

ANNUAL REPORT

2010-2011



INDIAN INSTITUTE OF TECHNOLOGY ROPAR
Nangal Road, Rupnagar, Punjab-140001 (INDIA)

Design & Print

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E-mail : ahsprinters@gmail.com

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The Indian Institute of Technology Ropar (IIT Ropar) is one of the eight new IITs set up by the Ministry of Human Resource Development (MHRD), Government of India, to expand and enhance the quality of technical education in the country. The Ministry of Human Resource Development (MHRD), Govt. of India, vide its Notification dated 09.05.2008 decided that the Indian Institute of Technology Delhi would mentor the setting up of IIT Ropar. The foundation stone of the Institute was laid on 24th February, 2009. IIT Ropar is registered as a Society under the Societies' Registration Act 1860 on 29th July, 2008. The Institute is currently operating from a transit campus, earlier occupied by the Government Polytechnic for Women. The transit campus was inaugurated on 19th August, 2009. On 20th August, 2009, the classes at transit campus commenced. Professor M.K. Surappa joined as the first Director of the Institute on 10.06 2009, and Shri A. Palanivel joined as the first Registrar on 10.07.2009.

IIT Ropar is committed to provide state-of-the-art technical education in a variety of fields and also to facilitate transmission of knowledge in keeping with the latest developments in pedagogy. These two areas of focus will enable students to gain exposure to recent trends in their chosen domains of study and practical experience through a wide variety of activities that the Institute facilitates in its own campus and arranges for collaboration with industry and other Institutes. At the transit campus, arrangements have been made for classes, laboratories, hostels and faculty accommodation. In due course of time, the Institute will shift to the main campus.

IIT Ropar is located at Rupnagar (formerly known as Ropar) town of district Rupnagar in Punjab. Rupnagar was founded in the 11th century and was named after Rup Sen, son of Raja Rakeshar. Recent excavations and explorations conducted at Rupnagar indicate that the first settlement here were those of the Harappans, who reached the upper Satluj towards the close of the third millennium B. C. The district has a rich historical and religious significance.

The town of Rupnagar, which is also the district headquarters, is at a distance of 42 kms from Chandigarh, the state capital. Rupnagar is well connected by National Highway NH-21. The Delhi-Ambala-Una railway line passes through Rupnagar and provides good rail connectivity.

The nearest airport is in Chandigarh which is located at a distance of about 50 kms.

The Government of Punjab has allocated 501 acres of land on the banks of the river Satluj to IIT Ropar. When completed, the campus will be a self-contained township catering to all the needs of faculty, staff and students.

At present, the Institute offers Bachelor of Technology (B. Tech.) programme in the following disciplines: Computer Science and Engineering, Electrical Engineering and Mechanical Engineering. This programme is spread over a period of eight semesters and the Institute admits forty students in each branch. These students are selected through IIT Joint Entrance Examination conducted every year. In addition, the Institute now offers doctoral programme in several disciplines.

The Indian Institute of Technology Ropar started functioning from the academic year 2008-09 from the campus of IIT Delhi, the mentor institute. The Institute currently operates from the premises of Government Polytechnic College for Women(Ropar). The foundation stone laying ceremony was held on 24th February, 2009. Indian Institute of Technology Ropar has been registered as Society under the Societies' Registration Act 1860 on 29th July, 2009. The transit campus of IIT Ropar was inaugurated on 19th August, 2009. Indian Institute of Technology Ropar admitted a total of 107 students in 2009, 118 in 2010 to different courses and 105 students who were admitted at IIT Delhi for IIT Ropar were shifted to the transit campus at the beginning of the Academic Year 2009-10.



The overall academic system for IIT Ropar is designed to provide science-based engineering education with a view to produce quality engineers and scientists. The curriculum provides broad-based knowledge and simultaneously builds a temper for life-long learning and exploring. The undergraduate programme begins with a set of science and general engineering courses which are reflected in the course plan for the first year. These courses provide a foundation for further discipline-specific topics.

Taking into account the needs of the curriculum, all facilities and infrastructure are being upgraded. The Institute has been actively involved in collaborative programmes with national and international organisations/ universities, to remain at the forefront of scientific and technological development and to share the knowledge for mutual benefits.

The Institute also undertakes a number of research and consultancy projects sponsored by a wide spectrum of funding agencies, including the Government and Industry. The Institute has undertaken major research activities in areas of national importance such as quantum optics and quantum control, low energy ion beam physics and material modification, polynomial representation of non-compact knots, unknotting numbers, surface engineering and

From The Director's Desk

friction stir welding, supramolecular synthesis and material chemistry, catalysis and nanochemistry, modelling vitamin B12 Bioinformatics, renewable energy, heat transfer, nanofluids, material processing, manufacturing, microstructure property relationship, composites, adaptive signal processing and wireless communications, archival research on the history of education, history of political philosophy.

Our greatest assets are highly qualified faculty members, visiting professors, visiting scientists, non-academic staff and an outstanding body of students.

The Institute has provided adequate funds to the departments for the upgradation of laboratories and creation of research facilities. This has enabled our faculty to take up research projects in frontier and emerging areas.

The Institute is actively involved in collaboration programmes with international organisations/ universities. Our institute has collaborated with several universities in UK, including Imperial College London, Aston University, GRPE University of Glasgow and the University of Strathclyde. MOUs have been signed with the Imperial college and GRPE of UK.

The Training and Placement Cell is actively involved in organising practical training of the undergraduate students and has been playing a catalytic role in finding placements for its final year students.

(M K SURAPPA)





Milestone	Date
★ Date of Notification of IIT Ropar (Mentor Institute IIT Delhi)	9th May, 2008
★ Registered as Society under Societies Registration Act 1860	29th July, 2008
★ Foundation Stone laid on	24th February, 2009
★ First Director of the Institute joined on	10th June, 2009
★ First Registrar of the Institute joined on	10th July, 2009
★ Inauguration of the Transit Campus	19th August, 2009
★ Commencement of Classes at the Transit Campus	20th August, 2009

IIT ROPAR - MILESTONES

BOARD OF GOVERNORS

Dr. T. Ramasami Secretary to Government of India Department of Science & Technology Technology Bhawan New Mehrauli Road New Delhi-110016	Chairman
Prof. M. K. Surappa Director Indian Institute of Technology Ropar Nangal Road, Rupnagar 140 001 (Punjab)	Member
Sh. S. C. Agrawal, IAS Chief Secretary to Government of Punjab Punjab Civil Secretariat Chandigarh -160 001	Member
Sh. Ashok Thakur, IAS Additional Secretary (Higher Education) Ministry of Human Resource Development Room No. 120, C-Wing Shastri Bhawan New Delhi-110 001	Member
Sh. Siddharth Shriram Chairman Usha International Ltd. Plot No.3, Institutional Area Sector-32, Gurgaon- 122 001 Haryana	Member
Sh. S. K. Munjal C. E. O., Hero Corporate Services E-1, Qutab Hotel Complex Shahid Jit Singh Marg New Delhi -110 016	Member
Dr. H. R. Bhojwani C-150, Sarvodaya Enclave New Delhi -110 017	Member





Prof. P. K. Raina
Professor, Department of Physics
Indian Institute of Technology Ropar
Nangal Road, Rupnagar-140 001 (Punjab)

Member

Prof. Surendra Prasad
Director
Indian Institute of Technology Delhi
Hauz Khas,
New Delhi-110016

Special Invitee

Prof. B.K. Dhindaw
Visiting Professor
Department of Mechanical Engineering
Indian Institute of Technology Ropar
Nangal Road, Rupnagar-140001 (Punjab)

Special Invitee

Sh. A. Palanivel
Registrar
Indian Institute of Technology Ropar
Nangal Road, Rupnagar-140 001 (Punjab)

Secretary

BOARD OF GOVERNORS

Dr. T. Ramasami
Secretary to Government of India
Department of Science & Technology
Technology Bhawan
New Mehrauli Road
New Delhi-110016

Chairman

Prof. M. K. Surappa
Director
Indian Institute of Technology Ropar
Nangal Road, Rupnagar 140 001
Punjab

Member

Sh. Ashok Thakur, IAS
Additional Secretary (Higher Education)
Ministry of Human Resource Development
Room No. 120, C-Wing
Shastri Bhawan
New Delhi-110 001

Member

Sh. S.K. Ray, IAS
Additional Secretary & Financial Advisor
Ministry of Human Resource Development
Department of Higher Education
Shastri Bhawan
New Delhi-110 001

Member

Prof. Surendra Prasad
Director
Indian Institute of Technology Delhi
Hauz Khas, New Delhi -110 016

Member

Sh. A. Palanivel
Registrar
Indian Institute of Technology Ropar
Nangal Road, Rupnagar-140 001
Punjab

Secretary

Prof. M. K. Surappa
Director
Indian Institute of Technology Ropar
Nangal Road, Rupnagar 140 001 Punjab

Chairman

Prof. A. Sridharan
40, West Park Road,
Between 13th & 14th Cross
Malleswaram
Bangalore - 560 003

Member

Ms. Rashmi Chaudhary
Director (TS-I)
Govt. of India
Ministry of Human Resource Development
Shastri Bhawan
New Delhi -110 114

Member

Er. S. Ramanujam
C/o S. S. Rajan
New No.7, Old No.4, 1st Floor
Mannar Reddy Street
T. Nagar, Chennai 600 017

Member

Er. A. K. Sarin
Advisor
Commonwealth Games
IInd Floor , Vikas Minar, I. P. Estate
New Delhi 110 002

Member

Sh. A. Palanivel
Registrar
Indian Institute of Technology Ropar
Nangal Road, Rupnagar-140 001
Punjab

Secretary

BUILDING AND WORKS COMMITTEE

Prof. M. K. Surappa Director Indian Institute of Technology Ropar Nangal Road, Rupnagar 140 001 Punjab	Chairman
Prof. N. Sathyamurthy Director Indian Institute of Science Education and Research Mohali MGSIPAP Complex Sector-26, Chandigarh-160 014	Member
Prof. Ranbir Chander Sobti Vice-Chancellor Punjab University Chandigarh-160 014	Member
Prof. P. K. Raina Professor and Head Department of Physics Indian Institute of Technology Ropar Nangal Road, Rupnagar-140 001	Member
Prof. Sanjoy Roy Professor and Head Department of Electrical Engineering Indian Institute of Technology Ropar Nangal Road, Rupnagar-140 001	Member
Dr. Daya Ram Gaur Associate Professor & Head Department of Computer Science & Engineering Indian Institute of Technology Ropar Nangal Road, Rupnagar-140 001	Member
Dr. Varadarajan Narayanan Assistant Professor Indian Institute of Technology Ropar Nangal Road, Rupnagar-140 001 Punjab	Member

Dr. Madeti Prabhakar Assistant Professor Indian Institute of Technology Ropar Nangal Road, Rupnagar-140 001	Member
Dr. Harpreet Singh Assistant Professor Indian Institute of Technology Ropar Nangal Road, Rupnagar-140 001	Member
Dr. Rajendra Srivastava Assistant Professor Indian Institute of Technology Ropar Nangal Road, Rupnagar-140 001	Member
Dr. K. K. Talwar Former Director, PGIMER H. No. 37, Sector 4-A Chandigarh	Member
Prof. S. M. Ishtiaque Deputy Director (Administration) Indian Institute of Technology Delhi Hauz Khas, New Delhi-110 016	Member
Prof. S. R. Kale Professor Department of Mechanical Engineering Indian Institute of Technology Delhi Hauz Khas, New Delhi-110 016	Member
Prof. B. K. Dhindaw Visiting Professor School of Mechanical, Materials and Energy Engineering Indian Institute of Technology Ropar Nangal Road, Rupnagar-140 001 Punjab	Member
Sh. A. Palanivel Registrar Indian Institute of Technology Ropar Nangal Road, Rupnagar-140 001 Punjab	Secretary

SENATE



The IITs are administered centrally by the IIT Council, an apex body established by the Government of India to co-ordinate activities of these Institutes. Hon`ble Minister for Human Resource Development, Government of India is the Chairman of the Council.

THE KEY OFFICIALS OF IIT ROPAR

S. No.	Designation	Name
1.	Director	Prof. M.K. Surappa
2.	Dean (Academic & Research)	Prof. B. K. Dhindaw
3.	Professor-In-charge (Students Affairs)	Prof. Sanjoy Roy
4.	Registrar	Shri A Palanivel
5.	Head, Deptt. of Physics & Chemistry	Prof. P K Raina
6.	Head, Deptt. of Electrical Engineering	Prof. Sanjoy Roy
7.	Head, Deptt. of CSE & Mathematics	Prof. Daya Ram Gaur
8.	Head, Deptt. of Humanities & Social Sciences	Prof. B. K. Dhindaw
9.	PG Coordinator	Dr. Rajendra Srivastava
10.	UG Coordinator	Dr. M. Prabhakar
11.	Faculty In-charge Library	Dr. Varadarajan Narayanan
12.	Faculty -Incharge Campus Maintenance & Development	Dr. S. Sarkar
13.	Faculty Incharge (Training & Placement)	Dr. Harpreet Singh
14.	Faculty Incharge Guest House	Dr. Harpreet Singh
15.	Hostel Wardens	i) Dr. M. Prabhakar ii) Dr. Varadarajan Narayanan iii) Dr. Somdev Kar iv) Dr. M. Mishra v) Dr. Rano Ringo
16.	Deputy Librarian	Dr. Dinesh K.S.
17.	Deputy Registrar	Shri Ravinder Kumar
18.	Executive Engineer	Shri Sudeep Singh
19.	Assistant Registrar	Shri Lagvish Kumar



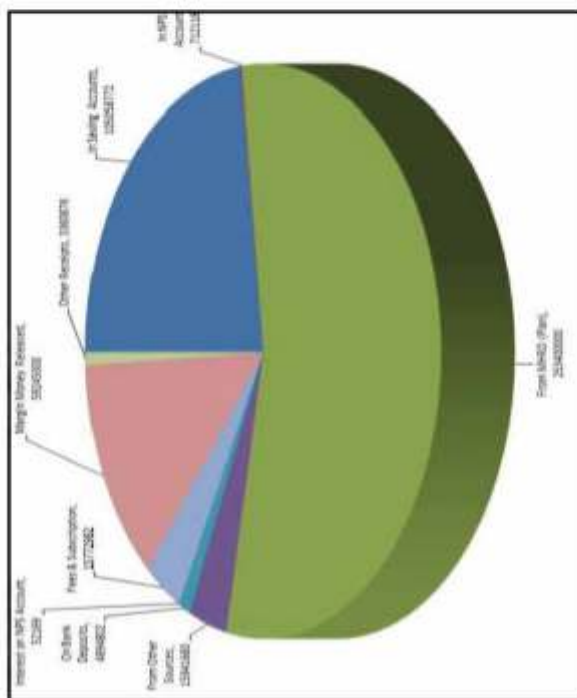
S. No.	Name	Designation	Department
1.	Prof. Sanjoy Roy	Professor	Electrical Engineering
2.	Prof. J.S. Sahambi	Associate Professor	Electrical Engineering
3.	Dr. Nitin Kumar Goel	Assistant Professor	Electrical Engineering
4.	Dr. Ramjee Repaka	Assistant Professor	School of Mechanical, Materials & Energy Engg.
5.	Dr. Satwinder Jit Singh	Assistant Professor	– do –
6.	Dr. Anupam Agrawal	Assistant Professor	– do –
7.	Dr. Ekta Singla	Assistant Professor	– do –
8.	Dr. Anshu Dhar Jayal	Assistant Professor	– do –
9.	Dr. Nitin Auluck	Assistant Professor	Computer Science & Engg.
10.	Prof. P.K. Raina	Professor	Physics
11.	Dr. Rakesh Kumar	Assistant Professor	Physics
12.	Dr. Sanjib Shankar Gupta	Assistant Professor	Physics
13.	Dr. Asoka Biswas	Assistant Professor	Physics
14.	Dr. Dhilip Kumar Thogluva	Assistant Professor	Chemistry
15.	Dr. Prabal Banerjee	Assistant Professor	Chemistry
16.	Dr. Debaprasad Mandal	Assistant Professor	Chemistry
17.	Dr. Rano Ringo	Assistant Professor	Humanities & Social Sciences
18.	Dr. Somdev Kar	Assistant Professor	Humanities & Social Sciences
19.	Dr. Snehlata Jaswal	Visiting Faculty	Humanities & Social Sciences
20.	Dr. Malini L Tantri	Visiting Scholar	Humanities & Social Sciences
21.	Dr. Subash Chandra Martha	Assistant Professor	Mathematics
22.	Dr. Manju Khan	Assistant Professor	Mathematics
23.	Dr. Arvind Kumar Gupta	Assistant Professor	Mathematics



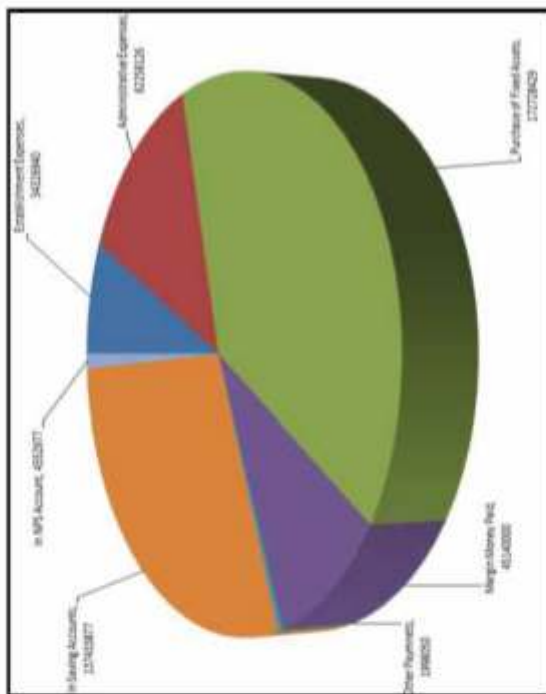
NON-FACULTY STAFF JOINED DURING THE YEAR 2010-11

S. No.	Name	Designation	Department/ Section
1.	Dr. Dinesh K.S.	Deputy Librarian	Library
2.	Sh. Ravinder Kumar	Deputy Registrar	Administration
3.	Mrs. Amrit Varsha	Jr. Superintendent	Academic Section
4.	Mrs. Amrita Choudhary	Sr. Library Information Assistant	Library
5.	Sh. Tarvinder Singh Handa	Sr. Library Information Assistant	Library
6.	Ms. Babita Arora	Jr. Accountant	Accounts Section
7.	Sh. Gurdeep Singh	Jr. Assistant	Academic Section
8.	Sh. Kaushal Kishore Jha	Jr. Assistant	Store & Purchase Section
9.	Sh. Charanjit Singh	Jr. Assistant	Establishment Section
10.	Sh. Rajiv Kumar	Jr. Lab. Assistant	Mechanical Lab.
11.	Sh. Ashu Kaushik	Jr. Lab. Assistant	Computer Lab.

RECEIPTS (Rs.)



PAYMENTS (Rs.)

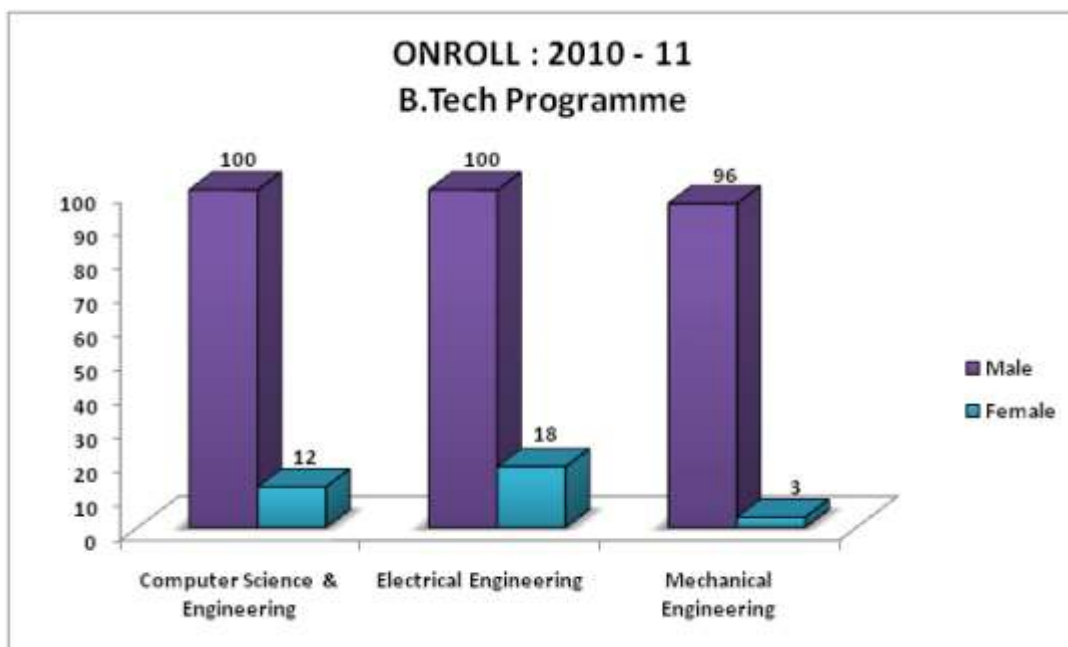
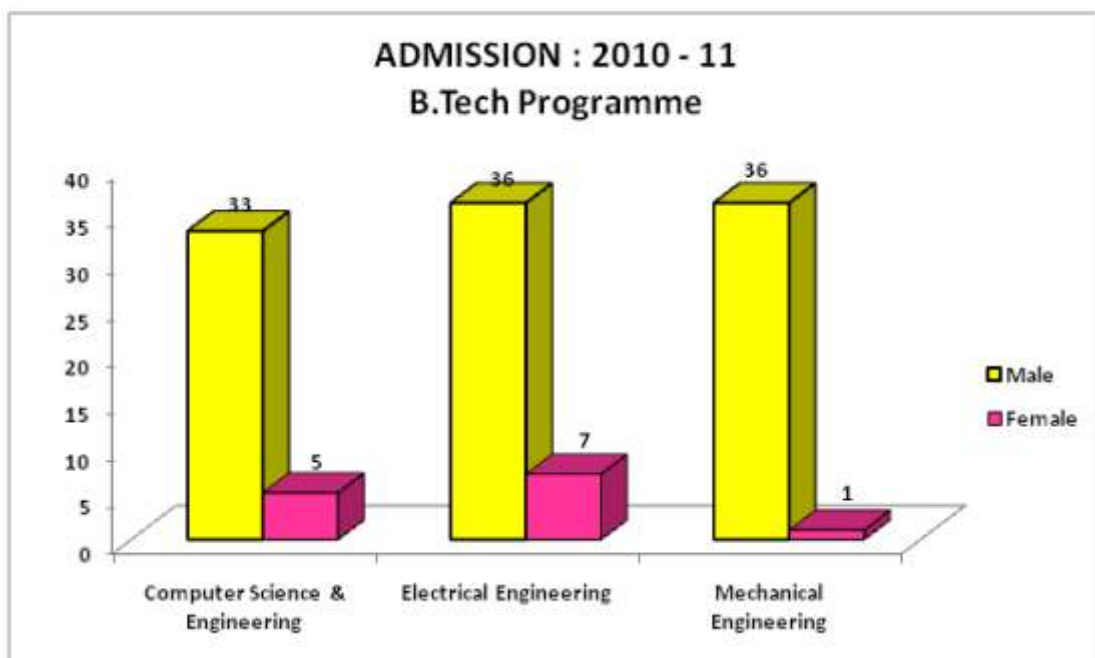


RECEIPTS	Amount (Rs.)
Opening balances	
In Saving Accounts	105058772
In NPS Account	712118
Grant Received From Govt. of India	
From MHRD (Plan)	253400000
From Other Sources	15941680
Interest Received	
On Bank Deposits	4894802
Interest on NPS Account	52169
Fees & Subscription	15772982
Margin Money Released	59245000
Other Receipts	3360876
Total	458438399

PAYMENTS	Amount (Rs.)
Expenses	
Establishment Expenses	34326940
Administrative Expenses	62258126
Purchase of Fixed Assets	172728429
Margin Money Paid	45140000
Other Payments	1998050
Closing Balance	
a) In Saving Accounts	137433877
b) In NPS Account	4552977
Total	458438399

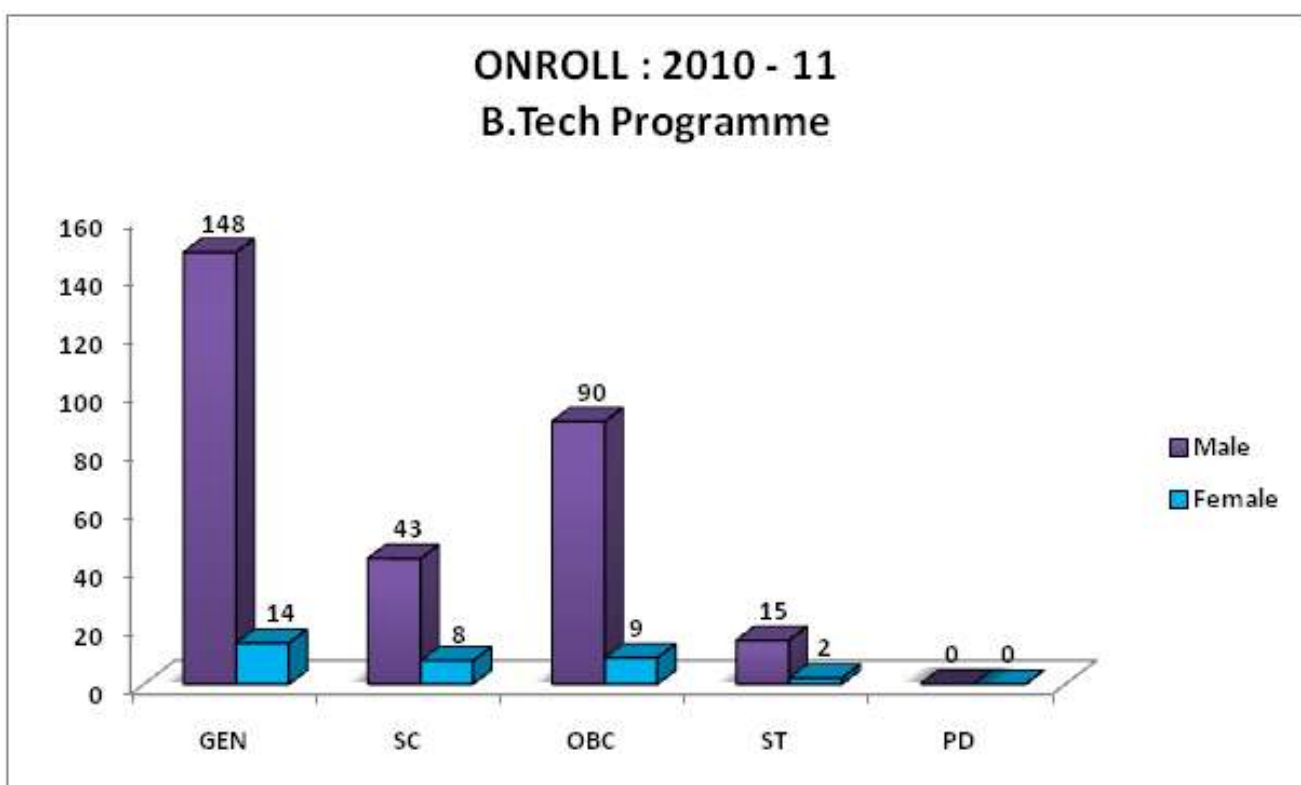
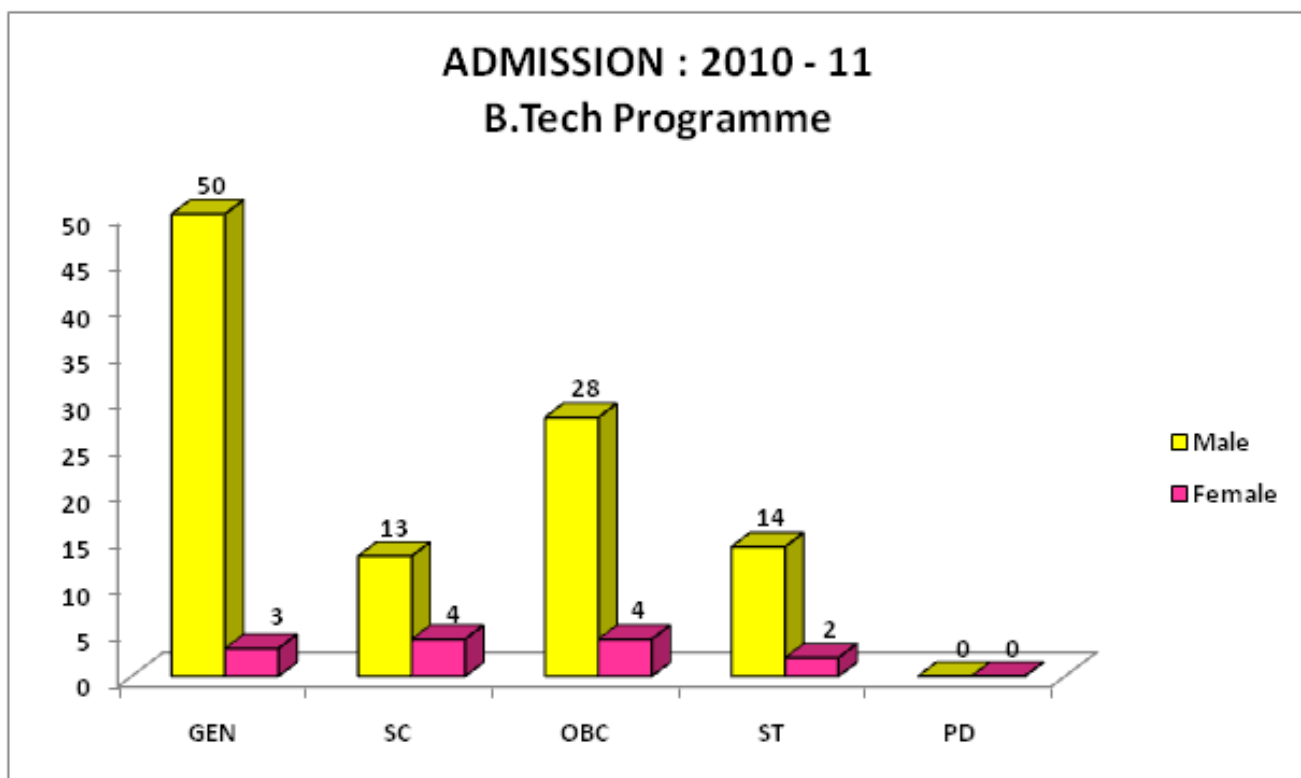
The Institute started functioning from the transit campus from 19th August, 2009. The Institute admitted 118 students to the B.Tech. programme during the academic year 2010-2011. These students were selected through the All India Joint Entrance Examination. The Institute offers courses in Computer Science & Engineering, Electrical Engineering and Mechanical Engineering. The detail of students admitted to the various Departments is as follows :-

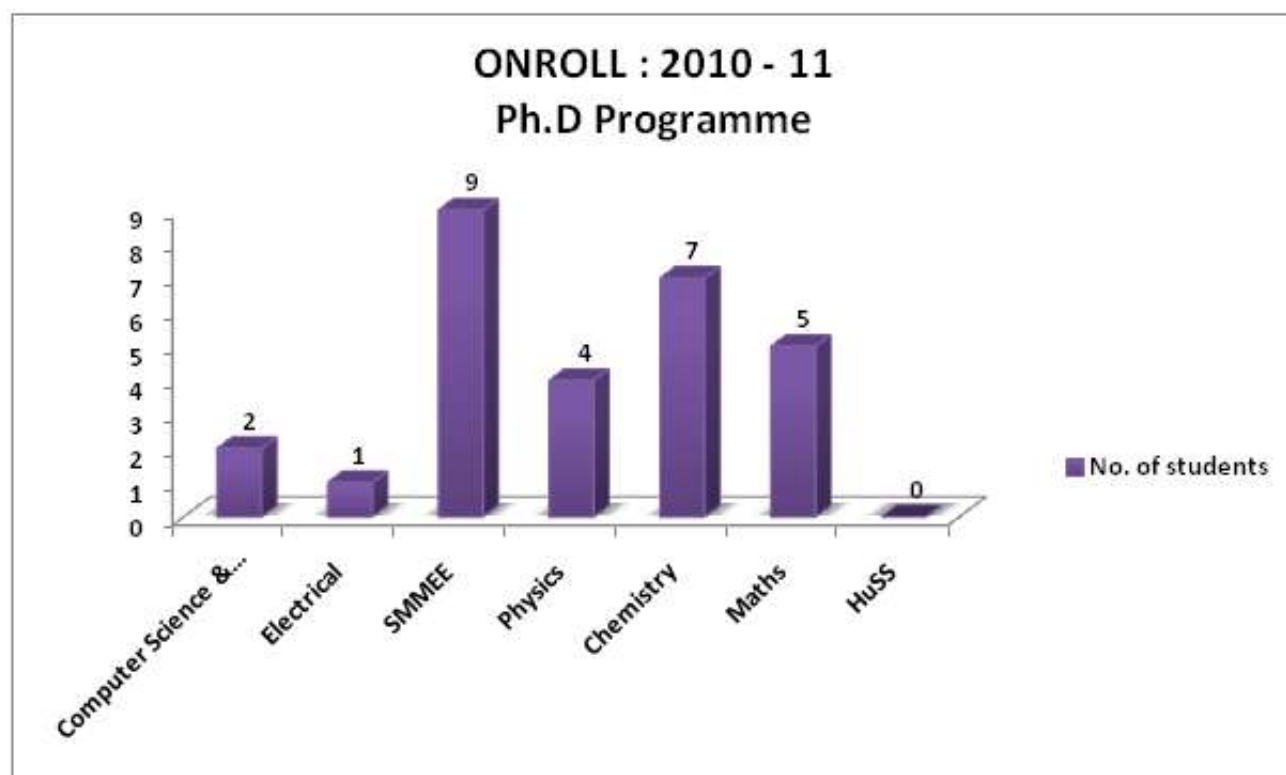
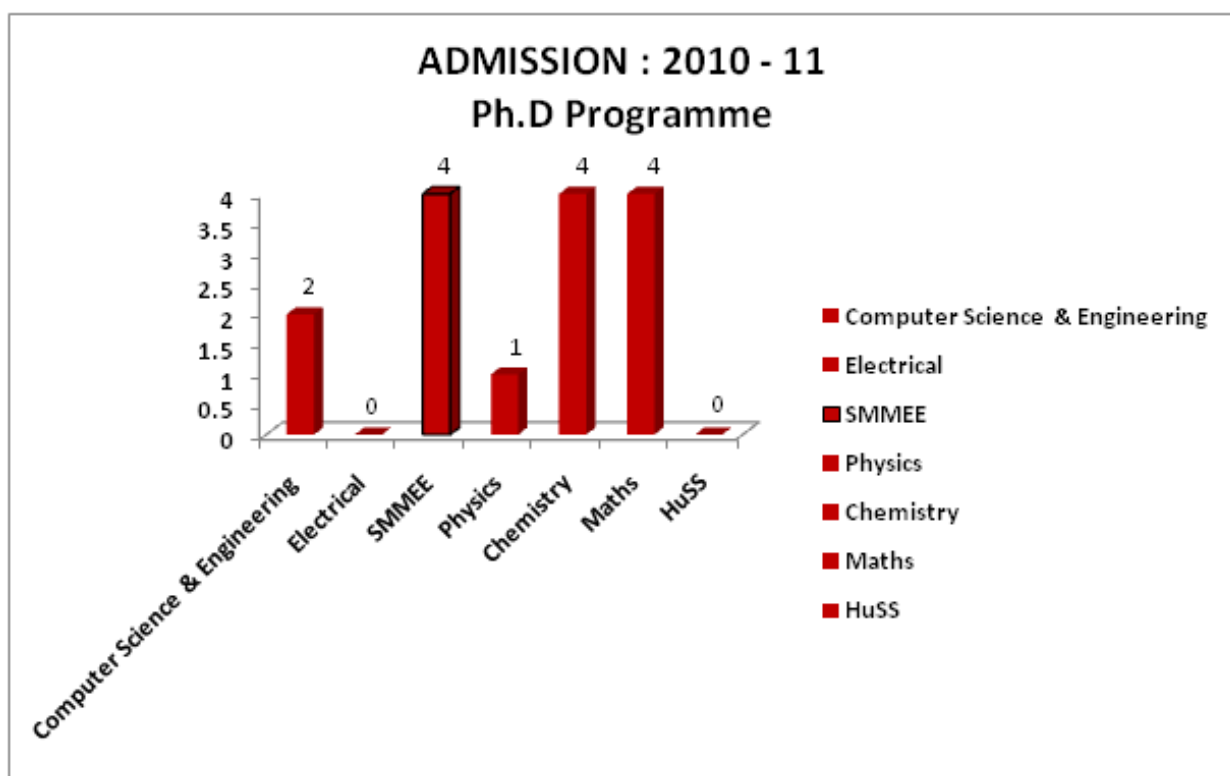
Distribution of Students According to Discipline and Gender



STUDENTS







STUDENTS

The Institute offers various scholarships to the students.

MERIT-CUM-MEANS SCHOLARSHIP : The Merit-cum-Means scholarship is given to deserving undergraduate students. These are permissible to about 25% of the students. The present value of merit-cum-means scholarship is Rs.1000/- per month for general students and the recipient is exempted from paying tuition fee. The criterion of merit for first year is All India Rank in the JEE. The merit-cum-means scholarship has been provided to the following students in the Academic Year 2010-11.

S.No.	Entry No.	Name	S.No.	Entry No.	Name
1.	P2008CS1003	Ashish Kumar Gola	34.	P2009EE1053	Arun Singh
2.	P2008CS1005	Betha Sandeep	35.	P2009EE1066	Ankit Bansal
3.	P2008CS1015	Kumar Ashwani	36.	P2009EE1069	Ankush Jain
4.	P2008CS1025	Praveen Kumar Sah	37.	P2009EE1112	Nikant Vohra
5.	P2008CS1026	Priyanshu Raj	38.	P2009EE1116	Anshul Garg
6.	P2008CS1030	Sahil Gupta	39.	P2009ME1081	Tahir Sheikh
7.	P2008CS1033	Shlok Chaurasia	40.	2010CS1004	Abhishek Kumar Arora
8.	P2008CS1035	Suresh Kumar Yadav	41.	2010CS1005	Aditya Gujral
9.	P2008EE1057	Amit Kumar Singh	42.	2010CS1007	Amritpal Singh Sehza
10.	P2008EE1064	Dhawal Pratap Singh	43.	2010CS1011	Choudhary Shubham Shriram
11.	P2008EE1067	Javed Ali	44.	2010CS1012	Deepak Garg
12.	P2008EE1071	Manish Gupta	45.	2010CS1013	Gaurav Saini
13.	P2008EE1074	Niranjana Kumar	46.	2010CS1019	Komal Preet Sharma
14.	P2008EE1077	Pawan Kumar	47.	2010CS1024	Nancharla Santosh Reddy
15.	P2008EE1079	Pooja Yadav	48.	2010CS1025	Narender Yadav
16.	P2008EE1085	Shoeb Ahmad	49.	2010CS1038	Vikas Choudhary
17.	P2008ME1102	Abhishek Kr. Singh Yadav	50.	2010EE1048	Ashish Jindal
18.	P2008ME1103	Aditya Saini	51.	2010EE1056	Karanpreet Singh
19.	P2008ME1116	Nitin Singhal	52.	2010EE1057	Kaviya Rawat
20.	P2008ME1123	Rahul Kumar Singh	53.	2010EE1064	Mayank Bakshi
21.	P2009CS1001	Pravesh Jain	54.	2010EE1067	Nabh Choudhary
22.	P2009CS1002	Prateek Mukati	55.	2010EE1082	Tanvi Srivastava
23.	P2009CS1005	Rishi Aggarwal	56.	2010EE1084	Yajat Sharma
24.	P2009CS1007	Pankaj Verma	57.	2010ME1088	Abhishek Singh
25.	P2009CS1012	Kapil Kumar	58.	2010ME1091	Bhupender Singh Chugh
26.	P2009CS1016	Santosh Kumar	59.	2010ME1097	Dev Gurera
27.	P2009CS1021	Madhu Rani	60.	2010ME1099	Ditesh Kumar
28.	P2009CS1022	Vikas Yadav	61.	2010ME1101	Gurdeep Singh
29.	P2009CS1030	Akinapally Praveen	62.	2010ME1104	Karanveer Singh
30.	P2009CS1036	Vikas Mittal	63.	2010ME1114	Nitin Kumar
31.	P2009CS1043	Sonu Kumar Giri	64.	2010ME1116	Ravi Sharma
32.	P2009CS1110	Deepak Sachdeva	65.	2010ME1119	Sanjeev Rawal
33.	P2009EE1039	Kolbudhe Sneha			

This scholarship is given to the SC students only. According to the terms and conditions of this scholarship, awardees will receive a total of Rs. 55020/- towards annual fee, other refundable charges, boarding & lodging, books & stationery and PC etc.

INSTITUTE FREE STUDENTSHIP

The Institute offers free studentship to 10% of the students on the basis of means alone. This scholarship has been provided to the following students :-

S.No.	Entry No.	Name	S.No.	Entry No.	Name
1.	P2008ME1134	Vivek Vishwakarma	9.	2010ME1113	Nishant Kumar
2.	P2008ME1120	Prashant Yadav	10.	2010CS1026	Naveen Kumar
3.	P2008ME1109	Dharampal Yadav	11.	2010ME1094	Brijesh Singh Gurjar
4.	P2008ME1127	Shashank Sah	12.	2010EE1047	Arvind Beniwal
5.	2010ME1092	Bhupendra Singh Kasva	13.	2010CS1016	Harmandeep Singh
6.	2010EE1081	Surabhi Rathore	14.	2010CS1003	Abhishek Kumar
7.	2010ME1105	Ketan Kumayu	15.	2010EE1062	Manisha Kumari
8.	2010EE1065	Mohan Choudhary	16.	2010EE1068	Narinder Pal Singh

INSTITUTE MERIT PRIZES AND CERTIFICATES

The Institute offers merit prizes and certificates to top 7% of the students of each 4-year B.Tech. programme for the 1st and 2nd semester. A total amount of Rs. 2500/- and a merit certificate is given to these students. The following students received this Scholarship :-

S.No.	Entry No.	Name	S.No.	Entry No.	Name
1.	P2008CS1005	Betha Sandeep	13.	P2009EE1051	Prashant Kumar
2.	P2008CS1012	Ishan Chhabra	14.	P2009ME1108	Rahul Gulati
3.	P2008EE1065	Divya Mahajan	15.	P2009ME1062	Gayathri Lakshmi Kulukuru
4.	P2008EE1072	Mulpuru Ravi Teja	16.	2010EE1057	Kaviya Rawat
5.	P2008EE1132	Vikas Aggarwal	17.	2010ME1122	Somyanshu Arora
6.	P2008ME1119	Prashant Pratap Singh	18.	2010CS1020	Kshitij Yogesh Gupta
7.	P2008ME1122	Raghav Paul	19.	2010EE1048	Ashish Jindal
8.	P2009CS1037	Rohit Agarwal	20.	2010CS1012	Deepak Garg
9.	P2009CS1043	Sonu Kumar Giri	21.	2010CS1018	Jaspreet Kaur
10.	P2009CS1024	Shikhar Srivastav	22.	2010CS1036	Shubham Upadhyay
11.	P2009EE1116	Anshul Garg	23.	2010EE1042	Aditya Dalakoti
12.	P2009EE1112	Nikant Vohra			



The Institute provides facilities for research leading to the Degree of Doctor of Philosophy (Ph.D). The award of the Ph. D degree is awarded on the basis of satisfactory performance of a registered candidate in prescribed course work, seminar and thesis submitted by the candidate and a final viva voce. The thesis shall be the report of research work characterized by either discovery of new facts or a new interpretation of known facts and theory, or an independent design or development of new instrument/ technology.

The Research Scholars are provided Institute fellowship for pursuing their Ph.D. programme. The areas of research are as follows :-

1. Quantum optics and quantum control
2. Low energy ion beam physics and materials modification
3. Polynomial representation of non-compact knots
4. Unknotting numbers
5. Surface Engineering and friction stir welding
6. Supra molecular synthesis and materials chemistry
7. Catalysis and Nano-chemistry
8. Modeling vitamin B 12
9. Bio-informatics
10. Archival research on history of education
11. History of political philosophy
12. Renewable energy
13. Heat transfer
14. Nanofluids
15. Material processing
16. Manufacturing
17. Micro-structure property relationship
18. Composites
19. Adaptive Signal processing
20. Wireless communication

HEAD OF THE DEPARTMENT : Dr. Daya Ram Gaur

Programme offered : B. Tech & Ph.D

No. of Students B. Tech : 112

Ph.D : 02

Name & Designation	Qualification	Area of research
Daya Ram Gaur Associate Professor	Ph.D (SFU, Canada)	Approximation Algorithms, Discrete and Combinatorial Optimization, Algorithms in Bioinformatics
Apurva Mudgal Assistant Professor	Ph.D (Georgia Institute of Technology, USA)	Theoretical robotics, computational geometry
Nitin Auluck Assistant Professor	Ph.D (University of Cincinnati)	Real-time systems, scheduling theory, parallel and distributed systems.
Anu Radha Vaidyanathan Visiting Scientist	Ph.D (University of Canterbury)	Systems

❖ **Ongoing Activities :**

- Teaching & Research
- Two research scholars in the department working on scheduling in real time systems and problems in computational geometry.

❖ **Thrust Areas :**

- Real time systems
- Theoretical Robotics
- Large scale Optimization
- Approximation Algorithms
- Bio-informatics
- Computational Geometry
- Image Processing and Pattern Recognition.

❖ **Lectures by visiting experts :**

Name of the expert	Topic
Dr. Aviral Shrivastava Arizona State University	The Multi-core challenge : Missing Memory Virtualisation.
Dr. Shailesh Vaya IIT Madras	Realizing secure multiparty computation on incomplete networks.



Aston-IIT Ropar Symposium

Aston-IIT Ropar Symposium

Title of the Project	Funding Agency
Approximation Algorithms for NP-hard optimization problems	DST SERC, Govt. of India
Prototype Development and Innovation Fund	PTU, Jalandhar

Name of faculty member	Institute visited
Nitin Auluck,	Sant Longowal Institute of Engg. and Tech., Longowal, Punjab
Apurva Mudgal	IIT Kanpur
Apurva Mudgal	STCS, TIFR Mumbai
Nitin Auluck	Institute of Engg. and Tech., Bhaddal, Ropar, Punjab
Daya Ram Gaur	Thapar University, Patiala, IGGA Workshop organized by Thapar University and TIFR Mumbai.
Daya Ram Gaur	Aston University

Organization	Topic
Aston University, UK	Invited talk and to explore collaborative research
University of Lethbridge, Canada	M.Sc. thesis defense and collaborative research

HEAD OF THE DEPARTMENT : Prof. Sanjoy Roy

Programme offered : B. Tech & Ph.D

No. of Students B. Tech : 118

Ph.D : 01

No. of Publication : 02

Name & Designation	Qualification	Area of research
Sanjoy Roy Professor	Ph.D (Calgary)	Renewable energy systems: planning and economics; decision making in power network management.
J. S. Sahambi Associate Professor	Ph.D (IIT, Delhi)	Wavelet analysis, medical signal and image processing, MR image processing, DSP based systems design.
Parthaprati De Associate Professor	Ph.D (Cincinnati, USA)	Adaptive signal processing and its applications to wireless communications, channel estimation, OFDM, MIMO systems, and CDMA.
Nitin Goel Assistant Professor	Ph.D (Virginia Tech.)	Fiber optics (optical communication)

❖ **Ongoing Activities :**

Teaching and Research.

❖ **Thrust Areas :**

1. Biomedical signal processing
2. Embedded system design
3. DSP based system design
4. Photonics: fiber optic sensors and optical communication
5. Wide area monitoring in power systems
6. Low-power mixed signal circuit and device designs
7. Renewable energy systems

❖ **Lectures by visiting experts :**

Name of the expert	Topic
Prof. Avtar Singh, San Jose University, USA	Computer architecture
Prof. V. K. Sood, University of Ontario Institute of Technology, Canada	On high voltage direct current systems
Prof. T. S. Sidhu, University of Western Ontario, Canada	On microprocessor based relay.



Chairman of School : Prof. B.K. Dhindaw

Programme offered : B. Tech & Ph.D

No. of Students B. Tech : 99

Ph.D : 09

No. of Publication : 39

Name & Designation	Qualification	Area of research
M. K. Surappa Professor & Director	Ph.D (IISc. Bangalore)	Metal matrix composites
B. K. Dhindaw Visiting Professor	Ph.D (IIT, Kharagpur)	Solidification processing, composite friction stir processing, steel technology.
Harpreet Singh Assistant Professor	Ph.D (IIT, Roorkee)	Surface Engineering and Sustainable Machining
Himanshu Tyagi Assistant Professor	Ph.D (Arizona State University)	Thermo-fluids Engineering, Nanofluids, Sustainable Energy, Solar Energy
Navin Kumar, Assistant Professor	Ph.D (IIT, Delhi)	Nanocomposites, Carbon Nanotubes, Nanomicro Device Experimentation
Ramjee Repaka Assistant Professor	Ph.D (IIT, Kharagpur)	Heat Transfer, Thermal Engineering
Satwinder Jit Singh Assistant Professor	Ph.D (IISc. Bangalore)	Applied Mechanics, Numerical Methods
Anupam Agrawal Assistant Professor	Ph.D (IIT, Kanpur)	Analysis of Metal Forming Processes, Deformation Analysis, CAD/CAM
Ekta Singla Assistant Professor	Ph.D (IIT, Kanpur)	Robotics, redundant manipulators, robot path planning, collision detection, obstacle avoidance, applied optimization methods - classical and evolutionary, optimal mechanical design
Anshu Dhar Jayal Assistant Professor	Ph.D (University of Utah)	Sustainable manufacturing technologies

❖ **Ongoing Activities :**

- Teaching and Research.

❖ **Thrust Areas :**

- Analysis of Metal Forming Processes
- Deformation Analysis
- CAD/CAM
- Surface Engineering
- Bio-energy and Sustainable Machining
- Thermo-fluids Engineering
- Nanofluids
- Renewable Energy
- Steel technology, New and renewable energy

❖ **Sponsored Research Projects**

S.No.	Title of the Project	Funding Agency
1.	Surface Engineering to Control Erosion-Corrosion of Steam Generating Plants by Nano-particle Coatings	DST, Govt. of India
2.	Development of Magnesium alloy based in-situ nano composites for improved material properties using friction stir processing	Defence R&D Organization, Govt. of India

❖ **Establishment and expansion of Laboratories**

- Design Laboratory
- Vibration Laboratory
- Material Science and Engineering Laboratory
- SEM Laboratory
- XRD Laboratory
- Thermal Fluid Laboratory
- Product Design and Realization Workshop
- Product Design and Realization Laboratory
- Product Design and Realization Computer Laboratory

❖ **Visits abroad by faculty members :**

- Dr Harpreet Singh as Visiting faculty at Imperial College, London, UK under UKIERI Program from March 14-25, 2011.
- Dr Harpreet Singh attended the 49th Annual International Conference of Metallurgists (COM 2010) at Vancouver, BC, Canada during October 3-6, 2010.
- Dr Harpreet Singh attended Cold Spray Conference 2010 at Akron, Ohio, USA during September 27-28, 2010.

❖ **Short-Term Courses Organised**

- Dr Harpreet Singh coordinated a faculty development programme on 'Industrial Tribology' during January 3-8, 2011.

❖ **Foreign Collaboration**

- Dr Harpreet Singh organized a joint research colloquium for the faculty and students of Aston University, UK and IIT Ropar during April 12-17, 2010.
- Establishment of Aston University-IIT Ropar Bioenergy Research Centre.
- Mr Nitin Singhal, B.Tech.-ME student did his internship in Aston University, UK in Summer, 2010.



HEAD OF THE DEPARTMENT : Prof. P. K. Raina

Programme offered : Ph.D

No. of Students : 07

No. of Publication : 06

Name & Designation	Qualification	Area of research
Narinder Singh Assistant Professor	Ph.D (GNDU, Amritsar)	Supramolecular & Materials Chemistry
Rajendra Srivastava Assistant Professor	Ph.D (National Chemical Lab., Pune)	Materials Chemistry and Catalysis
Avijit Goswami Assistant Professor	Ph.D (Heidelberg University, Germany)	Homogeneous Catalysis and Organic polymer Chemistry.
T. J. Dhilip Kumar Assistant Professor	Ph.D (IIT, Madras)	Physical and Theoretical Chemistry
Prabal Banerjee Assistant Professor	Ph.D (National Chemical Lab., Pune)	Synthetic Organic Chemistry
Debaprasad Mandal Assistant Professor	Ph.D (IIT Kanpur)	Organic and Organometallic Chemistry

❖ **Ongoing Activities :**

- Teaching & Research

❖ **Thrust Areas :**

- Supramolecular & Materials Chemistry
- Catalysis and Nano-materials
- Development of new and easily accessible transition metal homogeneous/
heterogeneous catalysts for fine organic compounds as well as for biologically active
compounds.
- Fundamental studies on H₂ storage and Fuel cell material research
- Development of new methodologies and apply them to synthesis of natural products.
- Small molecule activation and catalysts development.

❖ Lectures by visiting experts :

Name of the expert	Topic
Dr. Sameer Sapra, Department of Chemistry, IIT Delhi	Semiconductor nanocrystals: Application for the future
Dr. Prasant K. Nanda, University of Missouri-Columbia, USA	Metallated Peptide Conjugates for Specific Targeting of Human Cancers
Dr. Anandarup Goswami, Rutgers University, USA	Lithium phenolates solvated by tetrahydrofuran and 1,2-dimethoxyethane: Structure determi- nation using the method of continuous variation
Dr. Viruthachalam Thiagarajan, CNRS, France	Photoenzymatic repair of UV-damaged DNA monitored by real-time sub-nanosecond transient absorption spectroscopy
Professor T. Pandiyan, National Autonomous University of Mexico	Ruthenium complexes and their properties in diverse applications

❖ Sponsored Research Projects

S.No.	Title of the Project	Funding Agency
1.	Design and Synthesis of New Ratiometric Fluorescent Chemo-sensors: Excited State Proton Transfer involving Keto-Enol Tautomerism.	CSIR, Govt. of India
2.	Design and Syntheses of A New Class of Salen Based Metal Complexes: A Search for Catalytic Activity.	CSIR, Govt. of India
3.	Design and Synthesis of Quantum Dot-Based Benzimidazole-Coupled Chemosensors	Indo-Korean Joint Project of DST, Govt. of India
4.	Synthesis and catalytic applications of nanoporous p-conjugated polymer-silica nanocomposite materials	CSIR, Govt. of India
5.	Synthesis of Au(I) complexes luminescent based benzimidazole, pyridyl and amine: Gold nano-particles for sensor development	India-Mexico Joint Project (DST-CONACYT)
6.	H ₂ storage materials for renewable energy: Fundamental study on metal hybrid nanostructures	DST-Young Scientist Project, Govt. of India
7.	Development of [3 + 3]-cycloaddition of Azomethine ylide towards the construction of Piperidine Ring System: Application to the Alkaloids Synthesis	DST-Young Scientist Project, Govt. of India





HEAD OF THE DEPARTMENT : Prof. P. K. Raina

Programme offered : Ph.D

No. of Students : 04

No. of Publication : 07

Name & Designation	Qualification	Area of research
P. K. Raina Professor	Ph.D. (IIT, Kanpur)	Neutrinos, Nuclear, Particle and Astrophysics
Asoka Biswas, Assistant Professor	Ph.D. (Physical Research Laboratory, Ahmedabad)	Quantum computing, Many body entanglement in spin Systems.
Rakesh Kumar Assistant Professor	Ph.D. (IIT, Bombay)	Graphene and other two dimensional materials, Fabrication of nanodevices, Strongly correlated electron behaviors in CMRs and double perovskite materials.
Sanjib Shankar Gupta Assistant Professor	Ph.D. (Clemson University, USA)	Virtual Nuclear Reactor development, Optimi-mization of astrochemical reaction networks using GPU cluster and virtual interface.
Subhrangshu Das Gupta Assistant Professor	Ph.D. (Physical Research Laboratory, Ahmedabad)	Physical modeling in Quantum optics, nano systems, and decoherence in physical systems
Subhendu Sarkar Assistant Professor	Ph.D. (Saha Institute of Nuclear Physics, Kolkata)	Low energy ion beam Physics, Fabrication of nanostructures on semiconductor surface using ion beams, and secondary ion spectroscopy.

DEPARTMENT OF PHYSICS

❖ **Ongoing Activities :**

- Teaching & Research

❖ **Thrust Areas :**

- Graphene and other two dimensional materials.
- Strongly correlated electron behaviors in low dimensional materials.
- Fabrication of nanostructures and nanodevices.
- Low energy ion beam Physics, secondary ion spectroscopy.
- Theoretical modeling for Quantum optics.
- Energy production under optimal controls from nuclear and biochemical reaction networks.
- Astrophysics and nuclear Physics to understand the big-bang condition and evolution of the Universe. Neutrino physics.
- Nuclear structure and Particle physics.

❖ **Lectures by visiting experts :**

Name of the expert	Topic
Dr. Vivek Parkar, University of Huelva, Spain	Reaction dynamics study around Coulomb barrier energies.
Dr. Subhadeep De, Joint Quantum Institute, National Institute of Standard and Technology & University of Maryland College Park, MD 20742, USA	Facility to produce ultra cold degenerate Bose and Fermi gases.
Dr. Ranber Singh, Max Planck Institute, Stuttgart, Germany	Semiconductor quantum dot as a source of on demand single photons and entangled photon pairs.
Dr. Narendra Sahu, ULB, Brussels, Belgium	Direct and Indirect Search of Dark Matter Interacting via Higgs Portal.

❖ **Sponsored Research Projects**

Title of the Project	Funding Agency
Theoretical and Experimental Investigation of a possibility to use Sn-124 in modern double beta decay experiments.	Govt. of India & RFBR Russia
Detection of entanglement in many-spin systems using spin-spin correlation.	Govt. of India

HEAD OF THE DEPARTMENT : Dr. Daya Ram Gaur

Programme offered : Ph.D

No. of Students : 05

No. of Publication : 01

Name & Designation	Qualification	Area of research
M. Prabhakar Assistant Professor	Ph.D (IIT, Delhi)	Unknotting Numbers, Minimal Degree Sequence for Knots
Manoranjan Mishra Assistant Professor	Ph.D (IISc, Bangalore)	Fluid Dynamics
S. C. Martha Assistant Professor	Ph.D (IIT, Guwahati)	Fluid Dynamics, Mathematical Modelling of Water Wave Phenomena, Integral Transforms, Integral Equations and Special Functions
Manju Khan Assistant Professor	Ph.D (IIT, Delhi)	Group Algebra
Arvind Kumar Gupta Assistant Professor	Ph.D (IIT, Roorkee)	Mathematical Modeling, Numerical Simulation, Cellular Automata

❖ **Ongoing Activities :**

- Teaching & Research
- At present there are five research scholars in the department.
- MPrabhakar - Guided 2 MSc students

❖ **Member-Editorial board :**

- Manju Khan - International Journal of Mathematical Sciences and Applications.
- Arvind Kumar Gupta - International Journal of Advanced Engineering Te - Journal of Engineering Research & Studies

❖ **Thrust Areas :**

- Fluid dynamics, Group algebra.
- Mathematical modeling.
- Numerical computing, topology.

❖ **Sponsored Research Projects**

Title of the Project	Funding Agency
Modeling and simulation of viscous fingering instability between two miscible fluids in liquid chromatographic conditions.	DST, Govt. of India

❖ **Book Published:**

A K Gupta, (2011), "**Mathematical Modeling of Traffic flow: A continuum approach**", Lambert Academic Publishing, Germany (ISBN 978-3-8433-6881-0).

HEAD OF THE DEPARTMENT : Prof. B.K. Dhindaw

Programme offered : Ph.D

No. of Publication : 04

Name & Designation	Qualification	Area of research
V. Narayanan Assistant Professor	Ph.D (IIT, Kanpur)	German idealism, political philosophy, history of the book
Rano Ringo Assistant Professor	Ph.D (IIT, Roorkee)	Gender Studies, Postcolonial Studies, Modern Fiction
Somdev Kar Assistant Professor	Ph.D (University of Tübingen, Germany)	Phonetics, Phonology (with special interest in Optimality Theory), and Speech Processing
Snehlata Jaswal, Visiting Faculty	Ph.D (University of Edinburgh)	Human cognition
Malini Tantri, Visiting Scholar	Ph.D (ISEC, Bangalore)	Economics

❖ **Ongoing Activities :**

- Teaching & Research

❖ **Thrust Areas :**

- Gender Studies
- Eco-feminism
- Economics
- Morphology
- Phonology
- Speech Processing
- Computational Linguistics.

The T & P Cell has successfully completed Summer Internship of B. Tech-III year students in reputed Industries/ Companies/ R&D organizations in India and abroad such as Aston, Microsoft, BSNL, DRDO, Nokia, Bharti Airtel and HCL etc.

The T&P Cell has already started placement process for the final year students of all the three streams i.e. Computer Science & Engineering, Mechanical Engineering and Electrical Engineering. About 300 potential companies have been short listed for participation in the placement process for the year 2011. A student from the Department of Computer Science and Engineering has already been given an offer of appointment.



1. Uncertainties in nuclear transition matrix elements for neutrinoless $\beta\beta$ decay within projected-Hartree-Fock-Bogoliubov model, P. K. Rath, R. Chandra, K. Chaturvedi, P. K. Raina and J. G. Hirsch, Phys. Rev. C82, 064310 (2010).
2. Quadrupolar correlations and deformation effect on two neutrino $\beta\beta^+$ and β^+EC modes of ^{156}Dy isotope, P. K. Rath, R. Chandra, S. Singh, P. K. Raina and J. G. Hirsch, Journal of Physics G, 37, 055108 (2010).
3. Uncertainties in nuclear transition matrix elements of neutrinoless positron double beta decay within PHFB model, R. Chandra, K. Chaturvedi, P. K. Raina and P. K. Rath Proceedings of the DAE Symposium on Nuclear Physics Vol 55, Page 34, (2010).
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5. Simulation and Sensitivity Study of Double Beta Decay of ^{136}Ce using CeCl_3 Scintillator, S. K. Ghorui, F. Cappella, R. Cerulli, A. K. Singh, P. K. Rath and P. K. Raina 7th International Workshop on Neutrino-Nucleus Interactions in Few-GeV Region (NuInt11), March 7-11, 2011 Dehradun, India.
6. Role of short range correlation on nuclear transition matrix elements of neutrinoless positron double beta decay, R. Chandra, K. Chaturvedi, P. K. Rath and P. K. Raina 7th International Workshop on Neutrino-Nucleus Interactions in Few-GeV Region (NuInt11), March 7-11, 2011 Dehradun, India.
7. Multi-unit planning assessment of wind power: sensitivity to wind regimes, S. Roy, Accepted, and to appear in the IEEE Transactions on Sustainable Energy.
8. Reduction of voltage dynamics in isolated wind-diesel units susceptible to gusting". S Roy, IEEE Transactions on Sustainable Energy, vol. 1, no. 2, July 2010, pp. 84-91.
9. Chemical Stability and Application of a Fluorophilic Tetraalkylphosphonium Salt in Fluorous Membrane Anion-Selective Electrodes, D. Chen, Debaprasad Mandal, John A. Gladysz, Philippe Bühlmann New J. Chem., 2010, 34, 1867-1874.
10. Syntheses of Fluorous Quaternary Ammonium Salts and their Application as Phase Transfer Catalysts for Halide Substitution Reactions in Extremely Nonpolar Fluorous Solvents, Debaprasad Mandal, John A. Gladysz, (Special Ed. Symposium on Green Chemistry) Tetrahedron, 2010, 66, 1070-1077.
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12. Configural encoding in visual feature binding, Jaswal, S. and Logie, R.H. (2011) Journal of Cognitive Psychology, 23 (5), 586-603.

13. Superposition Relations for Forced Convective Local Nusselt Numbers for Flow Through Asymmetrically Heated Parallel-Plate Channels, V.V.Satyamurty, Ramjee Repaka, Heat Transfer Engineering, 32 (6), 2011, pp. 476-4
14. Tetrapodal receptors for selective fluorescent sensing of AMP: analyte-induced conformational restriction to persuade fluorescence enhancement Narinder Singh, Doo Ok Jang Tetrahedron Letters, Volume 52, Issue 20, 18 May 2011, Pages 2608-2610.
15. Ratiometric fluorescent detection of Cu(II) in semi-aqueous solution using a two-fluorophore approach, Narinder Singh Navneet Kaur, Bridgeen McCaughan, John F. Callan Tetrahedron Letters, Volume 51, Issue 26, 30 June 2010, Pages 3385-3387.
16. Dimensional synthesis of kinematically redundant serial manipulators for cluttered environments, Ekta Singla, Suryamani Tripathi, Venkataramani Rakesh, Bhaskar Dasgupta Robotics and Autonomous Systems, Volume 58, Issue 5, 31 May 2010, Pages 585-595.
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18. Surface Engineering Analysis of Detonation-gun Sprayed Cr₃C₂-NiCr Coating under High-Temperature Oxidation and Oxidation-Erosion Environments, Kaur, M., Singh, H. and Prakash, S., (2011), Surf. Coat. Technol., accepted for publication.
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21. Comparative High Temperature Analysis of HVOF Sprayed and Detonation Gun Sprayed Ni-20Cr Coating in Laboratory and Actual Boiler Environment, Kaushal, G., Singh, H. and Prakash, S., (2011), Oxidation of Metals, accepted for publication.
22. Surface Engineering, by Detonation-Gun Spray Coating, of 347H Boiler Steel to Enhance its High Temperature Corrosion Resistance, Kaushal, G., Singh, H. and Prakash, S., (2011), Mater. High Temp., accepted for publication.
23. Characterisation and High Temperature Oxidation Behaviour of Cold Sprayed Ni-20Cr and Ni-50Cr Coatings on Boiler Steels, Bala, N., Singh, H. and Prakash, S., (2011), Metall. Mater. Trans. A, accepted for publication
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- Engrs, Part J: J. Eng. Tribology, accepted for publication.
25. High Temperature Corrosion Behavior of HVOF- Sprayed Ni-20Cr Coating on Boiler Steel in Molten Salt Environment at 900°C, Kaushal, G., Singh, H. and Prakash, S., (2011), Inter. J. Surf. Sci. Eng., accepted for publication.
 26. Thermal Sprayed CNT Reinforced Nanocomposite Coatings - A Review, Singla, M. K., Singh, H. and Chawla, V., (2011), J. Minerals Mater. Charact. Eng., Vol. 10, No.8, pp.717-726.
 27. Metallurgical Principles of Cryogenically Treated Tool Steels- A Review on Current State of Science, Gill, S. S., Singh, J., Singh, R., and Singh, H., (2011), Inter. J. Advanced Manufacturing Technol., Vol. 54, Nos.1-4, pp. 59-82.
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 29. Buckling Analysis of Thin Rectangular Plates with Cutouts subjected to Partial Edge Compression using FEM, Singh, S., Kulkarni, K. V., Pandey, R. and Singh, H., (2011), Journal of Engineering, Design and Technology, accepted for publication in Vol. 10, No. 01.
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 37. Assessment of the Catalytic Activities of Novel Brönsted Acidic Ionic Liquid Catalysts Rajendra Srivastava* Catalysis

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 53. Comparison of Dimensional Repeatability of Deformation Machined Components with Sheet Metal Components, Agrawal, A., Ziegert, J., Smith, S., Woody, B., Cao, J., Transactions of NAMRI/SME, Volume 38, 2010, Pages 571-576 (North American Manufacturing Research Conference, NAMRC38).
 54. Fatigue Life Study of Deformation Machined Components, A. Agrawal, J. Ziegert, S. Smith, B. Woody, J. Cao, Indo-Japan Seminar, IIT Delhi, New Delhi, March 21-25, 2011.
 55. Energy Efficiency of Refrigeration Systems for High-Heat-flux Microelectronics, P. E. Phelan, Y. Gupta, H. Tyagi, R. Prasher, J. Cattano, G. Michna, R. Zhou, J. Wen, M. Jensen, & Y. Peles ASME Journal of Thermal Science & Engineering Applications, Vol. 2(2010), pp.031004.
 56. Applicability of Nanofluids in Concentrated Solar Energy Harvesting, R. A. Taylor, P. E. Phelan, T. P. Otanicar, H. Tyagi & S. Trimble, Paper No. ES2010-90055, ASME 4th International Conference on Energy Sustainability, Phoenix, Arizona, USA, May 17-22, 2010.
 57. Tuning the Extinction Coefficient for Direct Absorption Solar Thermal Collector Optimization, T. P. Otanicar, P. E. Phelan, R. A. Taylor, & H. Tyagi, Paper No. ES2010-90022, ASME 4th International Conference on Energy Sustainability, Phoenix, Arizona, USA, May 17-22, 2010.
 58. Application of Nanofluids as the Working Fluid in Concentrating Parabolic Solar Collectors, V. Khullar, & H. Tyagi, Paper No. FMFP2010-179, 37th National & 4th International Conference on Fluid Mechanics & Fluid Power, IIT Madras, Chennai, India, Dec. 16-18, 2010.
 59. Role of Blood Flow and Thermal Response of a Cancerous Tissue During Hyperthermia, S. Soni, H. Tyagi, & A. Kumar, Paper No. FMFP2010-153, 37th National & 4th International Conference on Fluid Mechanics & Fluid Power, IIT Madras, Chennai, India, Dec. 16-18, 2010.

Sponsored research is an important part of IIT activities. We have maintained a steady and sustained growth in our interaction with industry and other agencies in terms of the number and value of sponsored research projects. The number of active sponsored projects during the year 2010-2011 is as follows:-

Sr. No.	Title of Project	To whom sanctioned	Funding agency	Total funds approved for project (Rs.)
1.	Detection of entanglement in many-spin systems by spin-spin correlations	Dr. (Mrs.) Asoka Biswas, Assistant Professor Dept. of Physics	Department of Science & Technology, Govt. of India	11,64,000/-
2.	Theoretical and Experimental investigation of a possibility to use Sn-124 in modern double beta decay experiments	Dr. P.K. Raina Professor Dept. of Physics	Department of Science & Technology, Govt. of India & RFBR Russia	16,05,800/-
3.	Surface Engineering to control erosion-corrosion of steam generating plants by nano particle coatings	Dr. Harpreet Singh Assistant Professor SMME	Department of Science & Technology, Govt. of India	42,50,000/-
4.	Development of [3+3]- cyclo-addition of azomethine ylide towards the construction of piperidine ring system: application to the alkaloids synthesis	Dr. Prabal Banerjee Assistant Professor Dept. of Chemistry	Department of Science & Technology, Govt. of India	19,25,000/-
5.	H ₂ Storage and fuel cell materials for renewable energy: fundamental study on metal hybrid nano-structures	Dr. T.J. Dhillip Assistant Professor Dept. of Chemistry	Department of Science & Technology, Govt. of India	13,20,000/-
6.	Modeling and simulation of various fingering instability between two miscible fluids in liquid chromatographic conditions	Dr. Manoranjan Mishra Assistant Professor Dept. of Mathematics	Department of Science & Technology, Govt. of India	15,96,000/-
7.	Approximation Algorithms for NP-hard optimization problems.	Dr. Daya Ram Gaur Associate Professor Dept. of CSE	Department of Science & Tech. Govt. of India	34,29,600/-

RESEARCH PROJECTS

RESEARCH PROJECTS

8.	Design and synthesis of new ratiometric fluorescent chemo-sensors: excited state proton transfer involving keto-enol tautomerism	Dr. Narinder Singh Assistant Professor Dept. of Chemistry	Council of Scientific and Industrial Research	14,26,000/- (Approximate)
9.	Design and synthesis of a new class of salen based metal complexes : A search for catalytic activity	Dr. Avijit Goswami Assistant Professor Dept. of Chemistry	Council of Scientific and Industrial Research	17,81,167/- (Approximate)
10.	Synthesis and catalytic applications of nanoporous II-conjugated polymer-silica nanocomposite materials	Dr. Rajendra Srivastava Assistant Professor Dept. of Chemistry	Council of Scientific and Industrial Research	16,26,000/- (Approximate)
11.	Development of Magnesium alloy based in-situ nano composites for improved material properties using friction stir processing	Dr. Harpreet Singh Assistant Professor SMREE	Defence R&D Organization, Govt. of India	14,10,000/-
12.	Synthesis of Au(I) Complexes luminescent based benzimidazole, pyridyl and amine: Gold nano-particles for sensor development.	Dr. Narinder Singh Assistant Professor Dept. of Chemistry	Department of Science & Technology, Indo-Mexican Project	6,84,000/-
13.	Design & Synthesis of Quantum Dot-Based Benzimidazole-Coupled Chemosensors	Dr. Narinder Singh Assistant Professor Dept. of Chemistry	Department of Science & Tech., Indo-Korean Project	7,65,000/-

INDUSTRIAL CONSULTANCY

1.	System engineering, system validation, Testing and results analysis of DWDM network design tools CIENA Network Designer- CND-5.1	Dr. Nitin Goel, Assistant Professor Dept. of Electrical Engg.	CIENA India Private Ltd.	5,95,620/-
2.	System Validation, Testing and Results Analysis of DWDM Network Design Tool CIENA Network Designer- CND-5.0	Dr. Nitin Goel, Assistant Professor Dept. of Electrical Engineering	CIENA India Private Ltd.	2,97,810/-



FACULTY INITIATION GRANT

IIT Ropar provides grant under faculty initiation grant. The grant is sanctioned to new faculty members for developing his/her research infrastructure for a period of three years and funding for this grant will be met from ISIRD fund. The new faculty members must apply for this grant within one year from the date of joining the institute. The grant is utilized for the purpose of laboratory equipment, consumables, software and for technical visits.

The following faculty members have been sanctioned grants for carrying out research projects.

S.No.	Title of Project	Project Investigator	Total Outlay (Rs.)
1.	A virtual reality platform for the design of safe next generation nuclear reaction	Dr. Sanjib S. Gupta Assistant Professor Dept. of Physics	8,50,000/-
2.	Fuel cell materials for renewable energy: theoretical studies in hybrid nano-materials	Dr. T.J. Dhilip Kumar, Assistant Professor Dept. of Chemistry	9,80,000/-
3.	Real time scheduling on embedded systems	Dr. Nitin Auluck, Assistant Professor Dept. of CSE	5,03,738/-
4.	Active vibration control of smart structures using micro/nano-fiber composites	Dr. Navin Kumar, Assistant Professor SMME	12,25,000/-
5.	Producing biodegradable plastic from carbon dioxide: New Tetradent N ₂ O ₂ Chelate supported cobalt/chromium catalysts for alternating copolymerization of Epoxide with carbon Dioxide.	Dr. Avijit Goswami Assistant Professor Dept. of Chemistry	8,50,000/-
6.	Thermal analysis of a biological system with and without volumetric radiation	Dr. Ramjee Repaka Assistant Professor SMME	2,55,000/-
7.	Measurement of small displacement of a nano-mechanical resonator towards quantum microscopy.	Dr. Asoka Biswas, Assistant Professor Dept. of Physics	3,70,000/-
8.	Linear and nonlinear aspects of fluid flow in a channel with arbitrary bottom topography.	Dr. S. C. Martha, Assistant Professor Dept. of Mathematics	2,80,000/-
9.	Generation of speech corpus and the	Dr. Somdev Kar,	2,30,000/-

RESEARCH PROJECTS

	study of phonetic and phonological properties of the limbu language of Sikkim.	Assistant Professor, Dept. of HSS	
10.	Algorithms for probabilistic robot navigation	Dr. Apurva Mudgal Assistant Professor Dept. of CSE	75,000/-
11.	Some basic infrastructural facility at IIT Ropar for underground experimentations	Dr. P.K. Raina, Professor Dept. of Physics	2,60,000/-
12.	Low dimensional bifurcation analysis of Reyleigh-Benard	Dr. Satwinder Jit Singh Assistant Professor SMME	4,70,000/-
13.	Modeling a hydro-dynamical instability between two miscible fluids in liquid chromatography conditions	Dr. Manoranjan Mishra Assistant Professor Dept. of Mathematics	3,60,000/-
14.	On semisimple group algebras	Dr. Manju Khan Assistant Professor Dept. of Mathematics	54,000/-
15.	Analysis and simulation of a continuum traffic flow model for large-scale traffic networks	Dr. Arvind Kumar Gupta Assistant Professor Dept. of Mathematics	2,90,000/-
16.	Ecofeminism in the novels of Canadian authors	Dr. Rano Ringo Assistant Professor Dept. of HSS	1,25,000/-
17.	Physics for application of Graphene	Dr. Rakesh Kumar, Assistant Professor Dept. of Physics	27,00,000/-
18.	DWDM Transport Networks Design & Planning Tool based in Multicore Processors	Dr. Nitin Goel, Assistant Professor Dept. of Electrical Engg.	10,00,000/-
19.	[3+3] cycloaddition of Azomethine ylide: A versatile tool for modular synthesis of Piperidine Ring System	Dr. Prabal Banerjee, Assistant Professor Dept. of Chemistry	10,00,000/-
20.	Surface Engineering of Cutting tools for sustainable machining	Dr. Anshu Dhar Jayal Assistant Professor SMME	9,00,000/-



OTHER THAN RESEARCH PROJECT

Sr. No.	Title of Project	To whom sanctioned/ Project Investigator	Total Funding (Rs.)
1.	Prototype Development and Innovation Fund	Dr. Daya Ram Gaur, Associate Professor Dept. of CSE	Punjab Technical University, Jalandhar 2.2 crores





The academic year 2010-11 saw the creation of the Student Council that is henceforth expected to be at the helm of all student activities at the Institute. The Council is expected to nurture the spirit of sportsmanship and open participation in sports and cultural events.

Continuing with our past tradition students celebrated various festivals such as Holi and Diwali with friends and faculty members. Everyone contributed to the celebrations so as to achieve overall success of the festivities.

ZEITGEIST [SEPTEMBER 2010]

The idea of conducting a national level youth festival fest, together with hard work by all culminated into a cultural extravaganza named Zeitgeist 2010 which saw significant participation from educational institutes across the country. It was the biggest collective and participatory event of the Institute with excellent participation from students of all entry batches. The cultural fiesta included brilliant talent shows and contests involving music, dance, theatre and literary ventures, among others.

The zeal and teamwork subsequently followed up in the form of the Inter Hostel Cultural Championship - essentially an internal event of the Institute. Both festivals helped to raise performance levels of all participating students, thereby inculcating a sense of confidence and joy.

INTER IIT 2009 [DECEMBER 2010]

The Institute successfully competed in the Inter-IIT Sports Meet held at IIT Delhi. Among the participants, Naveen Kumar won a bronze medal for weightlifting in Under 77 kg. He was further ranked second in Mr. IIT competition. The Institute soccer team won against the team representing IIT Indore by a huge margin.

CRICLEAGUE [JANUARY-MARCH 2011]

On the lines of IPL (Indian Premiere League) students of the Institute organized CricLeague an intra-college cricket competition in which about 100 students participated. The tournament was a huge success among the participating students.



OTHER ACTIVITIES

A plethora of other activities were organized throughout the year including Fresher's Nite, Literary Week, chess competition, Independence Day celebrations and Saraswati pooja.

The academic year saw the IIT Ropar chapter of Spic-Macay being initiated under which a couple of performances by Monisha Nayak and Mangniyar Group.

Finally, the year witnessed introduction of the Inter-Hostel General Championship. The week-long event had all students participating in several cultural activities.

The Central Library functions as the primary information resource centre and repository of all printed and e-resources for teaching and research activities at the Institute. Apart from textbooks and recommended reading material prescribed for each course offered at the Institute, the library houses a growing collection of research monographs, reports, multi-volume reference works, dictionaries, encyclopedias, handbooks and so on. In addition, the library also facilitates access to a number of journals through its participation in consortia, such as INDEST-AICTE. At present, users can consult more than 7000 books (available on shelves) and thousands of electronic journals.

The library operations are automated using LIBSYS software and the library personnel are presently working towards setting up a digital library and e-resource centre. These steps will greatly enhance the library's efficiency in making the resources available to the academic community at large and also enable the Institute participate in various inter-library initiatives at national and international levels.

Services

Central Library offers the following major services:

- (i) Reference
- (ii) Consultation
- (iii) Circulation
- (iv) Electronic Document Delivery
- (v) Inter Library Loan
- (vi) Current Awareness Service (CAS)
- (vii) Selective Dissemination of Information (SDI)
- (viii) Web Online Public Access Catalogue (OPAC)

Working Hours

Issue/Return:

On weekdays (except Holidays) : 09:00 am - 1:00 pm and 2:00 pm to 5:30 pm

Reference :

During Academic Session :

09:00 am-12:00 midnight

During Minor and Major Exams : 09:00 am-02:00 am

During Vacation : 09:00 am-06:00 pm

Library Automation :

The Library uses LibSys automation software, and the operations of Cataloguing, Circulation and Serial Control have been automated. Resources are updated on a regular basis.

Web OPAC

Online Public Access Catalogue (OPAC) enables users to search documents in the possession of the library. OPAC also enables library users know their checkout status, issue history and so on. Users can browse for new additions of books, journals subscribed (title, publisher wise). They can also reserve books online and avail of more advanced services.

Union OPAC

In addition to our own Library database, Union OPAC provides access to other library databases, such as that of IITs, other research centres, WorldCat etc. It has been integrated with Google Web Technology.

This facility fetches cover pages from Google books and offers "my cart" facility to select titles.

Electronic Resources :

The Central Library of IIT Ropar provides access to the following societies'/ publishers' Electronic Resources.

Full-text electronic journals and Books :

1. Access Engineering Library (DEL) - McGraw-Hill's E-Books
2. ACM Digital Library
3. ACS Archive and Current Journals
4. AIP Journals Complete with extended back files
5. ANS Journals
6. Annual Review of Fluid Mechanics
7. APS Journals
8. ASME Digital Library
9. ASTM Standards and Digital Library
10. CUP Selected Journals
11. Euclid Prime Journals
12. IEL Online (IEEE Xplore Digital Library)
13. Maney Publishing (International Journal of Cast Metals Research)
14. IOP Science Archive and Selected Current Journals
15. JSTOR
16. Nature
17. OSA Online
18. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences
19. RSC Archive and Chemical Communication (Current Journal)
20. OUP Mathematics and Physical Sciences Journals
21. Science Direct
22. Science Online
23. SIAM Online
24. Springer Online Journals
25. Taylor & Francis Journals- Science & Technology Library
26. Wiley-Blackwell Selected Journals
27. World Scientific Selected Mathematics Journals

Bibliographic Resources :

1. Scopus
2. MathSciNet
3. JCCC.



CAMPUS AMENITIES

The Institute has the following facilities in addition to the classrooms, laboratories in the transit campus.

- ❖ Separate Hostels for boys and girls with dining facilities, recreation facilities, indoor games and internet connectivity.
- ❖ Medical Centre with basic medical facilities
- ❖ Sports facilities like Cricket Ground, Football Ground, Volley ball Ground, Hockey Ground and Tennis Court indoor games like Table Tennis & Badminton, etc.
- ❖ Residential accommodation for faculty and staff
- ❖ Guest house
- ❖ State Bank of India IIT Ropar Branch
- ❖ Post office