer(OBC)	Ex-Officio Member
6	One External Member (Deputy Registrar/ Assistant Registrar preferably from IITs/NITs/IISERs/CUs and other CFTIs	
7	Deputy Registrar)Establishment)	Ex-Officio Member

Anti Ragging Committee (ARC)

S. No.	Name
1	Dean (SW)
2	Chief Warden & Proctor
3	Associate Dean (Creative Art, Cultural & Alumni Affairs)
4	Associate Dean (Sports)
5	All HODs
6	Associate Dean(Academic, UG)- Director's Nominee
7	Warden (First Year, Boys)
8	Warden (First Year, Girls)
9	AR(Hostel)
10	Vice President (CSA)

11	Representative (Girls, CSA)
12	Representative (Boy), First Year
13	Representative (Girl), First Year

Disciplinary Action Committee (DAC)

S. No.	Name	Designation
1	Chief Warden	Chairperson
2	HoD, Civil Engineering	Member
3	HoD, Computer Science and Engineering	Member
4	HoD, Electrical Engineering	Member
5	HoD, Electronics Engineering	Member
6	HoD, Mechanical Engineering	Member
7	HoD, Physics	Member
8	HoD, Chemistry	Member
9	HoD, Mathematics	Member
10	HoD, Humanities and Social Sciences	Member

Grievance Cell

S. No.	Name	Designation
1	Dean Faculty Welfare	Ex-Officio Chairperson
2	Registrar	Ex-Officio Member Secretary

3	Dr. Sanat Agrawal, Associate Professor, Mechanical Engg.	Member
4	Dr. Kusum Sharma, Assistant Professor(Gr-I), Mathematics	Member
5	Liaison Officer (SC/ST/PWD)	Ex-Officio Member
6	Liaison Officer(OBC)	Ex-Officio Member
7	Deputy Registrar (Estt.)	Ex-Officio Member
8	Mr. Gole Balaji Dhanraj, Technical Assistant, Electronics Engg.	Member
9	Mr. Manoj Kumar, Technician, Computer Science & Engg.	Member

Internal Complaints Committee

S. No.	Name	Designation
1	Dr. Jagrati Sahariya , Assistant Professor(Gr-I), Department of Physics	Ex-Officio Chairperson
2	Dr. Sarika Pal, Assistant Professor(Gr-I), Department of Electronics Engineering	Member
3	Dr. Vineeta Negi Panwar, Assistant Registrar	Member
4	From amongst NGO/associations committed to the cause of women or person familiar with the issue of Sexual Harassment	Member

Fee Structure

(i) Fees Structure of B.Tech. Programme for the Academic Year 2023-24

1. Institute Fees:

(I) For General/OBC category students whose annual family income is more than `5.00 Lacs.

Particulars	1st Sem. (`)	2nd Sem. (`)	3rd Sem. (`)	4th Sem. (`)	5th Sem. (`)	6th Sem. (`)	7th Sem. (`)	8th Sem. (`)
Tuition Fees	62,500/-	62,500/-	62,500/-	62,500/-	62,500/-	62,500/-	62,500/-	62,500/-
Student Related Activity Fees	2,500/-	2,500/-	2,500/-	2,500/-	2,500/-	2,500/-	2,500/-	2,500/-
Development Fees	2,000/-	2,000/-	2,000/-	2,000/-	2,000/-	2,000/-	2,000/-	2,000/-
Alumni Association Fees	500/-	0	500/-	0	500/-	0	500/-	0
Institute Security Deposit (Refundable)	3,000/-	0	0	0	0	0	0	0
Hostel Security Deposit (Refundable)	5,000/-	0	0	0	0	0	0	0
Book Bank Caution Money (Refundable)	500/-	0	0	0	0	0	0	0
Additional Security Deposit (Refundable)**	5,000/-	0	0	0	0	0	0	0
Security Services##	9,664/-	0	0	0	0	0	0	0
Other Hostel Charges***	3,400/-	0	0	0	0	0	0	0
Convocation Fees (Refundable if left without degree)	1000/-	0	0	0	0	0	0	0
Medical Insurance#	650/-	0	650/-	0	650/-	0	650/-	0
Computer/Internet	2000/-	2000/-	2000/-	2000/-	2000/-	2000/-	2000/-	2000/-
Examination	800/-	800/-	800/-	800/-	800/-	800/-	800/-	800/-
Identity Card Charges	100/-	0	0	0	0	0	0	0
Total	**98,614/-**	**69,800/-**	**70,950/-**	**69,800/-**	**70,950/-**	**69,800/-**	**70,950/-**	**69,800/-**

***Additional security deposit to be charged at the time of admission, irrespective of any fees paid earlier or later.*

**** This amount will be refunded to a student if he/she does not avail the hostel facility any time during the entire duration of the Academic Programme.*

 # It shall be charged as actual.

There shall be an annual increase of 10% in this amount.

(II) For General/OBC category students whose annual family income is between `1.00 Lac to `5.00 Lacs.

Particulars	1st Sem. (`)	2nd Sem. (`)	3rd Sem. (`)	4th Sem. (`)	5th Sem. (`)	6th Sem. (`)	7th Sem. (`)	8th Sem. (`)
Tuition Fees	20,834/-	20,833/-	20,834/-	20,833/-	20,834/-	20,833/-	20,834/-	20,833/-
Student Related Activity Fees	2,500/-	2,500/-	2,500/-	2,500/-	2,500/-	2,500/-	2,500/-	2,500/-
Development Fees	2,000/-	2,000/-	2,000/-	2,000/-	2,000/-	2,000/-	2,000/-	2,000/-
Alumni Association Fees	500/-	0	500/-	0	500/-	0	500/-	0
Institute Security Deposit (Refundable)	3,000/-	0	0	0	0	0	0	0
Hostel Security Deposit (Refundable)	5,000/-	0	0	0	0	0	0	0
Book Bank Caution Money (Refundable)	500/-	0	0	0	0	0	0	0
Additional Security Deposit (Refundable)**	5,000/-	0	0	0	0	0	0	0
Security Services##	9,664/-	0	0	0	0	0	0	0
Other Hostel Charges***	3,400/-	0	0	0	0	0	0	0
Convocation Fees (Refundable if left without degree)	1000/-	0	0	0	0	0	0	0
Medical Insurance#	650/-	0	650/-	0	650/-	0	650/-	0
Computer/Internet	2000/-	2000/-	2000/-	2000/-	2000/-	2000/-	2000/-	2000/-
Examination	800/-	800/-	800/-	800/-	800/-	800/-	800/-	800/-
Identity Card Charges	100/-	0	0	0	0	0	0	0

Total	56,948/-	28,133/-	29,284/-	28,133/-	29,284/-	28,133/-	29,284/-	28,133/-

Note: Student, who wants remission in Tuition Fee, needs to submit his/her annual family income certificate, issued by the Competent Authority, in the Institute at the time of admission/enrolment.

***Additional security deposit to be charged at the time of admission, irrespective of any fees paid earlier or later.*

**** This amount will be refunded to a student if he/she does not avail the hostel facility any time during the entire duration of the Academic Programme.*

 # It shall be charged as actual. ## There shall be an annual increase of 10% in this amount.

(III) For (a) SC/ST/PH category students.

(b) General/OBC category students whose annual family income is below Rs. 1.00 Lac.

Particulars	1st Sem. (`)	2nd Sem. (`)	3rd Sem. (`)	4th Sem. (`)	5th Sem. (`)	6th Sem. (`)	7th Sem. (`)	8th Sem. (`)
Tuition Fees	0	0	0	0	0	0	0	0
Student Related Activity Fees	0	0	0	0	0	0	0	0
Development Fees	2,500/-	2,500/-	2,500/-	2,500/-	2,500/-	2,500/-	2,500/-	2,500/-
Alumni Association Fees	2,000/-	2,000/-	2,000/-	2,000/-	2,000/-	2,000/-	2,000/-	2,000/-
Institute Security Deposit (Refundable)	500/-	0	500/-	0	500/-	0	500/-	0
Hostel Security Deposit (Refundable)	3,000/-	0	0	0	0	0	0	0
Book Bank Caution Money (Refundable)	5,000/-	0	0	0	0	0	0	0
Additional Security Deposit (Refundable)**	500/-	0	0	0	0	0	0	0
Security Services##	5,000/-	0	0	0	0	0	0	0
Other Hostel Charges***	9,664/-	0	0	0	0	0	0	0
Convocation Fees (Refundable if left without degree)	3,400/-	0	0	0	0	0	0	0
Medical Insurance#	1000/-	0	0	0	0	0	0	0
Computer/Internet	650/-	0	650/-	0	650/-	0	650/-	0
Examination	2000/-	2000/-	2000/-	2000/-	2000/-	2000/-	2000/-	2000/-
Identity Card Charges	800/-	800/-	800/-	800/-	800/-	800/-	800/-	800/-
Total	**36,114/-**	**7,300/-**	**8,450/-**	**7,300/-**	**8,450/-**	**7,300/-**	**8,450/-**	**7,300/-**

Note: Student, who wants remission in Tuition Fee, needs to submit his/her Caste Certificate/PH Certificate (in Central Government format) /annual family income certificate, issued by the Competent Authority, in the Institute at the time of admission/enrolment.

***Additional security deposit to be charged at the time of admission, irrespective of any fees paid earlier or later.*

**** This amount will be refunded to a student if he/she does not avail the hostel facility any time during the entire duration of the Academic Programme.*

 # It shall be charged as actual. ## There shall be an annual increase of 10% in this amount.

2. Hostel Fees:

Particulars	1st Sem. (`)	2nd Sem. (`)	3rd Sem. (`)	4th Sem. (`)	5th Sem. (`)	6th Sem. (`)	7th Sem. (`)	8th Sem. (`)
Seat Rent##	5,154/-	5,154/-	5,154/-	5,154/-	5,154/-	5,154/-	5,154/-	5,154/-
Electricity and Water Charges##	3,221/-	3,221/-	3,221/-	3,221/-	3,221/-	3,221/-	3,221/-	3,221/-
Hostel Maintenance Fee##	1,000/-	1,000/-	1,000/-	1,000/-	1,000/-	1,000/-	1,000/-	1,000/-
Mess Fees Advance*@	22,000/-	22,000/-	22,000/-	22,000/-	22,000/-	22,000/-	22,000/-	22,000/-
Total	**31,375/-**	**31,375/-**	**31,375/-**	**31,375/-**	**31,375/-**	**31,375/-**	**31,375/-**	**31,375/-**

**Mess Charge is taken as advance and after payment of actual amount remaining balance amount will be deposited in student's accounts. Students (except First Year) may opt out of Mess at the beginning of any month; however balance Mess Advance shall be refunded at the end of academic year and only after no dues certificate. Seat Rent, Mess fee Advance and Electricity & Water Charges and Hostel Maintenance Fee are to be paid separately and will not be adjusted against amount paid to DASA. Once the hostel facility is availed, the Seat Rent and Electricity & Water Charges and Hostel Maintenance Fee will not be refunded after cancellation.*

There shall be an annual increase of 10% in this amount.

3. Library Fees:

Particular	1st Sem. (`)	2nd Sem. (`)	3rd Sem. (`)	4th Sem. (`)	5th Sem. (`)	6th Sem. (`)	7th Sem. (`)	8th Sem. (`)
Book Bank Fees	500/-	500/-	500/-	500/-	500/-	500/-	500/-	500/-

(ii) Fees Structure of UG & PG Programme (1st Year) for the students taking admission through SII for Academic Year 2023-24

1. Institute Fees:

Particulars	For 1st Year	
	For Non-SAARC Category	For SAARC Category
Tuition Fees	US$4000	US$2000
Student Related Activity Fees	INR5000/-	INR5000/-
Development Fees	INR4000/-	INR4000/-
Alumni Association Fees	INR500/-	INR500/-
Institute Security Deposit (Refundable)	INR3000/-	INR3000/-
Hostel Security Deposit (Refundable)	INR5000/-	INR5000/-
Book Bank Caution Money (Refundable)	INR500/-	INR500/-
Additional Security Deposit (Refundable)**	INR5000/-	INR5000/-
Security Services##	INR9664/-	INR9664/-
Other Hostel Charges***	INR3400/-	INR3400/-
Convocation Fees (Refundable if left without degree)	INR1000/-	INR1000/-
Medical Insurance#	INR650/-	INR650/-
Computer/Internet	INR4000/-	INR4000/-
Examination	INR1600/-	INR1600/-
Identity Card Charges	INR100/-	INR100/-
Total	**US$4000+ INR43414/-**	**US$2000+ INR43414/-**

***Additional security deposit to be charged at the time of admission, irrespective of any fees paid earlier or later.*

**** This amount will be refunded to a student if he/she does not avail the hostel facility any time during the entire duration of the Academic Programme.*

 # It shall be charged as actual.

There shall be an annual increase of 10% in this amount.

Hostel Fees:

Particulars	1st Semester
Seat Rent##	INR10,308/-
Electricity and Water Charges ##	INR 6,442/-
Hostel Maintenance Fee##	INR 2,000/-
Mess Fees Advance*@	INR 44,000/-
Total	**INR 62,750/-**

** Mess Charge is taken as advance and after payment of actual amount remaining balance amount will be deposited in student's accounts. Students (except First Year) may opt out of Mess at the beginning of any month; however balance Mess Advance shall be refunded at the end of academic year and only after no dues certificate. Seat Rent, Mess fee Advance and Electricity & Water Charges and Hostel Maintenance Fee are to be paid separately and will not be adjusted against amount paid to SII Authority. Once the hostel facility is availed, the Seat Rent and Electricity & Water Charges* and Hostel Maintenance Fee *will not be refunded after cancellation.*

There shall be an annual increase of 10% in this amount.

@ There shall be an annual increase of 5% in this amount.

Library Fees:

Particular	1st Semester
Book Bank Fees	INR1,000/-

(iii) Fees Structure of UG & PG Programme (1st Year) for the students taking admission through SII for Academic Year 2022-23

1. Institute Fees:

Particulars	For 1st Year	
	For Non-SAARC Category	For SAARC Category
Tuition Fees	US$8000	US$4000
Student Related Activity Fees	INR5000/-	INR5000/-
Development Fees	INR4000/-	INR4000/-
Alumni Association Fees	INR500/-	INR500/-
Institute Security Deposit (Refundable)	INR3000/-	INR3000/-
Hostel Security Deposit (Refundable)	INR5000/-	INR5000/-
Book Bank Caution Money (Refundable)	INR500/-	INR500/-
Additional Security Deposit (Refundable)**	INR5000/-	INR5000/-
Security Services##	INR8785/-	INR8785/-
Other Hostel Charges***	INR3400/-	INR3400/-
Convocation Fees (Refundable if left without degree)	INR1000/-	INR1000/-
Medical Insurance#	INR650/-	INR650/-
Computer/Internet	INR4000/-	INR4000/-
Examination	INR1600/-	INR1600/-
Identity Card Charges	INR100/-	INR100/-
Total	**US$8000+ INR42535/-**	**US$4000+ INR42535/-**

***Additional security deposit to be charged at the time of admission, irrespective of any fees paid earlier or later.*

**** This amount will be refunded to a student if he/she does not avail the hostel facility any time during the entire duration of the Academic Programme.*

 # It shall be charged as actual.

There shall be an annual increase of 10% in this amount.

2. Hostel Fees:

Particulars	1st Year
Seat Rent##	INR9,370/-
Electricity and Water Charges ##	INR5,856/-
Hostel Maintenance Fee##	INR2,000/-
Mess Fees Advance*@	INR44,000/-
Total	**INR61,226/-**

**Mess Charge is taken as advance and after payment of actual amount remaining balance amount will be deposited in student's accounts. Students (except First Year) may opt out of Mess at the beginning of any month; however balance Mess Advance shall be refunded at the end of academic year and only after no dues certificate. Seat Rent, Mess fee Advance and Electricity & Water Charges and Hostel Maintenance Fee are to be paid separately and will not be adjusted against amount paid to SII Authority. Once the hostel facility is availed, the Seat Rent and Electricity & Water Charges* and Hostel Maintenance Fee *will not be refunded after cancellation.*

There shall be an annual increase of 10% in this amount.

@ There shall be an annual increase of 5% in this amount.

3. Library Fees:

Particular	1st Year
Book Bank Fees	INR1,000/-

(iv) Fees Structure of M.Tech. Programme for the Academic Year 2023-24

1. Institute Fees :

Particulars	1st Sem. (`)	2nd Sem. (`)	3rd Sem. (`)	4th Sem. (`)
Tuition Fees*	35,000/-	35,000/-	35,000/-	35,000/-
Student Related Activity Fees	2,500/-	2,500/-	2,500/-	2,500/-
Development Fees	2,000/-	2,000/-	2,000/-	2,000/-
Alumni Association Fees	500/-	0	500/-	0
Institute Security Deposit (Refundable)	3,000/-	0	0	0
Hostel Security Deposit (Refundable)	5,000/-	0	0	0
Book Bank Caution Money (Refundable)	500/-	0	0	0
Additional Security Deposit (Refundable)**	5,000/-	0	0	0
Security Services##	9,664/-	0	0	0
Other Hostel Charges***	3,400/-	0	0	0
Convocation Fees (Refundable if left without degree)	1000/-	0	0	0
Medical Insurance#	650/-	0	650/-	0
Computer/Internet	2000/-	2000/-	2000/-	2000/-
Examination	800/-	800/-	800/-	800/-
Identity Card Charges	100/-	0	0	0
Total	**71,114/-**	**42,300/-**	**43,450/-**	**42,300/-**

** SC & ST students are exempted to pay the tuition fee at the time of admission, however they have to deposit their tuition fee in the Institute before the end of the semester through scholarships /bank loan / any other means.*

***Additional security deposit to be charged at the time of admission, irrespective of any fees paid earlier or later.*

**** This amount will be refunded to a student if he/she does not avail the hostel facility any time during the entire duration of the Academic Programme.*

#It shall be charged as actual.

##There shall be an annual increase of 10% in this amount.

2. Hostel Fees :

Particulars	1st Sem. (`)	2nd Sem. (`)	3rd Sem. (`)	4th Sem. (`)
Seat Rent##	5,154/-	5,154/-	5,154/-	5,154/-
Electricity and Water Charges##	3,221/-	3,221/-	3,221/-	3,221/-
Hostel Maintenance Fee##	1,000/-	1,000/-	1,000/-	1,000/-
Mess Fees Advance*@	22,000/-	22,000/-	22,000/-	22,000/-
Total	**31,375/-**	**31,375/-**	**31,375/-**	**31,375/-**

** Mess Charge is taken as advance and after payment of actual amount remaining balance amount will be deposited in student's accounts. Students (except First Year) may opt out of Mess at the beginning of any month; however balance Mess Advance shall be refunded at the end of academic year and only after no dues certificate. Seat Rent, Mess fee Advance and Electricity & Water Charges and Hostel Maintenance Fee are to be paid separately and will not be adjusted against amount paid to CCMT. Once the hostel facility is availed, the Seat Rent and Electricity & Water Charges* and Hostel Maintenance Fee *will not be refunded after cancellation.*

There shall be an annual increase of 10% in this amount.

3. Library Fees :

Particulars	1st Sem. (`)	2nd Sem. (`)	3rd Sem. (`)	4th Sem. (`)
Book Bank Fees	500/-	500/-	500/-	500/-

(v) Fees Structure of Self Sponsored M.Tech. Programme for the Academic Year 2023-24

Institute Fees	1st Semester (`)	2nd Semester (`)	3rd Semester (`)	4th Semester (`)
	80,000/-	60,000/- in each semester		

(vi) Fees Structure of PhD Programme for the Academic Year 2023-24

a) Application fee for Ph.D. registration: Rs. 500/-

b) Other fees:

(I) Registration Rs. 5,000/- (one time)

Tution fee Rs. 15,000/- (Annual)

Caution money Rs. 3,000/- (refundable)

Library fee Rs. 2,000/- (one time)

Development fee Rs. 10,000/- (annual)

TOTAL Rs. 35,000/-

Rs. 35,000/- is to be paid before 31st January / 31st July.

(II) Subsequent years: Annual fees

Tution fee Rs. 15,000/-

Development fee Rs. 10,000/-

TOTAL Rs. 25,000/-

Rs. 25,000/- is to be paid before six monthly seminars of June / December.

(III) Examination fee:

The examination fee of Rs. 5000/- shall be paid by the candidate prior to the submission of the thesis.

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