Indian Institute of Technology Kharagpur

At a Glance

(July, 2008 – June, 2013)

External Peer Review

May 19-20, 2014

Indian Institute of Technology Kharagpur

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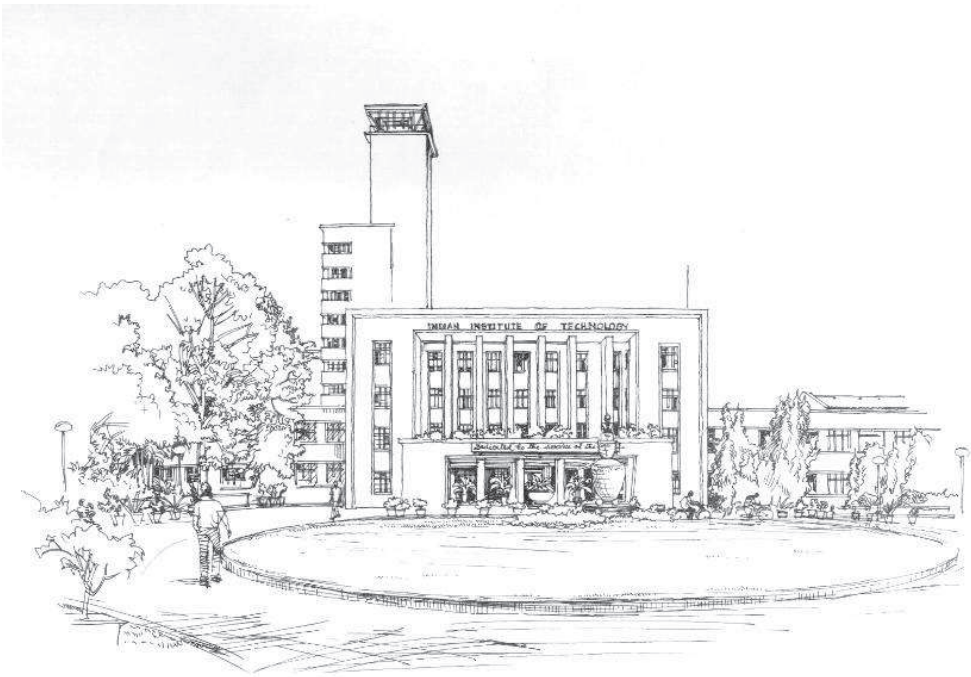


EXTERNAL PEER REVIEW

May 19-20, 2014

PREAMBLE

The Council of IITs in its 46th meeting on January 7th, 2013 decided that IITs would undertake external peer review of their functioning. Accordingly, MHRD has sent terms of references to be filled up by all IITs which will form the basis for carrying out external peer review for every IIT. The terms of reference includes i) General Considerations, ii) Institute's Performance based on Specific Indicators, and iii) Institutional Grid for Assessment.

The General Considerations include progress in relation to previous projections, plans for the future, and measures adopted towards them. There are nine Specific Indicators. These are as follows: i) curriculum and course offered, ii) teaching environment, iii) research and development, iv) R&D environment, v) external stakeholder engagement for industry collaboration, contribution to national development goals/priorities, social responsibility, and alumni engagement, vi) vision for the future, viii) governance and financial resources for management, financial resource management, transparency, and infrastructure, viii) stakeholders survey, and ix) diversity.

IIT Kharagpur has prepared this document following the guidelines given in the terms of reference of MHRD by fulfilling all the above-mentioned criteria.

The data presented in this document are collected from all departments/centres/schools and alsofrom all the centralized units of IIT Kharagpur. Efforts have been made to present the data in the most accurate form.

The external peer review also includes specific reports for individual departments/centres/ schools available in a separate booklet, and a detailed presentation highlighting the details of IIT Khargapur, its uniqueness, an analysis of the performancevariables of IIT Khargpur with respect to its peers in India and also in the world, and the roadmap ahead.

TABLE OF CONTENTS

EXTERNAL PEER REVIEW SCHEDULE

(May 19-20, 2014)

Arrival of Committee Members at IIT Kharagpur by 18th May evening			
Time	**Venue**	**Participants**	**Issues**
DAY 1 - 19th May 2014			
09:00 - 10:00	Technology Guest House	Director Deputy Director Dean(P&C)	Breakfast meeting for debriefing
10:30 - 13:00	Board Room	Deans & Peer Review Team	Presentation to be made by the Institute Submission of Peer Review Report Detailed interaction with experts
LUNCH AT TECHNOLOGY GUESTHOUSE			
14:30 - 17:30			Visits to departments, centres, schools, and facilities (in breakout groups)
TEA BREAK (Board Room)			
18:30 – 20:00	Gargi Auditorium	HoDs HoCs Faculty Representatives	Interaction and presentation of departmental booklets
DINNER AT TECHNOLOGY GUESTHOUSE (20:30-22:00)			
DAY 2 - 20th May 2014			
09:30 - 10:30	S N Bose Auditorium /Committee Room	Students	Interaction with students
10:30 - 11:30	Committee Room/ Board Room	Alumni	Interaction with alumni
TEA BREAK (Board Room)			
12:00 - 13:00	Committee Room	Staff Members	Interaction with staff members
LUNCH AT TECHNOLOGY GUESTHOUSE			
14:00 - 16:00	Board Room	Director Deans Committee Members	Wrap up session with Director and Peer Review Committee members for sum up and follow up of evaluation sheets
TEA BREAK (Board Room)			
16:30 - 17:30	S N Bose Auditorium	Academy Fellows Young Scientist Awardees	Interactive meeting
Departure either late evening on 20th May or 21st May morning			

1. INTRODUCTION

The first Indian Institute of Technology was established in May 1950 in Hijli, Kharagpur, in the eastern part of India. Initially the IIT started functioning from 5, Esplanade East, Calcutta and very soon shifted to Hijli in Sept. 1950. The present name 'Indian Institute of Technology' was adopted before the formal inauguration of the Institute on August 18, 1951, by MaulanaAbulKalam Azad. IIT Kharagpur started its journey in the old Hijli Detention Camp where some of our great freedom fighters toiled and sacrificed their lives for the independence of our country.

There were **224**freshers and **42** teachers in August **1951** when the first session started. The class rooms, laboratories and the Administrative office were housed in the historic building of the Hijli Detention Camp. The Institute started its academic programme with only **10** Departments. On March, 1952, PanditJawaharlal Nehru laid the foundation stone of the New Building.

2. CAMPUSDETAILS

Location

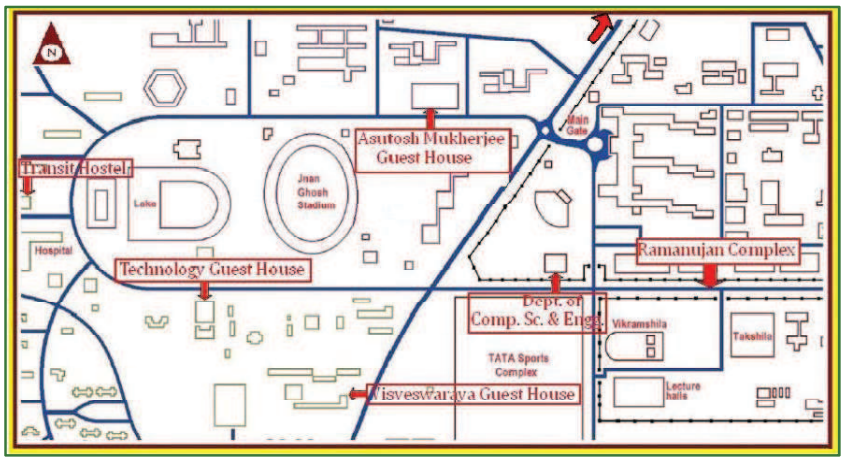
Kharagpur is known world over for two landmarks. One was the very long railway platform, and the other, the Indian Institute of Technology, more commonly known as IIT. Situated about 120 km west of Kolkata, Kharagpur can be reached in about 2½ hours by train from Howrah railway station, Kolkata or by car from Kolkata Airport. Kharagpur is also connected by direct train services to most major cities of India. The Institute is about 10 minutes drive (5 km) from the Kharagpur railway station. Private taxi, auto-rickshaw or cycle-rickshaw can be hired to reach the Institute.

Weather

Winter (October to February) is moderate and pleasant (10 to 25^0C) in Kharagpur. Summer (March to June) is hot (25 to 40^0C) and sometimes humid. Rains are normally confined to the months of June to September.

Accommodation

The institute is fully residential. Students are accommodated in **20** Halls of Residence and the faculty and staff members are provided with residential quarters. Accommodation for the visitors is arranged in the Technology Guest House, CEC Guest House, Alumni Guest House, or if need arises, in a students' Hall of Residence.



Food

All the Halls of Residence and the Guest houses have regular catering facilities. Other eating places are Sahara, Dreamland, Vegies, Super-Duper, Tikka, Billoo's Restaurant, Café Coffee Day, Heritage etc. Some other joints located within the Institute premises serve tea, coffee, soft drinks and light snacks.

Market

For daily necessities and groceries, one can walk down to the Tech Market. The market also has medicine stores, tailoring shops, bookshops and facilities for photocopying, word-processing and offset printing. A larger market, Gole Bazaar is about 5 km from the Campus.

Banks and ATMs

Three banks are located inside the Campus. The State Bank of India is close to the Institute and provides foreign exchange facilities also. The Syndicate Bank is situated on the first floor of the Institute main building. The Punjab National Bank is situated in the Tech Market.

State Bank of India
With you - all the way
Pure Banking. Nothing else.
www.sbiuk.com

punjab national bank
...the name you can BANK upon !

विश्वसनीय. मैत्रीपूर्ण
Faithful. Friendly
सिंडिकेटबैंक
SyndicateBank
भारत सरकार का उपक्रम A Govt. of India Undertaking

ATMs corresponding to all the above banks also exist. The AXIS Bank ATM is also functioning in the campus.

Hospital and Health Care

The **B.C.Roy Technology Hospital** is located at the centre of the Campus. It provides indoor and outdoor medical facilities for common ailments. Complicated cases are referred for treatment to the State Hospital or to the Railway Hospital, both of them are located about 2 km from the Campus.

Round-the-clock emergency service and a 24 hour pharmacy have been made available. Critical care ambulance support is provided in emergency situations. Special clinics are provided in Medicine, Chest, Pediatrics, Skin, Psychiatry, Orthopedics, Eye, ENT and Dental etc. in addition to general outdoor services. Medical Insurance coverage through the Institute is available for the students. Immunization clinics are operated with the help of Consultant in Public Health and Pediatrician. Health Care remains a top priority in the activities of the Institute.

The different clinics in the Out Patient Department have been upgraded with modern diagnostic equipments. To name a few, Computerized Radiology Unit, Fully Automatic Biochemical analyzer, ICU Ventilator, Telemedicine Video Conference System, Video Slit Lamp and Auto-Refractometer, are some of the recently added equipments. A fully equipped Operation Theatre to meet the day to day need of the patients is on the anvil.

All the student hostels are regularly inspected by the visiting consultant in Public Health, who advises measures for improvement of sanitation and food services. Preventive Health Care is also functioning well. Personal hygiene measures of all hall workers are also being monitored.

IIT Kharagpur alsohas MOUs with some selected CorporateHospitals in Kolkata.A list is given below:

a. Ruby General Hospital
b. RTIIC Kolkata
c. Sanjeeban Hospital
d. BM Birla Heart Research Centre
e. Kothari Medical Centre
f. Medica Super Speciality Hospital

Gymkhana

Technology Students' Gymkhana is the nerve centre for sports, cultural and social activities. It has a number of indoor and outdoor stadia, a modern swimming pool and a gymnasium. Music Society, Film Society, Dramatics Society, Aquatics Society and many more special interest groups are supported by the Gymkhana. Annexure XI gives details of some important student achievements.

Photographs related to hall events such as Illumination, Rangoli, Hall Day etc.

Illumination

Rangoli

Central Library

Central Library serves the academic needs of about **10000** UG, PG and Research students, nearly **600** faculty members and about **1020** technical, administrative and medical staff of our institute. Besides, its services are extended to a number of other organizations also. The Library is having a collection of more than **3.5** lakh documents, subscribing about 300 print journals, and providing access to over **40,000** online full- text journals and several abstracting databases. Besides, there are **45,000** e-books. The collection consists of Books, Back-volumes of Periodicals, Theses, Conference Proceedings, Standards, Reports, Microforms, and CD-ROM/DVD-ROM Databases and Audiovisual materials. Please see Annexure I for details.

Computer Network

IIT Kharagpur has a huge campus wide local area network (LAN) for academic usage. In the academic area all Departments/Centres/Schools/Sections and Hall of Residences are interconnected with redundant 10 GbpsFibre Optic Backbone. All access links are recently upgraded to 1 Gbps for faster

connectivity.

In the residential area all type of quarters are connected to Institute campus LAN through GPON (Gigabit Passive OpticalNetwork) technology. Every resident is getting network access, telephone connection on demand using GPON connection. There is a provision for Cable TV connectivity using the same GPON backbone.

The entire campus of IIT Kharagpur is also covered by wireless network for mobile/guest users. Wireless mesh technology is used for the deployment of this wireless network. Wireless Backbone connectivity is based on 5 GHz Radio signal and client connectivity is based on 2.4GHz radio signal. Several Root Access Point (RAP) and Mesh Access Point (MAP) have been deployed within the campus and the academic area for outdoor wireless Network using GPON connectivity as backbone. Lightweight Access Points (LAP) are deployed for Indoor wireless Connectivity.

Thus the campus network is capable of carrying data, voice, video services along with mobility. This is the Quadruple Play Network (QPN) which has been implemented at IIT Kharagpur and has all the features stated above. The network is seamlessly running 24 X 7 basis and is catering to the network requirement of the Institute. Institute also has several virtual Class Rooms for delivering or attending Online Classes using National Knowledge Network.

IIT Kharagpur has different paths to connect to the outside world through Internet. It has 2 Gbps connectivity through BSNL &Railtel to National Knowledge Network (NKN). Currently 1Gbps bandwidth is used for Internet Access and rest 1 Gbps is used for collaborative research work with the other Institutes in different parts of the world. Institute also has 2 X 155 Mbps Connectivity to the Internet through a BSNL link.

Research Facilities

Latest state-of-the-art research facilities are available at IIT. All the Departments, Centres and Schools are equipped with most modern instruments. Central Research Facility caters to the need of all the researchers and outside organizations. Details of Sponsored Research and Industrial Consultancy (SRIC) are given in Annexure II.

Places to visit

Nehru Museum, HijliShahidBhavan, Old Prison Cells, Martyrs Memorial.

3. EXTENSION CENTRES

In addition to the main campus, IIT Kharagpur has extension campuses at Kolkata, Bhubaneshwar, and Raipur. The extension campuses provide venue for continuing education programmes, distance learning courses (e.g. PGDBM) and guest house accommodation.

- **KOLKATA** Extension Centre
- **BHUBANESWAR** Extension Centre
- **RAIPUR** Extension Centre

4. PRESENT ADMINISTRATION

Chairman, Board of Governors

Dr. Srikumar Banerjee

Members, Board of Governors

Deputy Director

Prof Souvik Bhattacharyya

Mechanical Engineering

Director

Prof. Partha Pratim Chakrabarti

Computer Science & Engineering

Registrar

Dr. Tapan Kumar Ghosal

Dean, Alumni Affairs & International Relations

Prof. Siddhartha Mukhopadhyay

Electrical Engineering

Dean, Continuing Education

Prof. Om Prakash Sha

Ocean Engineering & Naval Architecture

Dean, Faculty

Prof. Pratim Kumar Chatteraj

Chemistry

Dean, Student Affairs

Prof. Nisith Ranjan Mandal

Ocean Engineering & Naval Architecture

Dean, Postgraduate Studies & Research

Prof. Amar Nath Samanta

Chemical Engineering

Dean, Planning & Coordination

Prof. Biswajit Mahanty

Industrial Engineering & Management

Dean, Sponsored Research & Industrial Consultancy

Prof. Sunando DasGupta

Chemical Engineering

Dean, Undergraduate Studies

Prof. Rajendra Singh

Agricultural & Food Engineering

Associate Dean, SRIC

Prof Pallab Dasgupta

Computer Science & Engineering

Heads of Departments, Centres and Schools

Professors In-charge

Convenors, Presidents, Chairmen, Managing Directors, Vice-Chairmen

Wardens/Assistant Wardens/Coordinating Wardens

Programme Coordinators

5. OTHER ADMINISTRATIVE STATISTICS

ADMINISTRATIVE BODIES	NO. OF MEMBERS
Heads of Department/Centre/School	36
President	
President, Technology Students Gymkhana	1
Convener	
Convener, Centre for Theoretical Studies	1
Wardens	19
Assistant Wardens	33
Coordinating Wardens	3
Programme Coordinators	2
Chairmen	
Chairman, Campus Schools Advisory Committee	15
Chairman, Central Library	
Chairman, Central Workshop & Instruments Service	
Chairman, Civil Construction and Maintenance	
Chairman, GATE-JAM	
Chairman, HMC, Hall Management Centre	
Chairman, House Allotment Committee	
Chairman, JEE	
Chairperson, KalpanaChawla Space Technology Cell	
Chairman, Life Science Division, Central Research Facility	
Chairman, Materials Science Division, Central Research Facility	
Chairman, Nehru Museum of Science & Technology	
Chairman, RajbhashaVibhag	
Chairman, Students' Brotherhood Fund	
Chairman, Career Development Centre	
Managing Directors	
Managing Director, STEP	2
Managing Director, Institutional Development	
Vice-Chairmen	
Vice Chairman, GATE-JAM	5
Vice Chairman, JEE	
Vice Chairman, Career Development Centre	

Professors In-Charge	
Prof-in-charge, Administrative Computer Service Support Centre	
Prof-in-charge, Advanced Lab for Plant Genetic Engineering	
Prof-in-charge, Advanced VLSI lab	
Prof-in-charge, B C Roy Technology Hospital	
Prof-in-Charge, Centre of Railway Research	
Prof-in-Charge, Computer and Informatics Centre	
Prof-in-charge, Electrical Works	
Prof-in-charge, Examination	
Prof-in-charge, Guest Houses	
Prof-in-charge, Horticulture	
Prof-in-charge, Incubation and Entrepreneurship, External Services	
Prof-in-charge, Institute Information Cell	
Prof-in-charge, IPR & IR	
Prof-in-charge, Media Lab Asia - IIT-KGP Lab	
Prof-in-charge, P K Sinha School of Bio Energy	22
Prof-in-charge, Refrigeration & Air Conditioning	
Prof-in-Charge, Student Counselling Services	
Prof-in-charge, Telephone (Technology Telecom Centre)	
Prof-in-charge, Time Table	
Prof-in-charge, Water Works	
Prof-in-charge, Off Campus Centres	

6. ACADEMIC DEPARTMENTS, CENTRES & SCHOOLS

Departments (19)

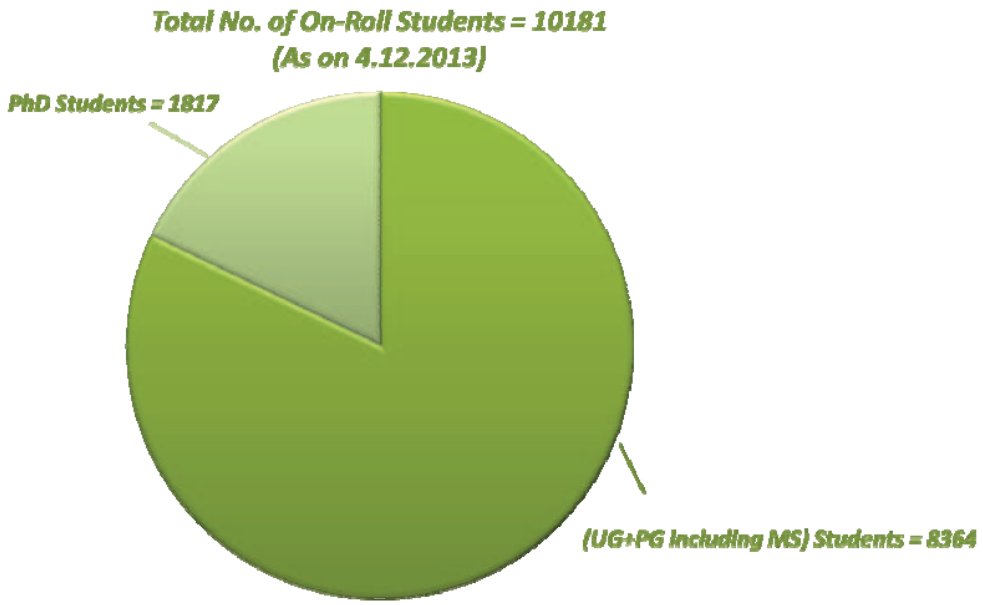
- Aerospace Engineering (AE)
- Agricultural & Food Engineering (AG)
- Architecture & Regional Planning
- Biotechnology (BT)
- Chemical Engineering (CH)
- Chemistry (CY)
- Civil Engineering (CE)
- Computer Science & Engineering (CS)
- Electrical Engineering (EE)
- Electronics & Electrical Communication Engineering (EC)
- Geology & Geophysics (GG)
- Humanities & Social Sciences (HS)
- Industrial & Systems Engineering (IM)
- Mathematics (MA)
- Mechanical Engineering (ME)
- Metallurgical & Materials Engineering (MT)
- Mining Engineering (MI)
- Ocean Engineering & Naval Architecture (NA)
- Physics & Meteorology (PH)

Centres (9)

- Advanced Technology Development Centre (AT)
- Centre for Educational Technology (ET)
- Cryogenic Engineering Centre (CR)
- Materials Science Centre (MS)
- Rural Development Centre (RD)
- Rubber Technology Centre (RT)
- Reliability Engineering Centre (RE)
- Centre for Oceans, Rivers, Atmosphere and Land Sciences (CL)
- Centre for Theoretical Studies (TS)

Schools (8)

- G S Sanyal School of Telecommunications (GS)
- Ranbir and Chitra Gupta School of Infrastructure Design and Management (ID)
- Rajiv Gandhi School of Intellectual Property Law (IP)
- Rajendra Mishra School of Engineering Entrepreneurship (RJ)
- School of Medical Science & Technology (MM)
- School of Water Resources (WM)
- School of Information Technology (IT)
- Vinod Gupta School of Management (BM)



Sl.	Code	Departments, Centres& Schools	Total Number of Students (UG+PG including MS)	Total Number of PhD Students
			As on 4.12.2013	As on 4.12.2013
				(ERP+CRIS)
Departments (19)				
1	AE	Aerospace Engineering	259	37
2	AG	Agricultural & Food Engineering	458	128
3	AR	Architecture & Regional Planning	277	32
4	BT	Biotechnology	247	74
5	CH	Chemical Engineering	479	66
6	CY	Chemistry	183	155
7	CE	Civil Engineering	459	80
8	CS	Computer Science & Engineering	560	58
9	EE	Electrical Engineering	672	65
10	EC	Electronics & Electrical Communication Engineering	756	108
11	GG	Geology & Geophysics	350	64
12	HS	Humanities & Social Sciences	213	61
13	IM	Industrial & Systems Engineering	318	34
14	MA	Mathematics	341	73
15	ME	Mechanical Engineering	898	113

16	MT	Metallurgical & Materials Engineering	341	65
17	MI	Mining Engineering	350	31
18	NA	Ocean Engineering & Naval Architecture	267	15
19	PH	Physics & Meteorology	237	85
Centres (9)				
1	AT	Advanced Technology Development Centre	35	84
2	ET	Centre for Educational Technology	8	11
3	CR	Cryogenic Engineering Centre	15	11
4	MS	Materials Science Centre	33	63
5	RD	Rural Development Centre	0	1
6	RT	Rubber Technology Centre	25	42
7	RE	Reliability Engineering Centre	20	12
8	CL	Centre for Oceans, Rivers, Atmosphere and Land Sciences	24	29
9	TS	Centre for Theoretical Studies	0	4
Schools (8)				
1	GS	G S Sanyal School of Telecommunications	4	23
2	ID	Ranbir and Chitra Gupta School of Infrastructure Design and Management	37	7
3	IP	Rajiv Gandhi School of Intellectual Property Law	117	10
4	RJ	Rajendra Mishra School of Engineering Entrepreneurship	2	12
5	MM	School of Medical Science & Technology	35	63
6	WM	School of Water Resources	11	16
7	IT	School of Information Technology	92	34
8	BM	Vinod Gupta School of Management	241	51
Total			**8364**	**1817**
Total Students (UG+PG+MS+PhD)			**10181**	

7. NEW AND UPCOMING SCHOOLS AND CENTRES

IIT Kharagpur has taken a number of initiatives in introducing some new schools and centres.

➢ *Recently set up Centre*

PK Sinha Centre for Bio-Energy

This is India's first integrated Bioenergy centre. The activities of the centre include knowledge in action by partnering with the government, commercial organizations, knowledge dissemination through academia, industry and policy makers. The centre's faculty members are currently working in the areas of bio-ethanol, bio-diesel, bio-hydrogen, bio-methane, algal bio-refinery and microbial fuel cells and genetic prospecting of energy crops.

➢ *Recently Initiated Schools and Centres*

School of Energy Science

This school would study the energy consumption trend and pattern and identify the scope of potential energy conservation measures. As a precursor, the institute is already installing solar energy systems and energy efficient LED lighting systems to reduce its carbon footprint.

School of Environmental Science and Engineering

This is India's first integrated Bioenergy centre. The activities of the centre include knowledge in action by partnering with the government, commercial organizations, knowledge dissemination through academia, industry and policy makers. The centre's faculty members are currently working in the areas of bio-ethanol, bio-diesel, bio-hydrogen, bio-methane, algal bio-refinery and microbial fuel cells and genetic prospecting of energy crops.

School of Nanoscience and Technology

In the interdisciplinary programme of 12 different departments, the research activities are:

(a) Nanofabrication / Nanoelectronic& Photonic Devices / NEMS / Nanosensors
(b) Bulk nanostructured materials for structural applications
(c) Novel nanomaterials: Synthesis, self-assembly and applications
(d) Nanostructured coatings for energy conversion/storage and surface engineering
(e) Nano-biotechnology
(f) Computational nanostructures etc.

School of Biosciences

This interdisciplinary programme includes academic and research programmes in Cellular and Molecular Biology, Health-care Technology, Computational biology and Drug Design and Delivery, etc.

Dr. B. C. Roy Institute of Medical Science and Research

This Institute is going to have:

(a) 750 Bed Super speciality Hospital
(b) Technology enabled Medicine Teaching Clinic
(c) Bio-medical Innovation Centre
(d) Healthcare Outreach Centre
(e) Paramedic Training College.

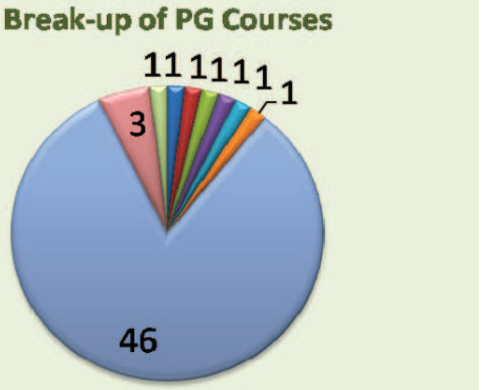
8. ACADEMIC PROGRAMMES

(A)Details of Academic Programmes

1. PhD in 36 Departments/Centres/Schools
2. MS in 23 Departments/Centres/Schools

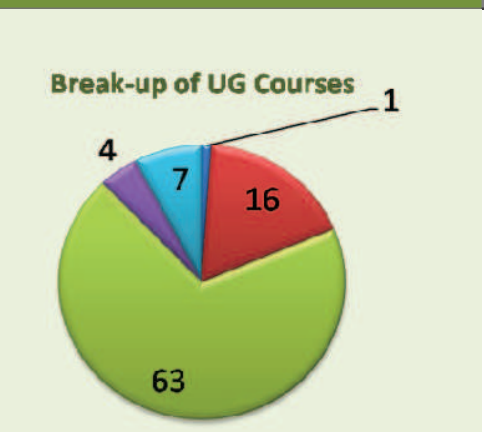
3. Total Number of PG courses 55 + MS (1) = 56
4. Break-up of PG Courses

4.1	Executive MBA	1
4.2	MBA	1
4.3	LLB	1
4.4	MCP	1
4.5	MHRM	1
4.6	MMST	1
4.7	M.Tech	46
4.8	M.Tech (3Years)	3
4.9	MS	1

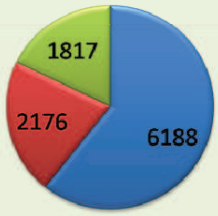


5. Total Number of UG Courses = 91
6. Break-up of UG Courses

6.1	B.Arch.	1
6.2	B.Tech	16
6.3	Dual Degree	63
6.4	M.Sc. (2 Years)	4
6.5	M.Sc. (5 Years)	7



(B)Total Number of UG, PG and PhD Students On Roll

(B) Total Number of UG, PG and PhD Students On Roll = 10181		
Academic Programmes	Students On Roll (As on 4.12.2013)	Total No. of On-roll Students
UG	6188	
PG (including MS: ERP+CRIS)	2176	
PhD (including ERP+CRIS)	1817	
Total	10181	

(C) Duration of Academic Programmes and Admission Through

Sr No	Name of the Programme	Admission Through	Duration	Number of Programmes
1	Bachelor of Architecture (B.Arch.)	JEE	5 years	1
2	Bachelor of Technology (Hons.) (B.Tech.)		4 years	16
3	Dual Degree - B.Tech and M.Tech or MBA		5 years	63
4	Integrated M.Sc. (M.Sc)			7
5	Master of Technology (M.Tech.)	GATE	2 years	46
6	Master of Technology (M.Tech.)	CEP	3 years	3
7	Master of City Planning (MCP)	GATE	2 years	1
8	Master of Business Administration (MBA)	JMET		
9	Executive MBA	Admission Test	3 years	
10	Joint M.Sc.- Ph.D.	JAM	(*)	4
11	Master of Medical Science & Technology (MMST)	Admission Admission Test	3 year	1
12	MHRM	Admission Test	2 years	
13	LLB	Admission Test	3 years	
14	MS and Ph.D. Programmes	Admission Test		All Departments, Centres & Schools

(*) A student admitted to a Joint M.Sc-Ph.D. programme will be allowed to enroll for Ph.D. provided he/she has certain minimum CGPA at the end of the fourth semester; otherwise he/she will have to leave with a M.Sc. degree. A student may also on his/her own, decide not to continue with the Ph.D. programme and leave with an M.Sc. degree after the end of the fourth semester.

9. ACADEMIC AND RESEARCH FACILITIES

Advanced VLSI Design Laboratory

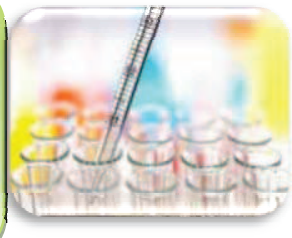
The state-of-the-art laboratory has become an international centre in the area of VLSI research.It is also integrated with the AVLSI Consortium along with a large set of companies.

Advanced Technology Development Centre

Advanced Technology Development Centre (ATDC) aims to achieve excellence in research using latest technology at the global level and produce trained professional manpower for the industry. ATDC is integrated with:Microelectronic & MEMS Laboratory, Advanced VLSI Design Laboratory, Microscience Laboratory, KalpanaChawla Space Technology Cell, Centre for Theoretical Studies, Communication Empowerment Laboratory, Advanced Laboratory for Plant and Genetic Engineering, Molecular Tools For Exploitation Of Heterosis, Yield And Oil Quality In Sesame, General Motors Collaborative Research Laboratory, Microfluidics Laboratory, P K Sinha Centre for Bio Energy, and Centre for Railway Research.

Analytical Food Testing Laboratory

Analytical Food Testing Laboratory is established at the Indian Institute of Technology,Kharagpur from the grant provided by the Government of India, Ministry of Food Processing Industries, New Delhi.



Computer & Informatics Centre

Computer and Informatics Centre (CIC) provides mainly three types of services namely network services, computational services and lab services to IIT, Kharagpur community.

Central Research Facility

Central Research Facility is a central facility of IIT Kharagpur for students of departments to carry out their research activities. The Central Research Facility at IIT Kharagpur comprises many laboratories that house the most modern equipment. There are around 25 laboratories in the CRF complex. CRF provides services

Centre for Railway Research

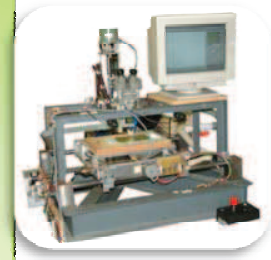
The Centre for Railway Research (CRR) was set up at Indian Institute of Technology Kharagpur based on the MoU signed between the Ministry of Railways, Government of India and Indian Institute of Technology Kharagpur on February 13, 2010, to develop a long-term framework for research collaboration. This is the first such research centre set up in an academic institute with direct and full funding by the Indian Railways. Thrust Areas of research are; Advanced Materials and Manufacturing, Heavy Haul Technology, High Speed Rail, and Advanced Maintenance and Operation.

Centre for Theoretical Studies

The Centre for Theoretical Studies (CTS) at the Indian Institute of Technology, Kharagpur (IIT KGP) has been set up in a part of the Old Building of IIT KGP. Its primary goal is to generate and nucleate theoretical research on fundamental aspects of basic and engineering sciences.

Central Workshop & Instruments Service

It caters to all the departments and centres of IIT Kharagpur by providing service for: mechanical fabrication, glass blowing, electronics section, carpentry shop, audio visual support, supervision and support for various activities at various levels, outreach and coordination of complete AV installation/repair of 88 rooms of Nalanda Classroom complex, and also for other large seminar halls. The CNC division has a number of CNC machines (including 4-axis milling and engraving machines) in the Mechanical Fabrication section. The CNC division caters to the need of different departments of the institute for parts with complex geometrical features.



Central Library

Please see campus details given in page 9.

KalpanaChawla Space Technology Cell

The space technology cell at IIT Kharagpur was setup by ISRO in July, 1998. The aim was to strengthen the relationship of IIT Kharagpur with ISRO and to boost collaborative and interdisciplinary research programmes with ISRO laboratories. The cell was renamed as KalpanaChawla Space Technology Cell in 2004.The cell aims to work in the areas of MEMS, Communications and Cryogenics including Engine Modeling.Subsequently the areas of materials, control systems, micro propulsion and VLSI design were included. The communications area is extended to the areas of RF design, Electromagnetic, EMI/EMC and ESD.

Media Lab Asia - IIT-Kharagpur

Media Lab Asia – IIT Kharagpur carries out application development for Healthcare, Education, Livelihood and Empowerment of Disabled. It also takes up projects related to affordable computing and access devices, low cost, high bandwidth connectivity and rurally relevant applications.

Ocean & Atmospheric Science and Technology Cell

This cell attempts todevelop capabilities in the field of Ocean Engineering, review and recommend project proposals for funding of MoES, and organize invited lecture/ workshop/conferences for promoting and creating awareness in its various thrust areas.

Vodafone Essar-IIT Centre of Excellence in Telecommunications

The VEICET (Vodafone Essar-IIT Centre of Excellence in Telecommunications) MOU made between the IIT Kharagpur, Vodafone-Essar Ltd, and Goverenment of India on October 16, 2007. The main research areas are: carrying out application specific projects relevant to Next Generation Telecom Networks, Wireless Connectivity in Rural Areas, Energy, Wireless Access to the Internet, New Trends, Technologies, and Services and Applications.

10. SPONSORED RESEARCH AND INDUSTRIAL CONSULTANCY

IIT Kharagpur is highly rated for the quality and breadth of its research enterprise, for the innovation of its faculty, for the excellence of its PhD programmes, and for the amount of funding received in support of its research initiatives. IIT Kharagpur's research programmes reach across the campus and beyond, linking together 19 departments, 17 academic schools and centres and a large number of advanced R&D laboratories, stimulating the integration of inquiry, new knowledge, and education.

IIT Kharagpur has taken up a large number of noteworthy research initiatives and a number of collaborative research facilities are built up in recent years. In the past years, IIT Kharagpur has received a number of high-value and flagship projects from the government and the industry. IIT Kharagpur has also been engaged in a number of ongoing innovative and socially relevant funded research activities.

The total funding received by IIT Kharagpur in the last 5 years is more than 650 Crores, thorough 1578 Research and Consultancy Projects. During the year 2012-2013 the Institute received from the Government, private and international funding agencies/enterprises 145 research projects for a total value of Rs. 129.87 crores and 151 consultancy projects worth Rs. 14.5 crores aggregating a total of 296 projects for Rs. 144.37 crores**.**

Intellectual Property Rights and Industrial Relations (IPR & IR) Cell

The Intellectual Property Rights and Industrial Relations (IPR & IR) Cell under SRIC is responsible for the licensing and the transfer of technologies developed by researchers at IIT Kharagpur to the commercial sector. Till date, more than 400 patents were filed and more than 120 were granted and a total of 19 technologies were transferred. Last year year IPR&IR Cell under SRIC carried out ***unique drive – 100 Days 100 Patents***. The Institute Faculties, students and staff supported and responded whole heartedly and more than 200 abstracts were received and finally more than 100 patent applications have been sent out to patent attorneys for the filing applications to patent office.

Technology Transfer Group

Students are encouraged and supported to take up innovative challenging problems. Technology Transfer Group (TTG) is a students' initiative under the aegis of SRIC, IIT Kharagpur.

Details of SRIC activities are given in Annexure II.

11. CONTINUING EDUCATION PROGRAMME

IITs have been serving the nation as temples of higher learning and research in engineering, technology, science, medical science and technology, management and law for over half a century. One of the areas in which the IITs have been contributing significantly for national development is the Quality Improvement of Technical Teachers and Continuing Education of working professionals, which is assuming tremendous importance in shaping the human resource of our country. In the face of rapid technological advancement that is taking place around the globe, it is important for engineers and scientists to continue to learn new technologies, update and upgrade their knowledge, much after completing formal education in the college. IIT Kharagpur, the largest and the most diversified technical institute in the country, has been handling this responsibility almost from its inception in early 1950s.

Continuing Education Programme of IIT Kharagpur administers mainly the following programmes:

- Quality Improvement Programmes (QIP), M.Tech and PhD
- Curriculum Development
- Short Term Courses
- Conference, workshop and Symposium

Note:*Please find details in Annexure – III*

12. CENTRE FOR EDUCATIONAL TECHNOLOGY

NPTEL COURSES

The institute offers education in the distance-learning mode with a judicious choice of agencies to implement the programmes. Under the NPTEL mission, about 200 NPTEL courses are now available for each of which nearly 30 one hour lecture materials are available on-line for remote viewing by students within and outside IIT Kharagpur. Such courses are available in almost all the disciplines available in IIT Kharagpur.

PEDAGOGY PROJECT UNDER NATIONAL MISSION ON EDUCATION

Centre for Educational Technology (CET), Indian Institute of Technology Kharagpur is the anchor institution under the NMEICT project on "Developing Suitable Pedagogical Methods for Various Classes, Intellectual Calibers and Research in E-Learning"

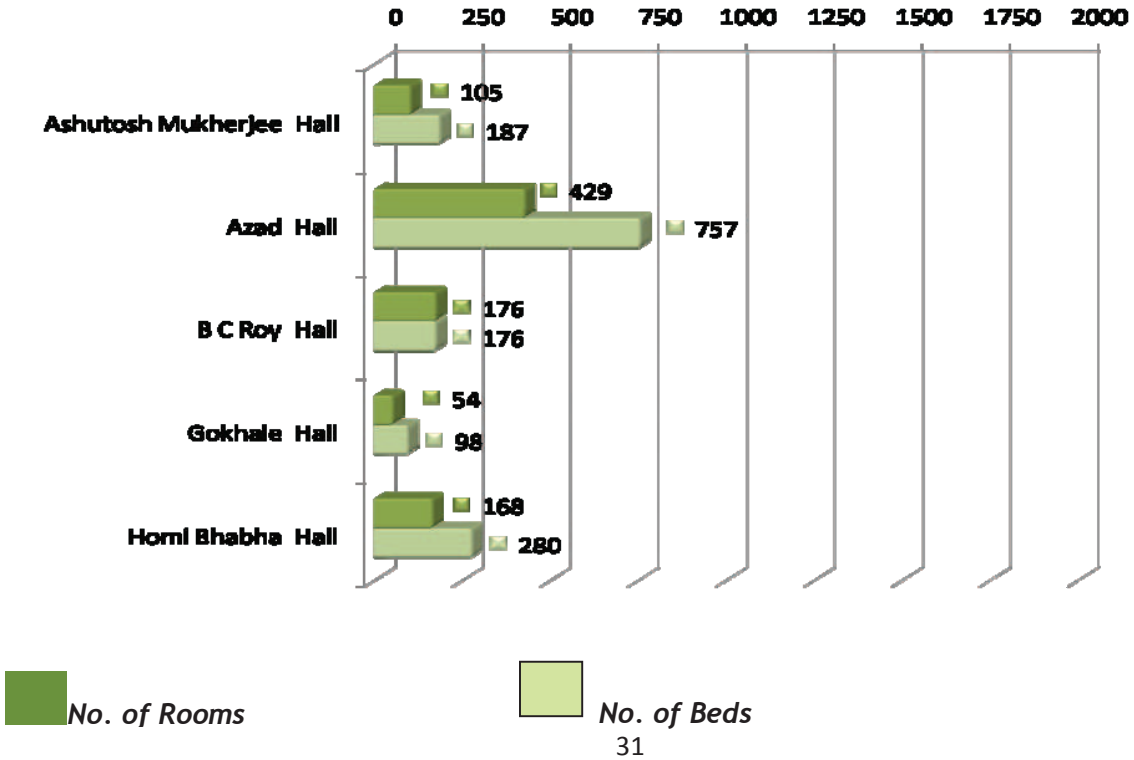
Under this project 200 (120 new + 80 from earlier pilot phase) undergraduate engineering curriculum documents are being written in terms of specific learning objectives. The engineering disciplines covered are Civil Engineering, Mechanical Engineering, Electrical Engineering, Electronics and Electrical Communications Engineering, Computer Science and Engineering.

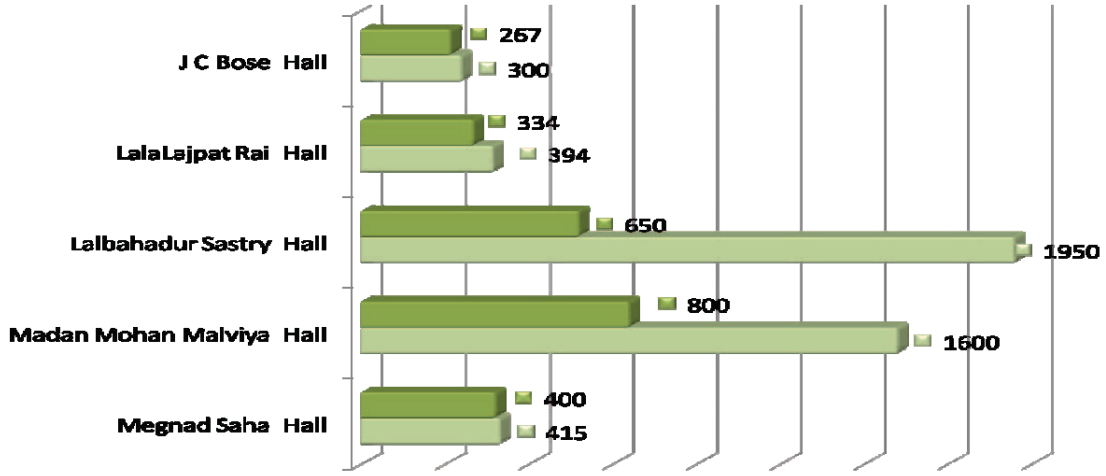
Around 900 engineering faculty members of different institutions across the country have been being trained in Instructional System Design, Pedagogy, Outcome based Curriculum Design along with Flip Teaching through 14 workshops and seminars.

A web-based tool for Create, Review, Monitor Disseminate the Outcomes based curriculum has been developed.

13. HALLS OF RESIDENCE, QUARTERS AND GUEST HOUSES

HALLS OF RESIDENCE




J C Bose Hall
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LalaLajpat Rai Hall
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Lalbahadur Sastry Hall
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Madan Mohan Malviya Hall
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Megnad Saha Hall
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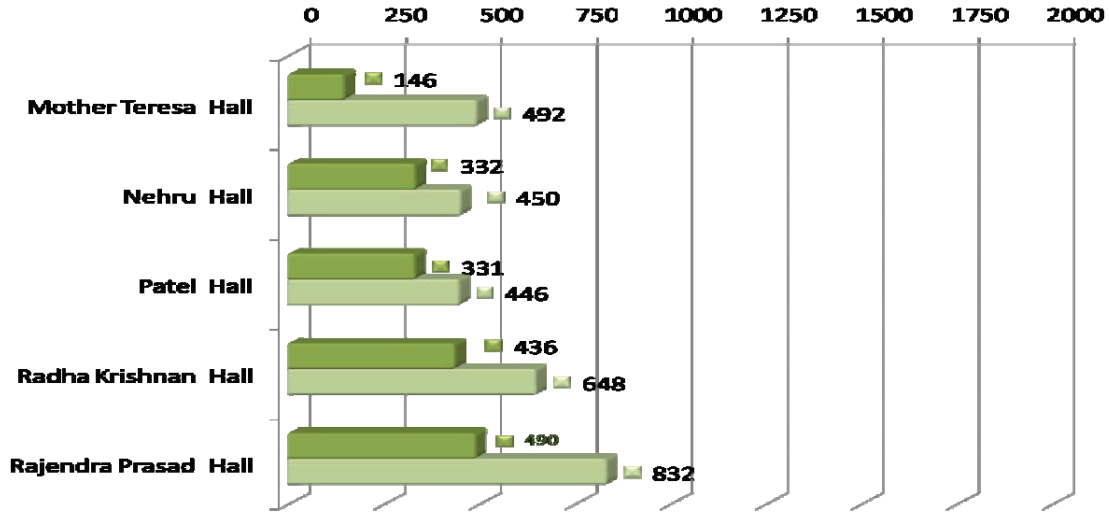
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Mother Teresa Hall
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Nehru Hall
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Patel Hall
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Radha Krishnan Hall
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Rajendra Prasad Hall
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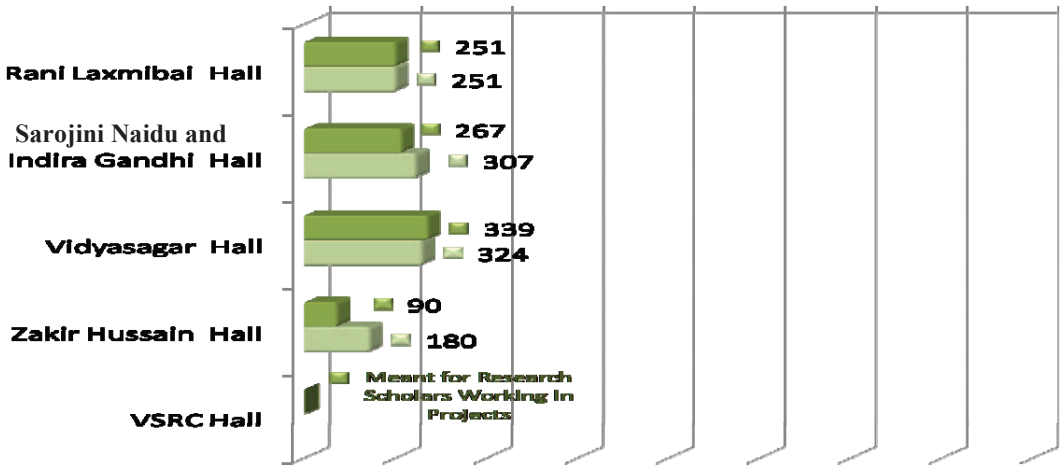

Rani Laxmibai Hall
251
251
Sarojini Naidu and Indira Gandhi Hall
267
307
Vidyasagar Hall
339
324
Zakir Hussain Hall
90
180
VSRC Hall
Meant for Research Scholars Working In Projects

INSTITUTE QUARTERS

IIT Kharagpur has a wide green campus of area 2100 acres (approx) and has a total of 1683 residentialquarters of different types. Almost allthe IIT employees, comprising of teaching and non-teaching groups, stay in the campus quarters.

The Staff/Faculty members are allotted Institute quarters as per the rules framed by the Competent Authority. The details of the number of quarters are given below:

A Type – 134,	**B Type** – 277,	**C_1 Type** – 111,	**FA Type** – 12,
2BR/F Type– 24,	**Bachelor Flat** – 36,	**FTA Type** – 18,	**2BR Type** – 112,
C Type – 55,	**1BR Type** – 160,	**H Type** – 42,	**Nurse Qtr. Type** – 09,
Anicut Type – 01	**H_1 Type** – 176,	**EM/H_1 Type** – 16,	**Anicut H_1 Type** – 04,
G Type – 357,	**PQ Type** – 08,	**EM/G Type** – 20,	**55/G Type** – 55,
VN Type – 16,	**South Block Type**– 40		

INSTITUTE GUEST HOUSES

The Institute hosts all visitors in four guest houses, three in Campus and one at Kolkata. Regular catering facilities are available in all guest houses.

Technology Guest House

Visveswaraya Guest House

Asutosh Mukherjee Guest House

IIT Kharagpur Kolkata Guest House

14. INTERNATIONAL RELATIONS IN LAST FIVE YEARS

2009 → 2010 → 2011 → 2012 → 2013

YEAR	DETAILS
2009	MoU between Chonnam National University, South Korea and IIT Kharagpur
	MoU between Wilfrid Laurier University, Waterloo, Ontario, Canada and IIT Kharagpur
	MoU between Synopsys, Inc., USA and IIT Kharagpur for setting up the Synopsys CAD Laboratory at IIT Kharagpur
	MoU between The Regents of the University of California and IIT Kharagpur
	MoU between the School of Metallurgy and Materials, the University of Birmingham (UoB), UK and IIT Kharagpur
	MoU between IIT Kharagpur and Georgia Institute of Technology, Atlanta, Georgia, USA
	MoU between TOTAL France and IIT Kharagpur
2010	MoU between IIT Kharagpur and Singapore Technologies Engineering Limited
	MoU between IIT Kharagpur and Dong-A University, Busan, Korea
	MoU between The University of Western Australia and IIT Kharagpur
2011	MoU with Curtin University, Australia
	MoU between The Universitadella Calabria, Italy and IIT Kharagpur
	MoU between University of Twente, and IIT Kharagpur

2012	MoU for Academic Cooperation between IIT Kharagpur and Friedrich Schiller University Jena (FSU-Jena), Germany
	Membership Agreement with the United Nations University, Japan on "Climate and Ecosystems Change Adaptation Research"
	Agreement on Academic Exchange with Joining and Welding Research Institute, University of Osaka, Japan
	Renewal of agreement with The Universite Lille, France and its Graduate School of Engineering, Polytech Lille
	Practicum Exchange Programme agreement between University of New South Wales, Australia and IIT Kharagpur
	Cooperation agreement and an Agreement on student exchange with National Chiao Tung University, Taiwan
2013	MoU with University of Dublin, Ireland
	Agreement with Moscow State Mining University, Moscow, Russia
	Institutional Collaboration Agreement with National Taiwan University of Science and Technology, Taipei, Taiwan, ROC
	MoU with the Governors of The University of Alberta, Edmonton, Alberta, Canada
	Cooperation agreement between IIT Kharagpur and The University of British Columbia Applied Science
	MoU between IIT Kharagpur and Leibniz-Institut fur Polymerforschung, Dresden, Germany
	MoU with Rhein-Waal University of Applied Sciences, Germany

15. TERMS OF REFERENCE FOR REVIEW

I. GENERAL CONSIDERATIONS

A. Progress in relation to previous projections

* Progress in relation to IIT's Charter

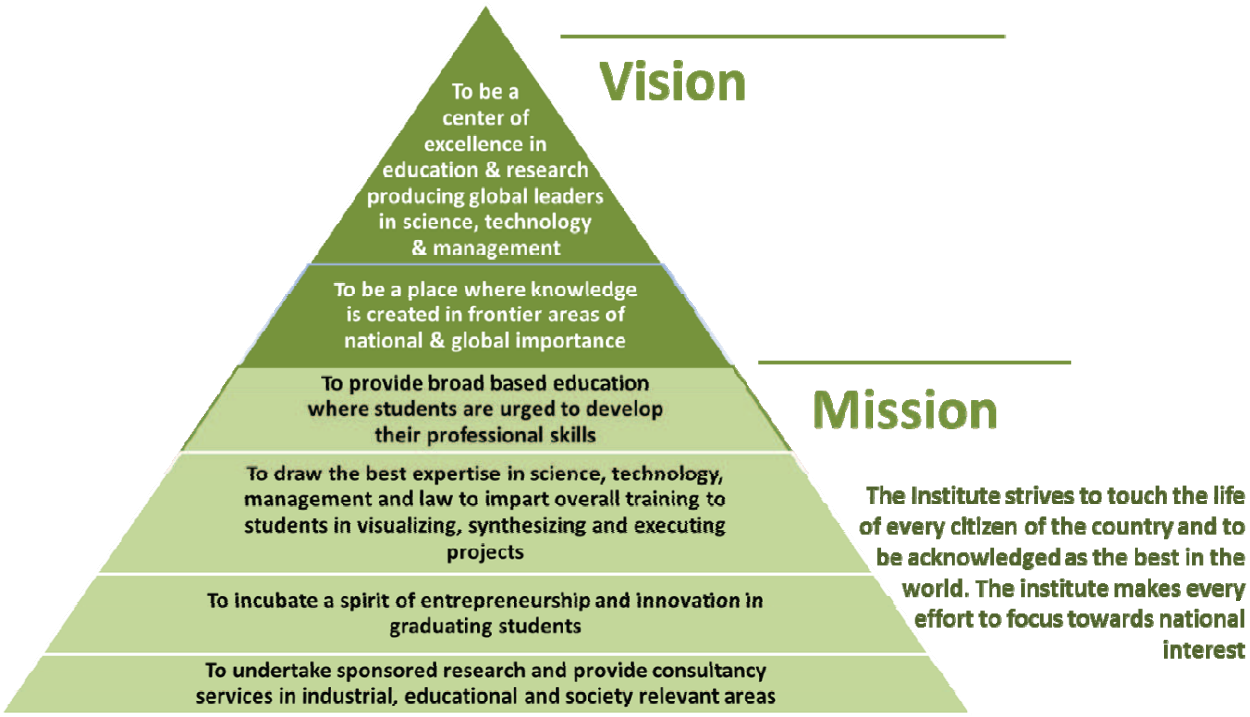
* Progress in relation to Institute's existing Vision and Mission statements

IIT Kharagpur (IITKGP) was established through an act of Parliament as an Institution of national importance to provide for instruction and research in such branches of engineering and technology, sciences and arts, as the Institute may think fit, and for the advancement of learning and dissemination of knowledge in such branches. Over the years, IITKGP has made excellent progress in relation to IIT's Charter and thus created world class educational platforms dynamically sustained through internationally recognized research based on excellent infrastructural facilities. The faculty and alumni of the Institute have made huge impact in all sectors of society, both in India and abroad. The institute is now globally recognized as centre of academic excellence, and is reputed for the outstanding calibre of the students graduating from it.

IIT-Kharagpur has achieved a position of pre-eminence nationally and aspires to rise to the top at the international level. Considered an 'institution of national importance', IIT-Kharagpur, which started with 224 freshmen and 42 teachers in August 1951has crossed 60 golden years of it academic journey. It has now 19 departments, 17 centres /schools, 25 special research and development units having 10181 students and more than 578 teachers across engineering, science, humanities, management and law, and has produced more than 50,000 alumni, now spread across industry and academia around the world.

IITs were set up as outlined by the Sarkar Committee Report. IIT Kharagpur made its own Mission and Vision statements since its inception in the line of IIT's orginal Charter and has undergone major changes to keep pace with the times and as reflected in the IIT reviews of 1972, 1986 and 2004.

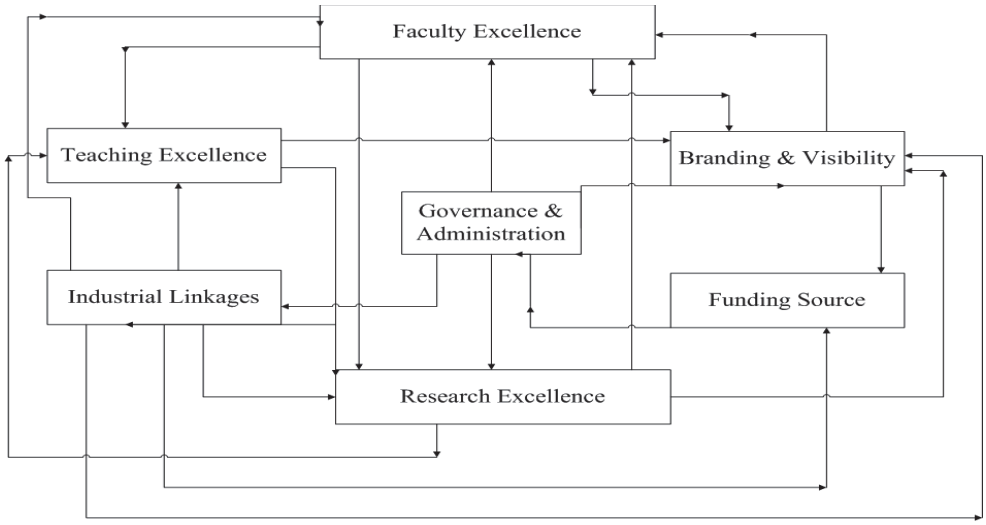
The Mission statements of the Institute are given below:



Over the years, the institute has made a significant progress in relation to Institute's existing Vision and Mission statements. The students have been provided broad based education in the last sixty years to develop their professional skills by adopting the best practices of the world. Efforts have been made to draw the best expertise in science, technology, management and law. The institute has provided enough opportunities and facilities to the students to develop their entrepreneur and innovation skills during the course of the study. An excellent progress in terms of sponsored research and consultancy and its outputs is one of major achievements of the institute. That is why the institute is now globally recognized as centre of excellence in terms of education and research and consultancies producing global leaders in its areas of expertise.

In spite of continuous growth and achievement in teaching and research and global recognition over the last sixty years, the institute apparently seems to be lagging behind erstwhile international peers primarily in its perceived academic reputation and to some extent in its outcomes. The institute felt an urgent need to have a slogan – a one word target that reasonably encompasses its goal, is reachable only with extraordinary sustained effort, that will really challenge and bring about the best in us and enable us to think beyond. Keeping the above in minds, the Institute has recently made its vibrant and dynamically sustained vision statements known as Vision 2020, which is an attempt to develop and execute an accelerated programme of benchmarked excellence and prosper in it. It represents Indian Institute Technology Kharagpur's ambitious vision to be among the top 20 international science and technology-focused institutes with a culture of research excellence in 20 years' time. The institute has identified six transformation themes namely Research excellence, Faculty excellence, Industry linkages,

Branding & Visibility, Funding Source and Governance &Administration to achieve the objectives and goals of Vision2020.These themes are interlinked to each other as well as with Teaching excellence which is one of core strengths of the institute as indicated in figure below. The figure shows that there is a complete synergy among transformational themes.



Inter-linkage of transformational themes

A. Plans for the Future

* Projections made

* Strategies formulated

As stated in progress in relation to previous projections (A) above, the Institute has also made plans for the future and documented in details in Vision 2020. The Vision 2020 of the Institute is to be among the top 20 Institute of the world in 20 years. As stated earlier, the Institute has identified six key transformational themes to achieve this difficult task. Within the themes, several projections for the future have been made after a long deliberations and discussions with external and internal stakeholders. To achieve the goals and objectives, several initiatives as given below have been taken/being taken. In order to achieve this, the Institute has also formulated several strategies towards the projections made and has given a complete roadmap to achieve the projections. Please look at Vision2020 document for details.

Measures adopted towards A and B above

The Institute has adopted several internationally accepted measures/benchmarking towards monitoring the progress in relations to previous projections (A) and plan for the future (B) above. The institute has also identified possible performance key metrics for monitoring the progress in relation to the Institute's Vision and Mission statements. The theme wise details are given below. Please look at Vision2020 document for the details:

Initiatives taken/being taken	Key Metrics
Research Excellence	
✓ Identify 3-4 thrust areas ✓ Convene industry/academic forums to trigger formation of research consortiums ✓ Actively lobby with state and central government to establish a research park in Kolkata ✓ Create and encourage joint research proposals in partnership with government organizations in areas such as defence, water etc. ✓ Create options of research focused career tracks for faculty ✓ Relieve faculty from pure administrative jobs, in order to focus on research ✓ Set up shared service centers across select areas (e.g., shared fundamental labs, analytics, IT, secretarial services) ✓ Ramp up strength of administrative and technical staff, and invest in upgrading skills	✓ Number of R & D centres sponsored by industry ✓ Number of consortiums for interdisciplinary projects ✓ Numbers of patents ✓ Numbers of publications in international journals ✓ Citations/faculty ✓ No. of PhDs ✓ Faculty time spent on research ✓ Research spend, especially in the identified thrust areas
Faculty Excellence	
✓ Performance Management for Faculty with differential compensation and incentive policy monetary and otherwise ✓ Rationalize the career progression mechanism ✓ Introduce training modules for faculty on research methodologies, pedagogy, RFP response ✓ Explore hiring from new sources of talent (e.g., PhDs from industry, part-time model) ✓ Partner with leading universities/industries to create a collaborative/sponsored PhD program to build faculty strength ✓ Create job options for spouse within campus; improve the social infrastructure ✓ Promote research focus, diversity, stipends, scholarships, infrastructure and exchange programs to build ecosystem for faculty development	✓ Faculty vacancies filled ✓ Recruitments into thrust area schools ✓ Faculty development modules developed and delivered ✓ No. of foreign faculty ✓ No. of industry faculty ✓ No. of academic support staff ✓ No. of working spouses

✓ Build mechanism for recruitment of foreign faculty within existing recruitment policies	✓ No. exchange programs for faculty ✓ Placement %, Average salary ✓ Number, size of exchange relationships
Industry Linkages	
✓ Attract Adjunct Faculty ✓ Industry professionals as a mentor for PhD/MTP projects ✓ Rationalize the incentives form industry to conduct fundamental vs. applied research as well as consulting ✓ Solicit projects from industry ✓ Involve industry in development of curriculum ✓ Have faculty exchange programs with industry ✓ Develop internship and apprenticeship programs with industry	✓ No. of industry research projects ✓ No. of continuing education programs with industry ✓ No. of courses developed and delivered with industry ✓ No. of industry faculty and faculty exchange programs ✓ No. of collaborative tie ups with industry
Branding and Visibility	
✓ Branding Survey to understand the perceptions of strengths and weaknesses ✓ Developing brand development, communication and monitoring mechanism	✓ Brand Rankings
Fund Effectiveness	
✓ Manage and drive the fund campaign through a professional agency/ IDP ✓ Define a 5-10 year funding plan including sources and mix of funds ✓ Actively build linkages and seek support from IIT-Kharagpur alumni through involvement in the institute's initiatives ✓ Identify sponsors to drive targeted campaigns ✓ Ensure better visibility for major donors ✓ Establish accounting and reporting channels for donations with feedback mechanism to donors	✓ Diversity of fund raised from different streams ✓ No. of sponsors ✓ No. of participating alumni and the no. of active alumni on database ✓ Returns on the invested corpus ✓ Number of chairs instituted
Governance & Administration	
✓ Director to primarily focus on external linkages ✓ Delegate powers to Deans/Deputy Directors to handle most internal matters ✓ Evaluate creation of a specialist role (CFO equivalent) to manage finance and resources ✓ Empower the HODs to enable faster decision making ✓ Rationalise roles of committees and senate ✓ Simplify processes to minimize paper work and touch points ✓ Leverage technology to improve process efficiency ✓ Rationalise support staff deployment and create shared service platform for administrative roles ✓ Strengthen the performance management system and incentive model for administrative support	✓ Manageable reportees at each level ✓ Quicker decision-making and process turnaround times ✓ Development of external linkages to provide adequate structural support

II. SPECIFIC INDICATORS

1. CURRICULUM AND COURSES OFFERED

i) Range of Degrees and Disciplines with student numbers each of them

IIT Kharagpur has wide-ranging degrees and disciplines offered to its students. The number of such degrees and disciplines are the maximum among all the IITs. The programmes address specific needs of the country such as Ocean Engineering and Naval Architecture, Mining, Biotechnology, Quality Engineering Design and Manufacturing etc. Details are given below:

Departments/ Centres/ Schools	Degrees	Disciplines	Total Strength
AE	B.TECH	Aerospace Engineering(B.Tech 4y)	119
	DUAL DEGREE	Aerospace Engineering/Engineering Entrepreneurship	5
	DUAL DEGREE	Aerospace Engineering (M.Tech Dual 5y)	100
	M.TECH	Aerospace Engineering	33
	MS	Master of Science	2
	PhD	Doctor of Philosophy	37
AG	B.TECH	Agricultural & Food Engg.(B.Tech 4y)	127
	DUAL DEGREE	Agri. Food Engg. Dairy & Food Engg. (M.Tech Dual 5y)	1
	DUAL DEGREE	Agri. Food Engg. Farm Machinery & Power (M.Tech Dual 5y)	4
	DUAL DEGREE	Agri. Food Engg. Food Process Engg. (M.Tech Dual 5y)	34
	DUAL DEGREE	Agricultural & Food Engineering Dual Degree In Available Specialization (M.Tech Dual 5Y)	76
	DUAL DEGREE	Agricultural & Food Engineering/Engineering Entrepreneurship	9
	DUAL DEGREE	Agricultural & Food Engineering/Financial Engineering	24
	M.TECH	Agricultural Biotechnology	35
	M.TECH	Agricultural Systems and Management	17
	M.TECH	Aquacultural Engineering	16
	M.TECH	Farm Machinery and Power	29
	M.TECH	Food Process Engineering	55
	M.TECH	Land And Water Resources Engineering	29
	MS	Master of Science	2

	PhD	Doctor of Philosophy	128
AR	B.ARCH	Architecture (B.Arch 5y)	213
	MCP	City Planning	64
	PhD	Doctor of Philosophy	32
AT	M.TECH	Embedded Controls and Software	13
	MS	Master of Science	22
	PhD	Doctor of Philosophy	84
BM	EMBA	Executive MBA	109
	MBA	Business Management	130
	MS	Master of Science	2
	PhD	Doctor of Philosophy	51
BT	B.TECH	Biotech. & Biochemical Engg. (B.Tech 4y)	89
	DUAL DEGREE	Biotechnology &Biochem. Engg. (M.Tech Dual 5y)	110
	DUAL DEGREE	Biotechnology & Biochemical Engineering/Engineering Entrepreneurship	2
	DUAL DEGREE	Biotechnology & Biochemical Engineering/Financial Engineering	8
	M.TECH	Biotechnology and Biochemical Engineering	38
	PhD	Doctor of Philosophy	74
CE	B.TECH	Civil Engg. (B.Tech 4y)	231
	DUAL DEGREE	Civil Engg. Dual Degree in Available Spl. (M.Tech Dual 5y)	60
	DUAL DEGREE	Civil Engg. Environmental Engg. and Management (M.Tech Dual5y)	4
	DUAL DEGREE	Civil Engg. Hydraulic and Water Resource Engineering (M.Tech Dual 5y)	1
	DUAL DEGREE	Civil Engg. Structural Engg. (M.Tech Dual 5y)	30
	DUAL DEGREE	Civil Engg. Transportation Engg. (M.Tech Dual 5y)	13
	DUAL DEGREE	Civil Engineering/Engineering Entrepreneurship	4
	DUAL DEGREE	Civil Engineering/Financial Engineering	1
	M.TECH	Environmental Engineering & Management	10
	M.TECH	Geotechnical Engineering	26
	M.TECH	Hydraulic And Water Resources Engineering	15
	M.TECH	Structural Engineering	33
	M.TECH	Transportation Engineering	31
	PhD	Doctor of Philosophy	80
CH	B.TECH	Chemical Engg. (B.Tech 4y)	215
	DUAL DEGREE	Chemical Engg.(M.Tech Dual 5y)	148
	DUAL DEGREE	Chemical Engineering/Engineering Entrepreneurship	2
	DUAL DEGREE	Chemical Engineering/Financial Engineering	1
	M.TECH	Chemical Engineering	112
	MS	Master of Science	1

	PhD	Doctor of Philosophy	66
CL	M.TECH	Earth System Science and Technology	23
	MS	Master of Science	1
	PhD	Doctor of Philosophy	29
CR	M.TECH	Cryogenic Engineering	14
	MS	Master of Science	1
	PhD	Doctor of Philosophy	11
CS	B.TECH	Computer Science &Engg. (B.Tech 4y)	246
	DUAL DEGREE	Computer Sc.&Engg.(B.Tech)	1
		Comp. and IT (M.Tech Dual 5y)	
	DUAL DEGREE	Computer Science and Engineering/Engineering Entrepreneurship	1
	DUAL DEGREE	Computer Science &Engg. (M.Tech Dual 5y)	223
	M.TECH	Computer Science and Engineering	73
	MS	Master of Science	16
	PhD	Doctor of Philosophy	58
CY	M.SC(2YR)	Chemistry (2yr. M.Sc.)	84
	M.SC(5YR)	Chemistry (M.Sc. 5y)	99
	PhD	Doctor of Philosophy	155
EC	B.TECH	Electronics & Elec. Comm.Engg. (B.Tech 4y)	263
	DUAL DEGREE	Elect.&Elec.Com.Engg.Dual Degree in Any Spl.(M.Tech Dual 5y)	128
	DUAL DEGREE	Elect. & Elec. Com. Engg. Microelectronics &	34
		VLSI Des. (M.Tech Dual 5y)	
	DUAL DEGREE	Elect. & Elec. Com. Engg. RF & Microwave Engg. (M.Tech Dual 5y)	1
	DUAL DEGREE	Elect. & Elec. Com. Engg. Telecomm System Engg.(M.Tech Dual5y)	6
	DUAL DEGREE	Elect. & Elec. Com. Engg. Visual Informn. & Embedded Sys.(M.Tech Dual 5y)	59
	DUAL DEGREE	Electronics and Electrical Communication Engg./Engineering Entrepreneurship	3
	M.TECH	Electronics and Communication Engineering	3
	M.TECH	Microelectronics & VLSI Design	54
	M.TECH	RF and Microwave Engineering	31
	M.TECH	Telecommunication Systems Engineering	49
	M.TECH	Visual Information and Embedded Systems Engg.	45
	M.TECH(3YR)	Electronics and Communication Engineering	56
	MS	Master of Science	25
	PhD	Doctor of Philosophy	108
EE	B.TECH	Electrical Engg. (B.Tech 4y)	248

	B.TECH	Energy Engg. (B.Tech 4y)	1
	B.TECH	Instrumentation Engg. (B.Tech 4y)	140
	DUAL DEGREE	Elect.Engg. Control System Engg.(M.Tech Dual 5y)	2
	DUAL DEGREE	Elect.Engg. Dual Degree in Any Spl.(M.Tech Dual 5y)	71
	DUAL DEGREE	Elect.Engg/Engineering Entrepreneurship	3
	DUAL DEGREE	Elect.Engg. Instrumentation and Signal Processing Engg.(M.Tech Dual 5y)	50
	DUAL DEGREE	Elect.Engg. InstrumentationEngg. (M.Tech Dual 5y)	3
	DUAL DEGREE	Elect.Engg. Mach. Drives & Power Elect. (M.Tech Dual 5y)	2
	DUAL DEGREE	Elect.Engg. Power Systems Engg.(M.Tech Dual 5y)	1
	DUAL DEGREE	Instrumentation Engineering/Engineering Entrepreneurship	2
	M.TECH	Control System Engineering	21
	M.TECH	Instrumentation and Signal Processing	25
	M.TECH	Machine Drives and Power Electronics	24
	M.TECH	Power and Energy Systems	25
	M.TECH(3YR)	Electrical Engineering	37
	MS	Master of Science	16
	PhD	Doctor of Philosophy	65
ET	M.TECH	Media and Sound Engineering	6
	MS	Master of Science	2
	PhD	Doctor of Philosophy	11
GG	M.SC(2YR)	Geology (2 yr. M.Sc.)	57
	M.SC(5YR)	Applied Geology (M.Sc. 5y)	137
	M.SC(5YR)	Exploration Geophysics (M.Sc. 5y)	141
	M.TECH	Exploration Geosciences	14
	MS	Master of Science	1
	PhD	Doctor of Philosophy	64
GS	MS	Master of Science	4
	PhD	Doctor of Philosophy	23
HS	M.SC(5YR)	Economics (M.Sc. 5y)	176
	MHRM	Human Resources Management	37
	PhD	Doctor of Philosophy	61
ID	M.TECH	Infrastructure Design and Management	37
	PhD	Doctor of Philosophy	7
IM	B.TECH	Industrial Engineering (B.Tech 4y)	115
	DUAL DEGREE	Ind. Engg. Ind. Engg. & Mgmt. (M.Tech Dual 5y)	120
	DUAL DEGREE	Industrial Engineering/Engineering Entrepreneurship	2
	DUAL DEGREE	Industrial Engineering/Financial Engineering	4
	DUAL DEGREE	Manuf. Sci & Engg. Ind. Engg. & Mgmt.	1

		(M.Tech Dual 5y)	
	DUAL DEGREE	Quality Engineering Design and Manufacturing (Industrial Electronics Vertical) (M.Tech Dual 5y)	12
	DUAL DEGREE	Quality Engineering Design and Manufacturing (Mechanical Engineering Vertical) (M.Tech Dual 5y)	12
	DUAL DEGREE	Quality Engineering Design and Manufacturing (M.Tech Dual 5y)	13
	M.TECH	Industrial Engineering and Management	16
	MS	Master of Science	3
	PhD	Doctor of Philosophy	34
IP	LLB	Intellectual Property Law	117
	PhD	Doctor of Philosophy	10
IT	M.TECH	Information and Communication Technology	2
	M.TECH	Information Technology	26
	M.TECH(3YR)	Information and Communication Technology	41
	MS	Master of Science	23
	PhD	Doctor of Philosophy	34
MA	M.SC(2YR)	Mathematics(2yr. M.Sc.)	58
	M.SC(5YR)	Mathematics & Computing (M.Sc. 5y)	234
	M.SC(5YR)	Statistics and Informatics (M.Sc. 5y)	6
	M.TECH	Computer Science and Data Processing	43
	PhD	Doctor of Philosophy	73
ME	B.TECH	Manufacturing Science &Engg.(B.Tech 4y)	106
	B.TECH	Mechanical Engg.(B.Tech 4y)	283
	DUAL DEGREE	Manufacturing Science and Engineering/Engineering Entrepreneurship	1
	DUAL DEGREE	Manufacturing Science and Engineering/Financial Engineering	1
	DUAL DEGREE	Manuf. Sci&Engg.Ind. Engg. Man. (M.Tech Dual 5y)	78
	DUAL DEGREE	Mechanical Engineering/Engineering Entrepreneurship	7
	DUAL DEGREE	Mech.Engg. Dual Degree In Any Spl. (M.Tech Dual 5y)	156
	DUAL DEGREE	Mech.Engg. Manuf. Science &Engg. (M.Tech Dual 5y)	51
	DUAL DEGREE	Mech.Engg. Mech. Systems Design (M.Tech Dual 5y)	25
	DUAL DEGREE	Mech.Engg. Ther. Science &Engg. (M.Tech Dual 5y)	44
	M.TECH	Manufacturing Science and Engineering	34
	M.TECH	Mechanical Systems Design	73
	M.TECH	Thermal Science and Engineering	51

	MS	Master of Science	8
	PhD	Doctor of Philosophy	113
MI	B.TECH	Mining Engg.(B.Tech 4y)	154
	DUAL DEGREE	Mining.Engg. (M.Tech Dual 5y)	86
	DUAL DEGREE	Mining Engineering/Engineering Entrepreneurship	3
	DUAL DEGREE	Mining Engineering/Financial Engineering	8
	DUAL DEGREE	Mining Engineering Safety Engg.& Disaster Mgmt. in Mines (M.Tech Dual 5y)	43
	DUAL DEGREE	Mining Engineering Safety Engg. (M.Tech Dual 5y)	35
	M.TECH	Mining Engineering	21
	PhD	Doctor of Philosophy	31
MM	M.TECH	Medical Imaging and Informatics	6
	MMST	Medical Science and Technology	27
	MS	Master of Science	2
	PhD	Doctor of Philosophy	63
MS	M.TECH	Materials Science and Engineering	32
	MS	Master of Science	1
	PhD	Doctor of Philosophy	63
MT	B.TECH	Metall. & Materials Engg.(B.Tech 4y)	155
	DUAL DEGREE	Metall&Mat.Engg. Metall.Engg. (M.Tech Dual 5y)	97
	DUAL DEGREE	Metallurgical and Materials Engineering/Engineering Entrepreneurship	5
	DUAL DEGREE	Metallurgical and Materials Engineering/Financial Engineering	2
	M.TECH	Metallurgical and Materials Engineering	74
	MS	Master of Science	8
	PhD	Doctor of Philosophy	65
NA	B.TECH	Ocean Engg. & Naval Arch. (B.Tech 4y)	122
	DUAL DEGREE	Ocean Engg. and Naval Architecture/Engineering Entrepreneurship	2
	DUAL DEGREE	Ocean & Naval Arch / Ocean Engg. Naval Arch. (M.Tech Dual 5y)	109
	M.TECH	Ocean Engineering and Naval Architecture	32
	MS	Master of Science	2
	PhD	Doctor of Philosophy	15
PH	M.SC(2YR)	Physics(2yr. M.Sc.)	90
	M.SC(5YR)	Physics (M.Sc. 5y)	135
	M.TECH	Solid State Technology	12
	PhD	Doctor of Philosophy	85
RD	PhD	Doctor of Philosophy	1
RE	M.TECH	Reliability Engineering	18
	MS	Master of Science	2

	PhD	Doctor of Philosophy	12
RJ	MS	Master of Science	2
	PhD	Doctor of Philosophy	12
RT	M.TECH	Rubber Technology	25
	PhD	Doctor of Philosophy	42
TS	PhD	Doctor of Philosophy	4
WM	M.TECH	Water Management	10
	MS	Master of Science	1
	PhD	Doctor of Philosophy	16
Total			**10181**

ii) Consistency of Curricula with Academic Vision

The curricula in each case are framed keeping in mind the goal of academic excellence pursued by the Institute. Due effort is made to invite opinion from experts in academia and industry.

Please look at Peer Review document which is provided by all departments/centres/schools.

iii) Vision for Curricula and Academic Offerings 5-10 Years in the Future

The vision for curricula and academic offerings for 5-10 in the future focuses on introduction of innovation, entrepreneurship, and industry internship. It endeavours to inculcate among the students a focus on design and research, and urge them to carry out interdisciplinary work. It also aims at achieving international exposure for its curricula and academic offerings.

Please look at Peer Review document which is provided by all departments/centres/schools.

iv) Quality of Programmes (Under-Graduates/Post-Graduates)

A. Relevance to Recruiters (Industries/Academic Institutions/R&D Labs)

IIT Kharagpur was the fastest in session 2013-14 among all the IITs in the country to secure more than 1000 placements for its students. The courses and academic offerings of IIT Kharagpur are highly relevant and the recruiters appreciate this fact on a regular basis.

Please look at Peer Review document which is provided by all departments/centres/schools.

B. Periodicity of Curriculum Review at Both UG and PG Level

Curricula reviews are carried out approximately every three to five years for major revision and every year for minor revision. Such revisions are carried out on the basis of feedback obtained from the students, faculty members, recruiters, alumni and also on the basis of prevalent state-of-the-art in academia and research.

Please look at Peer Review document which is provided by all departments/centres/schools.

C. Mechanism for Programmes Review at the UG and PG Level

It includes internal deliberations and vetting by external experts from the academia and industry. Individual departments carry out brainstorming every semester on the relevance of its courses on the basis of feedback received from the students, faculty members, and recruiters. Based on such deliberations, proposals are sent to statutory academic review committees (UGPEC and PGPEC) of the Institute. Once passed, the proposals are finally vetted by the Institute Senate for implementation.

Please look at Peer Review document which is provided by all departments/centres/schools.

D. Course Work Mandated for Masters Students and the Average Courses Done Per Masters Student

Programmes	Total No. of Masters Student	Total No. of Mandated Course Work per Student	Total No. of Credits in Mandated Course Work per Student	Minimum Courses per Student	Minimum Credits per Student
MTECH	1411	12	39	17	88
MCP	64	13	46	18	92
MHRM	37	29	83	32	95
MBA	130	37	84	41	96
LLB	117	37	206	44	221
MMST	27	24	83	31	135
M.Tech(3 Yr)	134	14	45	19	92
EMBA	109	36	84	39	99

E. Course Work Mandated for PhD Students and the Average Courses Done Per PhD Student

i) English for Technical Writing (ETW) – Compulsory Subject – Not part of the course work

ii) Interdisciplinary and Compulsory Subjects - Part of the course work

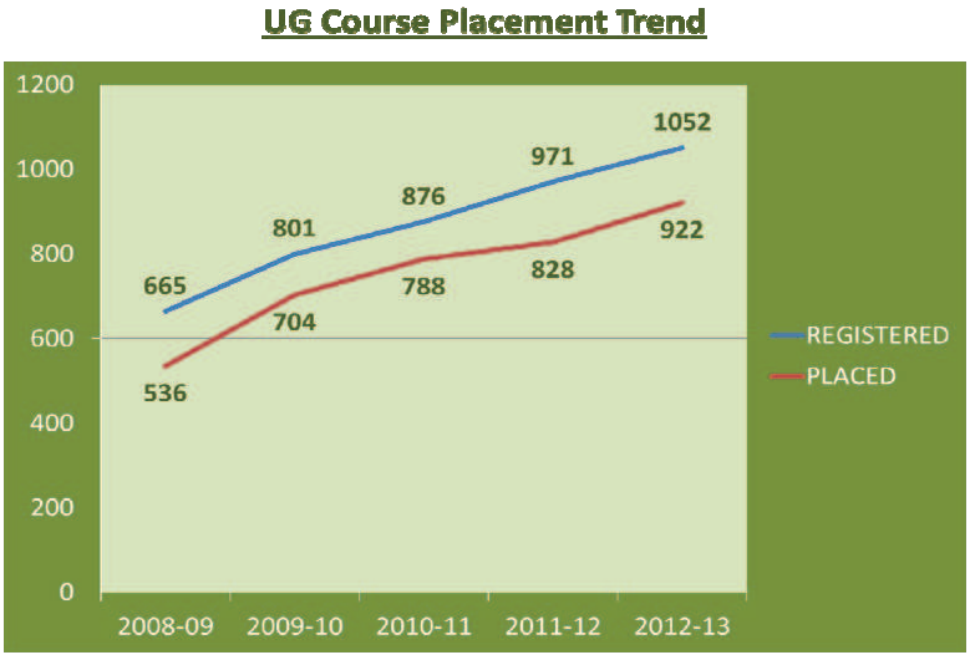
A set of subjects are usually recommended by the Doctoral Scrutiny Committee of a student considering the student's skill requirements for the research work to be undertaken by the student and his (or her) academic background to have a credit loading as under:

i.	For students admitted on the basis of M.Tech. or equivalent degree (obtained within last 8 years):	Lower Limit: 10. Upper Limit: 20.
ii.	For students admitted on the basis on M.Tech. or equivalent degree (not obtained within last 8 years):	Lower Limit: 20. Upper Limit: 40
iii.	For students admitted on the basis of B.Tech., MSc., or equivalent degree (obtained within last 8 years):	Lower Limit: 20. Upper Limit: 40.
iv.	For students admitted on the basis of B.Tech., MSc., or equivalent degree (not obtained within last 8 years):	Lower Limit: 40.

The above-mentioned credit loadings include the Inter-disciplinary subject.

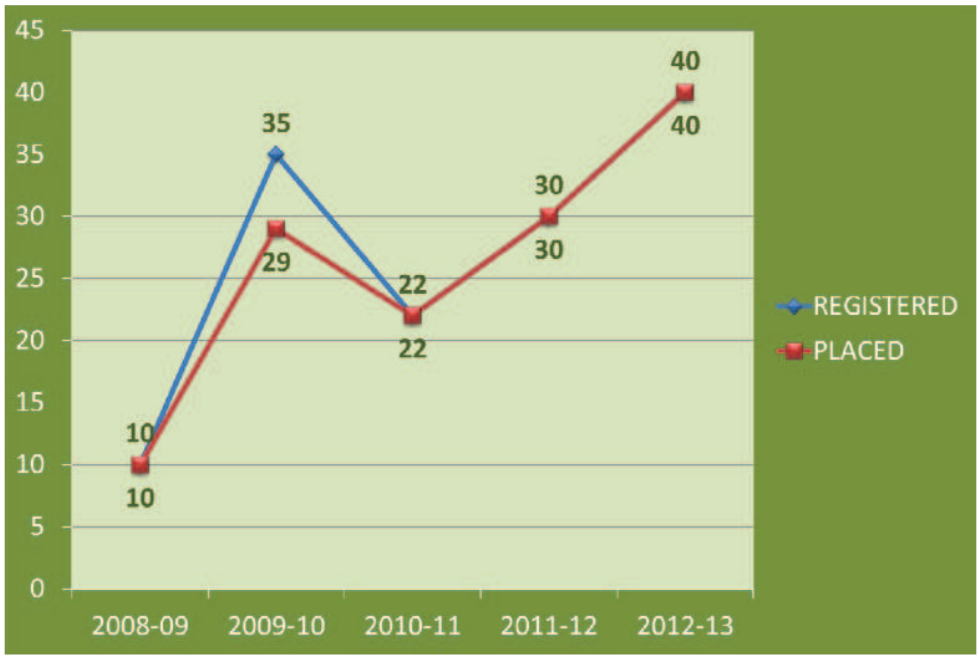
F. Students Placements in Last Five Years

2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13



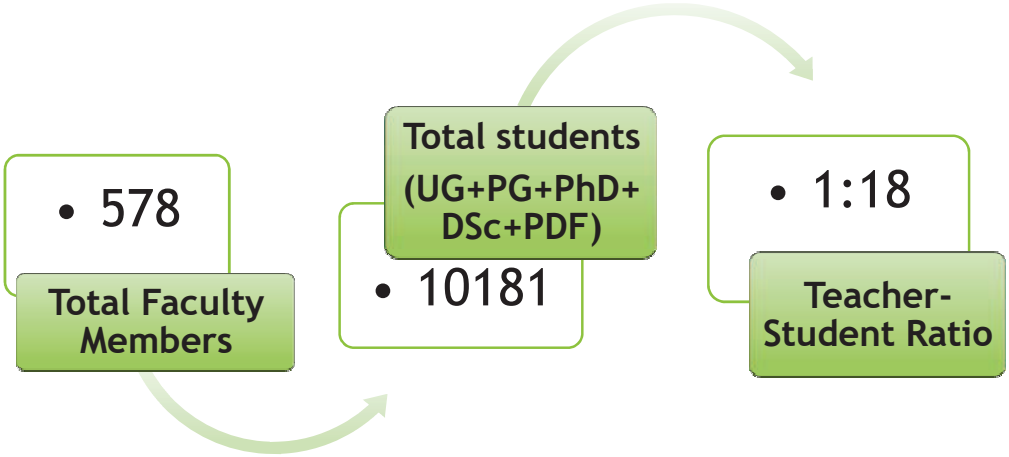
PG Course Placement Trend

MS/PhD Course Placement Trend



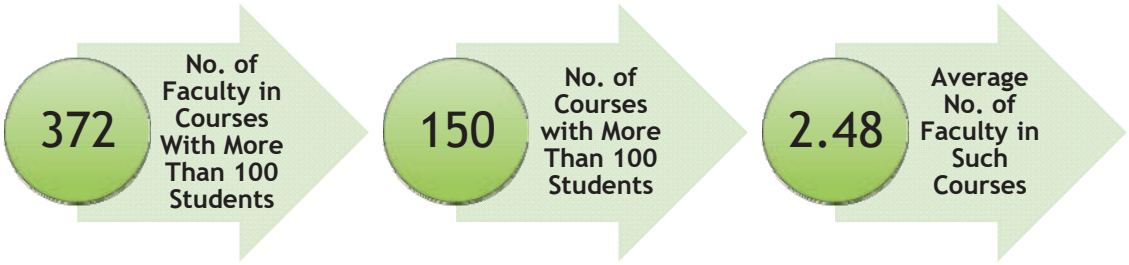
2. TEACHING ENVIRONMENT

a) Teachers Adequacy: (e.g. Teacher-Student Ratio for Each Academic Department)



For teacher-students ratio for each department, see Annexure-VIII.

b) Average Number of Faculty in Courses with more than 100 Students



Data based on 2 semesters: Autumn,2013-14 and Spring, 2012-13

c) Quality of Engagement of Teachers with Students (Average Students Feedback on Courses, Curricula and Pedagogy) based on last five years data.

Department-wise Average of all Theory and Laboratory Courses are provided on student feedback for IIT Kharagpur

20 Key Indicators used for the Theory Subjects are as under:

1. •Knowledge of the teacher in the subject area
2. •Clarification of the objectives of the course
3. •Stimulation of interest in the subject area
4. •Promotion of analytical/logical thinking
5. •Clarity of presentation
6. •Inclusion of recent developments with real life examples
7. •Encouraging questions in class
8. •Challenging tests
9. •Quality of evaluation
10. •Prompt and detailed feedback
11. •Help in the course work available outside the class
12. •Friendly and helpful towards students
13. •Enthusiasm of the teacher towards the subject
14. •Participation/academic interaction during class
15. •Quality of assignments and tutorials
16. •Number of assignments / tutorials
17. •Pace / speed of teaching
18. •Rating the course structure
19. •Registered Students academic effort in studying
20. •Overall rating of the teacher

Department-wise Average of all Theory Courses on students feedback

Highest Rating: 5

D/C/S	Courses	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
AE	37	3.9	3.9	4	3.9	4.1	3.9	3.9	3.8	3.9	3.9	3.9	4	4	3.8	4	3.9	3.9	4	3.8	3.9
AG	67	3.8	3.8	3.9	3.9	4.1	3.9	3.8	3.8	3.8	3.9	3.8	3.9	3.9	3.8	3.9	3.8	3.9	3.9	3.8	3.8
AR	39	4.1	3.9	4.2	4	4.3	4.1	4	4	4	4.1	4	4	4.1	4	4.2	4	4.1	4	4.1	3.9
AT	2	4.2	4.4	4.6	4.1	4.8	4.6	4.4	4.4	4.4	4.4	4.3	4.7	4.4	3.9	4.6	4.3	4.2	4.9	4.5	4.6
BM	63	3.9	3.8	3.9	3.8	4	3.8	3.8	3.8	3.8	3.8	3.8	3.9	3.8	3.8	3.9	3.8	3.9	3.8	3.8	3.9
BT	29	3.5	3.5	3.5	3.5	3.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.6	3.5	3.6	3.5	3.5	3.5	3.5	3.6
CE	90	3.7	3.6	3.7	3.7	3.8	3.7	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.6	3.7	3.6	3.7	3.7	3.7	3.6
CH	37	3.8	3.7	3.8	3.8	3.9	3.8	3.7	3.7	3.7	3.8	3.8	3.8	3.8	3.7	3.8	3.8	3.8	3.8	3.7	3.8
CL	12	4.1	3.9	4.1	4.1	4.3	3.9	3.9	3.9	3.9	3.9	4	4	4	3.9	4.1	4	4	4	3.9	4
CR	8	4	3.8	4.1	3.9	4.4	4.1	3.9	4	4	4	4	4.1	4.2	4.1	4.2	4	4	4	4	3.8
CS	45	3.9	3.9	4	3.8	4.2	3.9	3.9	3.8	3.8	3.9	3.9	3.9	3.9	3.8	4	3.9	3.9	3.8	3.8	3.8
CY	47	3.7	3.6	3.8	3.6	3.9	3.7	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.6	3.8	3.6	3.7	3.7	3.6	3.7
EC	70	3.8	3.8	3.8	3.7	4	3.8	3.8	3.7	3.7	3.8	3.8	3.9	3.8	3.7	3.9	3.8	3.8	3.8	3.7	3.8
EE	54	3.8	3.8	3.8	3.8	4	3.8	3.8	3.7	3.7	3.8	3.8	3.9	3.8	3.7	3.9	3.7	3.8	3.8	3.7	3.8
ET	10	4	3.9	4.1	4.1	4.1	4	4	3.9	4	4	3.9	3.9	4	4	4.1	4	4	4	4.1	3.9
GG	60	3.9	3.7	3.9	3.8	4	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.9	3.8	3.9	3.8	3.8	3.8	3.8	3.8
GS	2	4.4	4	4.4	4.3	4.4	4.1	3.9	4.3	4.3	4.3	4.3	4.2	4.3	4.3	4.4	4.4	4.5	4.1	4.4	4.1
HS	63	3.8	3.7	3.8	3.8	4	3.8	3.7	3.7	3.7	3.7	3.7	3.8	3.8	3.8	3.9	3.7	3.8	3.7	3.8	3.7
ID	6	4.5	4.3	4.6	4.5	4.5	4.4	4.4	4.3	4.3	4.3	4.3	4.3	4.4	4.2	4.5	4.2	4.4	4.3	4.4	4.2
IM	43	3.9	3.9	3.9	3.9	4	3.9	3.9	3.9	3.9	3.9	3.9	3.9	4	3.9	4	3.9	3.9	3.9	3.9	3.9
IP	38	3.7	3.5	3.7	3.7	3.8	3.7	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.6	3.8	3.5	3.7	3.7	3.7	3.7
IT	23	4.1	4	4.1	4.1	4.3	4.1	4.1	4	4	4	4	4	4.1	4	4.2	4.1	4	4	4	4
MA	88	3.8	3.7	3.8	3.8	4	3.8	3.8	3.7	3.7	3.8	3.7	3.8	3.8	3.7	3.9	3.7	3.7	3.9	3.6	3.8
ME	88	3.9	3.9	4	3.9	4.1	3.9	3.9	3.8	3.8	3.9	3.9	3.9	3.9	3.8	4	3.9	3.9	3.9	3.9	3.8
MI	40	3.8	3.7	3.9	3.8	3.9	3.8	3.7	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.9	3.8	3.8	3.7	3.8	3.8
MM	21	3.8	3.7	4	3.7	3.9	3.6	3.7	3.6	3.7	3.9	3.6	3.6	3.8	3.6	3.9	3.8	3.7	3.7	3.7	4
MS	25	4.1	4	4.1	4.1	4.3	4.1	4	4.1	4.1	4.1	4.1	4.1	4.2	4.1	4.2	4.1	4.1	4.1	4.2	4.1
MT	48	4.1	4	4.1	4.1	4.2	4.1	4	4	4	4.1	4	4.1	4.1	4	4.1	4	4.1	4.1	4	4
NA	29	3.9	3.8	4	3.9	4.1	3.9	3.8	3.9	3.9	3.9	3.9	4	4	3.8	4	3.8	3.9	3.9	3.9	3.9
PH	49	3.6	3.6	3.7	3.6	3.9	3.6	3.6	3.5	3.6	3.6	3.5	3.7	3.6	3.5	3.8	3.6	3.6	3.6	3.6	3.7
RD	2	3.8	3.8	3.9	3.9	4	3.9	3.8	3.8	3.8	3.8	3.8	3.8	3.9	3.8	3.9	3.8	3.8	3.8	3.8	3.8
RE	9	4.7	4.5	4.7	4.4	4.6	4.6	4.5	4.5	4.6	4.5	4.6	4.5	4.5	4.4	4.7	4.5	4.5	4.5	4.4	4.4
RJ	10	3.9	3.9	3.9	3.8	3.9	3.8	3.9	3.9	3.8	3.8	3.9	3.8	3.9	3.8	3.9	3.9	3.9	3.9	3.9	4
RT	13	4.2	4.1	4.2	4.1	4.4	4.3	4.1	4.2	4.2	4.2	4.2	4.2	4.3	4.2	4.3	4.2	4.2	4.2	4.2	4.2
TS	4	4.6	4.6	4.7	4.7	4.7	4.6	4.6	4.6	4.6	4.6	4.5	4.7	4.7	4.6	4.7	4.6	4.6	4.7	4.5	4.5
WM	4	4	3.9	4	3.9	4.2	3.9	3.9	3.9	4	4	3.9	3.9	4	4	4	3.9	3.9	3.9	4	3.8

17Key Indicators used for the Laboratory Subjects are as under:

1. •Knowledge of the teacher in the subject area
2. •Clarification of the objectives of the course
3. •Stimulation of student interest in the subject area
4. •Promotion of analytical / logical thinking
5. •Quality of assignments / experiments
6. •Facilities available in the class/lab
7. •Encouraging students' questions in class
8. •Challenging tests
9. •Quality of evaluation
10. • Prompt and detailed feedback
11. • Help in the course work available outside the class
12. • Friendly and helpful towards students
13. • Enthusiasm of the teacher towards the subject
14. • Motivating ability of the teacher
15. • Rating the course structure
16. • Registered Students academic effort in studying the course
17. • Overall rating of the teacher

Department-wise Average of all Laboratory Courses on students feedback

Highest Rating 5

D/C/S	Courses	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
AE	12	3.9	3.7	3.9	3.9	4	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.9	3.8	3.8	4	3.8
AG	25	3.8	3.8	3.8	3.8	3.9	3.8	3.8	3.7	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
AR	21	3.9	3.9	4	4	4.1	4	4	3.9	3.9	3.9	4	4	4.1	3.9	4	4	3.8
AT	3	4.1	4	4.2	4.1	4.2	3.9	4.2	3.9	3.9	4	4	4	4.1	3.9	3.9	4.2	4.3
BM	1	4.2	4	4.1	4	4	4	4	4.1	3.9	4.1	4	4.1	4.2	4.2	4.2	4.3	4.1
BT	14	4	3.9	4	4	4.1	4	4	4	4	4	4	4	4	4	4	3.9	4
CE	26	3.6	3.7	3.7	3.7	3.9	3.6	3.7	3.6	3.6	3.5	3.6	3.8	3.7	3.6	3.6	3.8	3.7
CH	12	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.6
CL	3	3.9	3.9	4.1	4	4.2	3.8	3.9	3.8	4	3.9	3.9	4	4.2	4	3.9	4	4
CR	2	4.2	3.5	4	4.2	4.5	4	4.2	4.3	3.9	3.9	4.1	3.8	4.2	4	4	3.8	4.1
CS	11	3.7	3.9	3.8	3.8	4.1	3.8	3.9	3.8	3.7	3.7	3.8	3.9	3.9	3.7	3.8	3.9	3.9
CY	12	3.6	3.6	3.6	3.7	3.8	3.7	3.7	3.6	3.6	3.6	3.6	3.7	3.7	3.6	3.6	3.8	3.8
EC	29	3.5	3.6	3.5	3.6	3.7	3.6	3.7	3.5	3.5	3.5	3.5	3.6	3.6	3.5	3.5	3.7	3.6
EE	25	3.7	3.7	3.7	3.8	3.9	3.7	3.8	3.7	3.6	3.6	3.7	3.8	3.8	3.7	3.7	3.8	3.8
ET	2	4.1	3.9	4.9	3.9	4.1	3.7	4	4	4.1	4.1	4	4	4.4	4.1	4.1	3.6	3.7
GG	28	4	3.9	4	4	4.1	4	4	3.9	3.9	3.9	3.9	3.9	4	3.9	3.9	4	3.9
HS	3	4.3	4.3	4.4	4.1	4.4	4.2	4	4.2	4.1	4.4	4.2	4.2	4.4	4.2	4.3	3.9	4.1
ID	3	3.9	3.6	3.9	4	3.9	3.9	3.8	3.9	3.9	3.7	4.2	3.7	3.9	3.9	4	3.9	4.2
IM	10	3.8	3.8	3.8	3.8	3.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.9	3.8	3.8	3.8	3.8
IP	1	3.3	3.4	3.4	3.7	3.4	3.5	3.8	3.5	3.4	3.5	3.4	3.5	3.5	3.4	3.5	4.1	3.5
IT	5	4.3	4.2	4.4	4.2	4.3	4.2	4.1	4.1	4.2	4.1	4.3	4.1	4.3	4	4.2	4.3	4.3
MA	13	3.6	3.7	3.7	3.6	3.7	3.6	3.6	3.5	3.6	3.7	3.6	3.6	3.7	3.6	3.6	3.7	3.6
ME	19	3.9	3.8	3.9	3.9	4	3.9	3.9	3.9	3.8	3.8	3.9	3.9	3.9	3.8	3.9	3.9	3.9
MI	12	3.6	3.6	3.7	3.7	3.7	3.6	3.7	3.6	3.6	3.7	3.6	3.6	3.7	3.6	3.6	3.8	3.7
MM	5	4.2	3.7	4.6	4.2	4.3	3.7	3.6	3.8	3.7	3.8	3.7	3.8	4.4	3.9	4	3.7	3.9
MS	3	4.4	4.2	4.4	4.5	4.6	4.5	4.5	4.4	4.4	4.4	4.4	4.4	4.5	4.4	4.4	4.4	4.3
MT	15	4.1	4.1	4.1	4.2	4.2	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.2	4.1	4.1	4	4.2
NA	11	4	4	4	4.1	4.1	4	4.1	4	4	4	4	4	4	4	4	4.1	4
PH	17	3.6	3.6	3.7	3.7	3.9	3.7	3.8	3.6	3.6	3.6	3.6	3.7	3.8	3.7	3.6	3.8	3.8
RE	3	4.6	4.7	4.7	4.8	4.7	4.7	4.6	4.7	4.7	4.7	4.7	4.7	4.7	4.5	4.7	4.8	4.6
RT	2	4.3	4.1	4.3	4.4	4.4	4.3	4.3	4.3	4.2	4.2	4.3	4.2	4.1	4.3	4.2	4.4	4.2
WM	3	3.9	3.7	3.8	4.2	4.2	3.9	3.8	4	3.8	3.9	3.8	3.9	4	4	3.7	3.8	3.8

d) Number of Students who were motivated to opt for careers in Engineering /Science/ Technology Sectors. Based on available data for at least last five years:

Students are motivated to opt for careers in their core discipline of Engineering, Science, or Technology. Although a substantial portion of students finally opt for career in their core discipline, quite a number of other students opt for career in banking, finance sectors, management or civil services. However, such number varies from department to department.
Please look at Peer Review document which is provided by all departments/centres/schools.

e) Adequacy of Infrastructure Teaching Labs and Equipments, for example by Assessing Average Number of Students per Experiment in Core Courses

At IIT Kharagpur, there are more than 160 Teaching Labs having more than 1500 equipments and total number of laboratory classes is 497. In the core courses, the number of students per experiment is not more than 2 or 3. Efforts are made to provide 1 student with 1 experiment.
Please look at Peer Review document which is provided by all departments/centres/schools.

f) Adequacy of Laboratory Assistance

Number of Total Laboratory Classes	Number of Total Laboratory Assistants	Laboratory Classes Per Lab Assistant
497	289	2

g) Modernization of Libraries: Extent of Electronic Accessibility to Library Resources

Central Library of IIT Kharagpur is providing IP based access to 40000 electronic journals full-text and about 100000 e-books. It provides access to 50000 Proquest UMI theses and dissertation full-text and online access to Institute theses. It also provides access to all standards and patent databases.

List of E-resources subscribed by Central Library is attached in Annexure – I

Central Library is going to implement RFID system in the currents financial year

Category	Physical	Electronic	Total
No. of Books	188,755	80,000	268,755
No. of Journals	123	40,000	40,123
No. of Hand Books	5,889	10,000	15,889
No. of Text Books	58,289	10,000	68,289
Magazines	25	26	51
Engineering related journals subscribed	National	E-Journals	International
	80	40000	200

* Out of a total of 268,755 books, 252,777 are engineering books.

h) Availability of Students' workshops/"Tinkering" Labs to students so that they may pursue their own ideas

Almost all departments/centres/schools have 'workshops/"Tinkering' Labs to students so that they may pursue their own ideas. Number of such laboratories is more than 40.

Students also pursue their own idea in the teaching and research laboratories of the departments.

Please look at Peer Review document which is provided by all departments/centres/schools.

i) Feedback from Employers in Science/Engineering sectors. The Placement office should be mandated to obtain annual feedback from employers (Industries/R&D Labs/Academic Institutions) about the quality and performance of the Institute's students in key parameters

Training and Placement section obtains such feedbacks on a regular basis annually when the companies visit the campus for recruitment and/or providing summer internship.

j) Internal Assessments Reports of Departments, Centres, Schools. These Reports should have been discussed at length in the Institutes' Senate

Reports are regularly provided by the departments/centres/schools and are discussed in the senate of the institute.

3. RESEARCH AND DEVELOPMENT

a) Range of Research Activities: (1) Volume, (II) Breadth [in last five years]

(1) Volume

Academic Year	Number of Publications Made in Journals	Number of Publications Made in Conferences	Number of Book Chapters Published	Number of Books Published	Number of Seminars/ Conferences/ Workshops/ Symposia Organized
2008-2009	1453	877	87	41	98
2009-2010	1547	903	71	32	85
2010-2011	1493	1145	88	31	31
2011-2012	1395	882	71	42	24
2012-2013	1530	923	94	39	28

(II)Breadth

Academic Year	Number of Journals where publications are made	Number of Conferences where publications are made
2008-2009	1050	628
2009-2010	1098	660
2010-2011	1088	795
2011-2012	1036	641
2012-2013	1143	656

b) Publications per Faculty/Masters/PhD Students in last five years

As per Scopus, No of total publications in last 5 years: 8396; Total No. of Faculty: 588
Hence, Publications per Faculty: 8396/588 = 14.28 (Based on Scopus Data)
Adding all publications, No of total publications in last 5 years: 12,148
Hence, Publications per Faculty: 12,148/588 = 20.66 (Based on All Publications)
Also,
No. of publications with Masters Students in last 5 years: 650+ (Approx)*
No. of publications with PhD Students in last 5 years: 5000+ (Approx)*

* *on the basis of individual departmental data*

c) Publications per Faculty/Masters/PhD Students in a list of top 10 journals in broad research fields as identified by the Institution's departments/centres/schools. This list of journals should be whetted appropriately by an independent group of peers/experts and updated periodically every 5 years or more years

No. of total publications in Top 10 Journals in last 5 years: 2200
(An approximate value on the basis of individual departmental data)
Total No. of Faculty: 588
Hence, Publications in Top 10 Journal per Faculty: 2200/588 = 3.74
Also,
No. of publications in Top 10 Journals with Masters Students in last 5 years: 300 (Approx)*
No. of publications in Top 10 Journals with PhD Students in last 5 years: 1900 (Approx)*
* *on the basis of individual departmental data*

d) Average Number of Citation per Department/Centre/School
As per Scopus, Total no. of publications in last 5 years: 8396
Total no. of citations in last 5 years: 43054
Average Number of Citation for Institute: 5.1304
Please see Annexure –IV for details

e) Number of papers with citations that are more than the average number of citations of the journals in which they are published

It varies from department to department. Average Numbers: 158 Maximum value: 362
Please look at Peer Review document which is provided by all departments/centres/schools.

f) Other major research contributions: Technology Developed, Technology Transferred, Patents Filed, Patents Obtained, Copyright Filed, Copyright Obtained in last five years

A	B	C	D	E	F	G	H
Academic Year	**Total Faculty Members Involved (approx.) (E+G)**	**Total No. of Technologies Developed (Patent + Copyright) (E+G)**	**Total Number of Technologies Transferred**	**Total Number of Patents Filed**	**Total Number of patents Obtained**	**Total Number of Copyrights Filed**	**Total Number of Copyrights Obtained**
2008-2009	38+4	28+2	1	28	6	2	2
2009-2010	57+8	39+6	2	39	8	6	3
2010-2011	46+3	29+1	4	29	4	1	2
2011-2012	17+3	13+1	1	13	0	1	1
2012-2013	36+2	24+3	-	24	1	3	1

g) Recognitions & Awards (National and International) to Faculty/Research Staff/Post-Graduate Students in last five years

Faculty, Research Staffs and PG students	Total
Faculty Members	
2008-2009	50
2009-2010	66
2010-2011	72
2011-2012	52
2012-2013	75
Please look at Peer Review documentwhich is provided by all departments/centres/schools.	

4. R&D ENVIRONMENT

a) Average time that it takes a new faculty to set up lab

It varies from department to department.

Range - 2 Months to 5 years

Please look at Peer Review document which is provided by all departments / centres/schools.

b) Retention of young faculty: what percentage of young faculty remains with Institute for at least ten years? Base on data of previous decade

Total Faculty Members	%age Left in Last 10 Years	%age Retained in Last 10 Years
397	8.31	91.69

c) Consultancy and Project money from non-internal source in last five years

Academic Years	Total Faculty Members Involved	Total Number of Consultancy Projects	Total Money from Consultancy Projects (inRs. Cr.)	Total Faculty Members Involved	Total Number of Sponsored Projects	Total Money from Sponsored Projects (inRs. Cr.)
2008-2009	88	142	11.08	151	166	57.79
2009-2010	80	129	10.12	165	191	130.98
2010-2011	73	116	11.72	169	186	103.31
2011-2012	84	138	11.12	119	141	59.41
2012-2013	83	151	14.50	123	145	129.88

d) Research grants / seed money from internal savings of the Institute to young faculty/post–doctoral fellows/post-graduate students in last five years

Young Faculty, PDF and PG	Total Number Availed	Total Amount Involved(In Rs.)
Young Faculty	66	2.9996 Crore

e) Collaborations internally and with other institutes: number of papers/projects/PhD students with collaborating authors/mentors in last five years

i) Research Paper Publication

	Number of research Papers with internal as well as external collaboration
Total	12148
2008-2009	2330
2009-2010	2450
2010-2011	2638
2011-2012	2277
2012-2013	2453

ii) Number of Projects (Industry Sponsored Projects and Consultancy Projects)

	Industry Sponsored Projects	Consultancy Projects	Total
2008-2009	09	142	151
2009-2010	20	129	149
2010-2011	10	116	126
2011-2012	13	138	151
2012-2013	16	151	167

iii) PhD Students Graduated with Internal and External Supervisors

Number of PhD Students Graduated			
Year	**Only Internal Supervisors**	**Along with External Supervisor**	**Total Number**
2008-2009 – 55thConvocation	228	0	228
2009-2010 – 56th Convocation	151	4	155
2010-2011 – 57th Convocation	237	8	245
2011-2012 – 58th Convocation	190	3	193
2012-2013 – 59th Convocation	158	6	164

f) Adequacy of Research Infrastructure, Labs and Equipments

Number of Research Labs – More than 270

Number of Equipments – More than 1500

Number of Desks – More than 1500

Number of Computers – More than 1600

Please look at Peer Review document which is provided by all departments / centres/schools.

g) Adequacy (number and competence) of research and technical assistants / officers / engineers

	Total Number	Competence
Research and Technical Assistants	381	381
Research and Technical Officers	27	27
Research and Technical Engineers	13	13

h) Number of large interdisciplinary research projects in last five years

Academic Years	Total Faculty Members Involved	Total Number of Large Interdisciplinary Research Projects
2008-2009	29	11
2009-2010	157	18
2010-2011	131	13
2011-2012	115	07
2012-2013	128	09

i) Work space for PhD scholars, i.e. do they get their own desk/computers?

Each Research Scholar has a desk. Research scholars, however, have to share computers. Each scholar has their own laptop obtained at a subsidized price a few years ago.

Please look at Peer Review document which is provided by all departments/centres/schools.

j) Number of international conference/workshops attended by PhD students (for exposure / presentation) in last five years

Academic Year	Number of PhD students
2008-2009	18
2009-2010	17
2010-2011	25
2011-2012	34
2012-2013	33

k) Number of papers with PhD student as first author in last five years

More than 3500

Please look atPeer Review document which is provided by all departments / centres/schools.

l) How many M.Tech. Students were motivated into pursuing PhDs. How many joined PhD Programmes at own/sister institutes? Base on available data, for at least last five years

Academic Year	Total M.Tech Students	How Many Motivated	How Many Joined PhD Programmes
2008-2009	579	27	27
2009-2010	685	81	81
2010-2011	750	48	8
2011-2012	1350	45	5
2012-2013	1081	45	13

m) Number of PhD graduates who pursued a career in academics, (abroad or IIT/IISC/TIFR/CSIR/BARC/R&D Labs etc.). Based on available data, for at least last five years

No. of PhD Graduates	Total No. Pursued career in Academics
988	More than 400

n) Number of post-doctoral scholars hired in the Institute in last five years

Academic Year	Number of PDF
2008-2009	0
2009-2010	0
2010-2011	0
2011-2012	2
2012-2013	0

o) Number of international Students as PhDs/Post-doctoral in last five years

Academic Year	Total PhD Students	Total PDF
2008-2009	0	0
2009-2010	0	0
2010-2011	0	0
2011-2012	0	0
2012-2013	0	0

p) Visiting researcher programmes: strength/extent of engagement measured e.g. by

i. Number of international visiting researchers who stay for at least a week in last five years

More than 90

Please look at Peer Review document which is provided by all departments/centres/schools.

ii. Number of courses/workshops with international participation in last five years

More than 45

Please look at Peer Review document which is provided by all departments / centres/schools.

q) Internal assessment reports of departments, centres and schools. These reports should have been discussed at length in institute's senate

Reports are regularly provided by the departments/centres/schools and are discussed in the senate of the institute.

5. EXTERNAL STAKEHOLDER ENGAGEMENT

A. Industry collaboration

a) Number of PhD/Masters Theses directly linked to/funded by industrial projects in last five years

Total PhD Theses Funded by Industry	Total Master These Funded by Industry
More than 80	More than 325
Please look at Peer Review document which is provided by all departments / centres/schools.	

Academic Year	Total Number of Sponsored PhD Students Awarded Degree	Total Number of Sponsored Master Students Awarded Degree
2008-2009	13	88
2009-2010	26	73
2010-2011	21	114
2011-2012	17	53
2012-2013	32	59

b) Total Income from Industries Sponsored Projects in last five years

Academic Years	Total Number of Industries Sponsored Projects	Total Income (In Rs.)
2008-2009	09	1,07,04,206.00
2009-2010	20	6,20,22,916.00
2010-2011	10	2,34,27,471.00
2011-2012	13	2,73,22,248.00
2012-2013	16	2,99,15,950.00

c) Technology Transfer/Adopted by Labs, Industries in last five years

Please see specific indicator 3.f on page 58

d) IPR and Patents in last five years. Please report patents obtained/filed separately

Academic Year	Total IPRs Filed	Total IPRs Obtained	Total Patents Filed	Total Patents Obtained
2008-2009	1	-	1	-
2009-2010	2	-	2	-
2010-2011	5	-	5	-
2011-2012	1	-	1	-
2012-2013	2	-	2	-

e) Curriculum Development Initiative for Industries

Please look at Peer Review document which is provided by all departments /centres/schools.

B. Contribution to National Development Goals/Priorities

a) Number of nationally relevant research projects, e.g. in sectors of defense, medicines, environment, energy, health, infrastructure, etc. in last five years

Total Number of Nationally Relevant Research Projects								
Academic Years	**Education**	**Social**	**Defense**	**Medicines**	**Environment**	**Health**	**Infrastructure**	**Others**
2008-2009	06	09	03	02	15	08	01	122
2009-2010	07	05	10	03	18	15	02	131
2010-2011	08	12	09	01	11	10	02	129
2011-2012	06	09	04	02	04	05	04	107
2012-2013	10	05	04	01	11	14	04	91

b) Engagement/help/leadership provided to other technical institutes/labs in areas of teaching and research, e.g. via programme such as TEQIP, or availability of specialized laboratories etc. in last five years

Please look at Peer Review document which is provided by all departments /centres/schools.

c) Policy Inputs/Consultancies in last five years

676 consultancy projects were executed by the institute in varied areas in last five years. The faculty members have provided policy inputs to many Industries, R & D organization, Govt. etc.

C. Social Responsibility

a). Community relevant projects, social outreach in last five years

From SRIC

40 different community relevant projects are carried out with social reach during the last five years

From P K Sinha Centre for Bio Energy

P K Sinha Centre for Bio Energy takes up community-relevant project work such as:

2. Converting biological wastes (considered as causes of environmental pollution) into fuels through environment-friendly biotechnological means. The residues are converted to biomanure.
3. Biomethane and Bioethanol generation as well as constructing Biohydrogen plant.

From Water Works & Sanitary section

2 Nos. water outlets are open for Balarampur village people and adjacent area. One more point is also available to Seema Centre which runs one charitable school.

b) Sensitiveness to on-campus labour/environment/energy/water/land etc. issues in last five years

Sensitiveness Programmes	Number of Programmes
On-Campus Labour	IIT Kharagpur takes care of labours engaged for day to day work in all aspects
Environment	It is aimed to sequester the carbon from atmosphere and converting them to value added green energy sources.
Energy	1. Please see Annexure V (from School of energy science) 2. P K Sinha Centre for Bio energy aims at converting waste from halls of residence to different form of green biofuels.
Water	We take at most care to preserve the water
Land	Rapid deforestation is taking place in the Institution due to construction of new buildings. Active role is planned in plantation of seasonal as well as perennial plants. Moreover, plans are made for crop production using biomanures produced from the residues of bioenergy processes.

c) Environment/energy/land/employment impact on local communities

Factors	Impact on Local community
Environment	Zero waste technology is attempted so that no wastes are disposed to environment rather the residues after biofuel generation are converted to value added biomanures. Carbon emission and carbon sequestration studies are also planned in an eco-friendly manner (without emission of any hazardous wastes or green house gas).
Energy	1. Installing solar energy systems and energy efficient LED lighting systems to reduce its carbon footprint (from School of energy science). 2. Fossil fuel resources are depleting exponentially. PKSC with its installed pilot plant facilities is converting biological wastes to economically sustainable forms of bioenergy like biomethane, bioethanol etc.
Land	2100 acre area (IIT area)
Employment	14000 members per year

D. Alumni Engagement

a) Contribution from Alumni in last five years

	No. of Contribution In Cash (INR)	Fund Involved
2008-2009	**8,55,330.00**	Soft Computing Laboratory, ME Dept by Rahul Jha(1999/ECE) School of Infrastructure Design & Management by Ranbir (Ron) Singh Gupta(1970/ARP)
2009-2010	**5,23,714.00**	
2010-2011	**2,94,86,115.00**	Malayesh Banerjee Scholarship Outstanding Young Faculty Fellowship to Dr. DebdeepMukhopadhyay, CSE Dept
2011-2012	**7,29,67,777.00**	P.K Sinha Centre for Bio-energy Rajendra Mishra School of Entrepreneurship UdayAgnihotri Chair Professor Internship for students from Warwick University R.P Gokarn Award by TilakSarkar Golden Jubilee Pledge by ArjunMalhotra SushmaMukhija Memorial Scholarship Outstanding Young Faculty Fellowship to Dr. Amit Shaw, Civil EnggDept My Imprint Caution Money
2012-2013	**2,09,16,984.08**	Batch Endowment for 1991, 1970, 1968 and 1975 Batches My Imprint Caution Money Faculty Award by Chandralekha Singh

All figures are in INR and taken from Alumni Annual Report

b) Engagement with Alumni (Academic/Publicity/Policy/Growth) in last five years

No. of Engagements with Alumni in			
Academic	**Publicity**	**Policy**	**Growth**
Adjunct Faculty- SubirMozumdar, *B.Tech., 1972, Aerospace Engineering* ShyamChetty, *M.Tech. 1978 Electrical Engineering* and many more **Chair Professor-** Vijay Varki *B.Arch., 1970, Architecture & Regional Planning* **Invited Lectures-** A large number of institute-invited lectures are arranged every academic year. Such lectures span almost all areas of interest to IIT faculty and students. **Mentorship Programme** Started in 2011 continuing successfully every year with increased participation from alumni and students	**Publicity committee** was formed by the following alumni: YPS Suri *B.Tech., 1975 Mechanical Engineering* Late S M Murmu *B.Tech. , 1979, Aerospace Engineering* **PAN II**T – An annual event organized by all IIT alumni coming together alternatively in India and USA. **Chapter Events** –Alumni Associations of IIT Kharagpur at various cities also known as Chapters organize socio-cultural events. **Media Relations** – Publicity of alumni on various media through articles, interviews giving credit to IIT Kharagpur as their Alma Mater Alumni Funding Student Events – Alumni donate to events organized by students such as Spring Fest – a socio-cultural fest and Kshitij – Asia's largest techno-management fest. These events generate huge publicity for IIT Kharagpur	**Vision 2020** – Chaired by ArjunMalhotra, *B.Tech., 1970, Electronics and Electrical Communications Engineering* **Institutional Development (ID) Programme** Managing Director – ChinnaBoddipalli, *B.Tech., 1972, Aerospace Engineering* Advisory Board Members: 1. ArjunMalhotra, *B.Tech., 1970, Electronics and Electrical Communications Engineering* 2. R. Gopalakrishnan, *B.Tech., 1967, Electronics and Electrical Communications Engineering* 3. B K Syngal, *B.Tech., 1961, Electronics and Electrical Communications Engineering* 4. P K Sinha, *B.Tech., 1970, Mechanical Engineering* 5. Ron Gupta, *B.Arch., 1970, Architecture & Regional Planning*	**P K Sinha Centre for Bioenergy** set up by P K Sinha, *B.Tech., 1970, Mechanical Engineering 5. Ron Gupta, B.Arch., 1970, Architecture & Regional Planning* **Ranbir&Chitra Gupta School of InfrastructureDesign& Management** set up by Ron Gupta, *B.Arch., 1970,Architecture & Regional Planning* **Rajeev Gandhi School of IP Law** set up by Vinod Gupta, *B.Tech., 1967, Agriculture & Food Engineering* **Rajendra Mishra School of Engineering Entrepreneurship** set up by Amarendra Mishra, *B.Tech., 1969, Metallurgical & Materials Engineering* and Devendra Mishra, *B.Tech. 1966, Mechanical Engineering*

6. VISION FOR THE FUTURE

a) Institute and its departments/centres/schools should spell out its strategies vision for next decade

1. **Teaching Excellence**
2. **Research Excellence**
3. **Faculty Excellence**
4. **Industry Collaborations**
5. **Branding and Visibility**
6. **Funding sources**
7. **Governance and Administration**

The details are provided in the Vision 20-20 document given separately. Please also look at Peer Review Report provided by all departments/centres/schools.

7. GOVERNANCE AND FINANCIAL RESOURCES

I. Management

a) Adequacy of Administrative support/systems in relation to the level of activities envisaged?

For Employees

List of Activities Envisaged	Support System Does Exist (Y/N)	Details of the Support Systems	Is it Adequate (Y/N)	If N, then how it would be?
Service data updation	Yes	Computers & accessories	Yes	NA

For Alumni

List of Activities Envisaged	Support System Does Exist (Y/N)	Details of the Support Systems	Is it Adequate (Y/N)	If N, then how it would be?
Institutional Development (ID) Programme Components of ID Programme: 1. KGP Brand Building 2. Sustainable Fundraising 3. Alum connectivity 4. R&D Campaign 5. Recruitment and Retaining 6. Data gathering for Metrics	Y	Currently we are operating from the Office of Dean, AA&IR. No. of staff members: Managing Director & 4 Staff members Online Alumni Network through web portal and social media, fundraising, branding, publications Alumni Associations Students Alumni Cell and Students Public Relations (PR) Cell	N	Availability of more human resources Availability of CRM Active Alumni Engagement in Fundraising

Responsiveness of the system to faculty, students needs

Faculty – Faculty have gradually engaged with the programme, however more interactions and involvement are required.

Faculty are also involved with the Alumni through Technology Alumni Association Kharagpur Chapter. They organize the Annual Alumni Meet along with Office of Dean, Alumni Affairs & International Relations and Students Alumni Cell.

Students needs are being addressed by this programme through the Students Alumni Cell and Students PR Cell.

My Imprint programme has been designed by the Students Alumni Cell to raise fund from the outgoing students and use it to help projects by current students. The Cell also organizes several projects like Mentorship, Yearbook, Newsletters, Guest Lectures by Industry persons, Alumni Networking. They have also started the initiative of giving Alumni Cards to the outgoing students and Alumni visiting during the Annual Alumni Meet. They also help raise donations for halls of residence from alumni.

Students PR Cell primarily helps in publicity of the Institute, its students, faculty and alumni on print, electronic and social media.

The Office of the Dean, Alumni Affairs & International Relations coordinates the day-today activities of alumni networking, branding & publicity, fund raising, event management of the Institute. It brings together faculty, students and alumni for most of its core functions.

The programme needs to create more scope for engaging faculty and students

For Pensioners

A. Provided from Pension Section

List of Activities Envisaged	Support System Does Exist (Y/N)	Details of the Support Systems	Is it Adequate (Y/N)	If N, then how it would be?
Payment of RegularMonthly Pension	Yes	Administrative Computer Service Support Centre	Y	
Collection of Life certificate	Yes	Administrative Computer Service Support Centre	Y	

b) Responsiveness of the system to faculty, students needs

The system is quite responsive to the needs of the faculty and the students.

c) Periodic feedback/evaluation of administration from institute's stakeholders (faculty/research staff/students etc.)

There are a number of feedback/evaluation mechanisms of the administration for its faculty, research staff and students. Feedbacks are possible through the institute website, faculty hub, suggestion management system etc. Apart from that, the institute follows an open-door policy to look into the feedback/evaluation needs.

II. Financial Resource Management

a) Fund Mobilization (besides MHRD)

i) Internal revenue generation as percentage of Non-Plan Expenditure in last five years (Rs. In Lakhs)

Financial Year	Non-Plan Expenditure	Internal Revenue Generation	Internal Revenue Generation as %age of Non-Plan Expenditure
2008-2009	14826.57	2870.00	19.36%
2009-2010	23736.67	3122.00	13.15%
2010-2011	21892.24	2387.00	10.93%
2011-2012	23330.13	5154.00	22.09%
2012-2013	23793.00	5496.00	23.09%

ii) Corpus Fund (Rs. In Lakhs)

Financial Year	From Head of Accounts	Corpus Fund
	Endowment fund	Institute Development Fund
2008-2009	9427.19	3897.87
2009-2010	12410.63	4321.19
2010-2011	12756.75	4547.22
2011-2012	14131.02	5294.37
2012-2013	20705.18	6583.41

b) Cost Efficiency

i. Cost per student (Rs. in Lakhs) and ii. Fee per student per annum/Non-Plan Expenditure per student.

Financial Year	Total Number of Students	Income from Students	Expenditure on Students	Cost Per Student
2008-2009				
UG	3737			
PG	1640			
PhD & MS	1142			
Total	6519	2045.07	14826.57	2.27
2009-2010				
UG	4170			
PG	1903			
PhD & MS	1287			
Total	7360	1324.51	23736.67	3.23
2010-2011				
UG	4720			
PG	2163			
PhD & MS	1615			
Total	8498	880.70	21892.24	2.58

2011-2012				
UG	5319			
PG	2242			
PhD & MS	1821			
Total	9382	2644.56	23330.13	2.49
2012-2013				
UG	5787			
PG	2402			
PhD & MS	1674			
Total	9863	2656.51	23793.00	2.41

iii. Total fee paid by Students (discounted)/per annum average salary (Rs. In Lakhs)

Financial Year	Total Fee Paid by Students	Average Salary Drawn
2008-2009	2045.07	6281.32
2009-2010	1324.51	11638..02
2010-2011	880.70	8856.52
2011-2012	2644.56	9915.07
2012-2013	2656.51	10626.78

III. Transparency(Mechanism of transparency in place by the Institute as also steps that have been taken for internal quality assurance)

a. Transparent decision making process

Employees

Mechanism of Transparency in Place	Steps that have been taken for internal quality assurance
All administrative processes are conducted in a transparent manner. Service book is made available for annual inspection by employees on prior appointment.	Timely processing of applications / representations from employees are ensured.

Pensioners

Mechanism of Transparency in Place	Steps that have been taken for internal quality assurance
1. All components taken into account to calculate pension and other benefits exist in the Pension Payment Order through which the pensioner can understand the actual benefits entitled to him. 2. On the last working day pensioner is given a statement of accounts towards retirement benefits paid to him. 3. Date of restoration of commuted part of pension is mentioned in the PPO. 4. Details of family pension payable on expiry of the pensioner is envisaged from the PPO. 5. Any subsequent revision of pension/ retirement benefits is informed to the pensioner in due time	1. Pension is being disbursed directly in the Bank Account of the Pensioner every month through auto-generation in the system which was earlier made manually. 2. Prescribed form of Life Certificate has been made available to the Pensioners through website. 3. Copy of Office Orders towards Revision of pension in compliance with GOI orders, restoration of commuted part of pension, release of family pension on death of pensioner are being dispatched to Pensioners. 4. Pensioners are being communicated sharp to their queries.

House Allotments

Mechanism of Transparency in Place	Steps that have been taken for internal quality assurance
House allotment Committee is in place	Decisions are not taken unilaterally. Decisions are taken by a group of members who are headed by the Head of the Institute.

b. Academic Issues, research grants, systems for recognition/awards etc.

All of these are carried out in transparent manner. Specific criteria, well-documented in the institute web-site, rules and regulations, and the ERP system, are followed at all times.

c. Procurement Processes

The Institute follows procurement procedure as laid down in "Manual on Policies & Procedures for purchase of Goods" received from MHRD vide F.No. 23-31/2006-IFD dt. 30.11.2006.

d. Infrastructure development, right from requirement to planning execution

e. Proactive disclosure on all critical issues.

f. Placing information in public domain: website

Sl	Description
1	http://www.iitkgp.ac.in/institute/ link to Annual Reports
2	http://www.iitkgp.ac.in/institute/ link to Right to Information Act
3	Audited Accounts
4	Budget Estimate & Revised Estimate of the Institute

IV. Infrastructure(Is the support infrastructure (IT, Hostels, faculty/Staff housing, sports facilities,) adequate? And how sensitive and eco-friendly it is to the campus and surrounding environment (land/water/energy/greenery))

Hostels

List of Support Infrastructure	Comments
Some common Infrastructures are: Mess, Water cooler, aqua guard, washing machine, Common room, library, Play ground, Server room, Warden office, Gymnasium room, Guest room, Wi-Fi, Internet, Music room, T.V, Newspaper, T.T., Carom, Books, Magazines, Badminton, football, Volley ball, cricket, basket ball, stationery shop, Xerox shop, cycle stand, Nescafe shop, Garden, fruit and snacks stall, Microwave ovens and refrigerators, hall etc.	In some hall of residence said infrastructures are adequate and in some are less than adequate.

Sports Facilities

List of Support Infrastructure	Details of the Support Infrastructure		Is it Adequate (Y/N)	If N, then how it would be?
Tata Ground	2 football fields, 2 cricket fields, partially lighted	One cricket pavilion at the corner of main cricket field Lighted nets (3)	Partially adequate	Need to upgrade with another building with a small gymnasium and a store room. Need to have galleriesin organizing matches with professional teams. Also sprinkler facility for all the grounds is needed.
JnanGhosh Stadium	Track and field And hockey	Has 8 tracks, jumping pit, throwing pit and a hockey ground inside. Good lighting.	Partial	Raising soil level and proper leveling for better drainage, Sprinkler system, a small building with a small gym for weight training. Ideally hockey ground should be at a separate place.
Volley and Basketball complex	3 volleyball courts+3 basketball courts	Lights in all courts	Partial	Topsoil needs to be replaced, Need asmall building with small gym, Gallery renovation. Basketball court surfaces need to be relaidwith synthetic surface. Board

				with projection needs to be replaced.Indoor volleyball and basketball court is required.
Tennis complex	2 synthetic courts+2 clay courts+1 cement court	Lights	Partial	2 more synthetic courts required with proper lighting and drainage. Gallery needed. Existing fencing of synthetic courts need to be shifted and renovated.
Gymkhana complex	Houses badminton, table tennis, squash, weight lifting and gym		Partial	A 20 bed dormitory is needed. A vehicle is needed (22 seater) to be used mainly for going outside to play matches.
Swimming Pool	One 50 m swimming pool	Lights	Partial. serious diving not possible due to lack of depth.	Another pool is required to cater to demands of students and campus. There should be a main pool, apractice pool, and a learners' pool.

Wellness Centre

List of Support Infrastructure	Details of the Support Infrastructure		Is it Adequate (Y/N)	If N, then how it would be?
Gymkhana complex	Gymnasium (2 rooms)		Partial	Need more treadmills and similar machines. Another 50-seater meeting room is required.

Personality Development

List of Support Infrastructure	Details of the Support Infrastructure	Is it Adequate (Y/N)	If N, then how it would be?	How Sensitive and Eco Friendly
About Staff Facility to attendvarious workshop/training programmes organized by the various organization like S.T.M., New Delhi, I.P.A., Bangalore etc for Group A and otherstaff members.				

8. STAKEHOLDERS SURVEY

a) Internal Stakeholders

i. Students

Average Feedback Ratings on Key Indicators (please specify name of indicators)
Please see specific indicators 2.c.

ii. Faculty ***iii. Non-Faculty***

b) External Stakeholders

i. Industry ***ii. Alumni*** ***iii Community Leadership*** ***iv. Government/Parliament***

Details are available in the Vision 20-20 document enclosed separately (see pages 133-154).

9. DIVERSITY

i. What is the current status of diversity (gender/international) on campus?

a. Students

Students	Total Students	Male in %age	Female in %age	Foreign Nationals in %age of Total Students
UG	6188	89.25	10.75	NIL
PG (including MS)	2176	78.00	22.00	NIL
PhD	1817	74.85	25.15	NIL
DSc	-	-	-	NIL
PDF	2	-	-	NIL

Please see Annexure – VI for department and degree-wise female students on roll.

Students	Total Students	General in %age	SC in %age	ST in %age	OBC in %age	PH in %age
UG	6162	53.21	15.31	7.72	23.74	0
PG	2001	59.22	13.24	3.19	24.28	0.04
MS/PhD	2076	76.54	9.00	0.81	13.53	0.09
DSc	0	-	-	-	-	-
PDF	2	-	-	-	-	-

b. Faculty

Faculty Members	Total Faculty Members	Male in %age	Female in %age	Foreign Nationals in %age of Total Faculty Members
Professor	219	92.69	6.31	NIL
Associate Professor	152	86.84	13.16	NIL

Assistant Professor	172	84.30	15.70	NIL
Lecturer	1	100	--	NIL
Others	34	100	--	NIL
Total	578	89.10	10.90	NIL

c. Staffs

Staff Members	Total Staff Members	Male in %age	Female in %age	Foreign Nationals in %age of Total Staff Members
Group A	71	83.09	16.91	NIL
Group B	420	90.71	9.29	NIL
Group C	467	87.58	12.24	NIL
Group D	62	82.25	17.75	NIL
Total	1020	88.23	11.77	NIL

Total Lab Assistants	Male in %age	Female in %age	Foreign Nationals in %age of Total Lab Assistant
289	94.80	5.20	NIL

Total Scientific/Technical/ Research Staff	Male in %age	Female in %age	Foreign Nationals in %age of Total Scientific/Technical/Research Staff
27/289/---	92.60/94.81/--	7.40/5.19/--	NIL

ii. Does the Institute have programmes to promote diversity among students, staff and faculty?

Yes, A number of programmes offered by the HSS department promote diversity among student, staff and faculty. Women's day has been celebrated in the Institute. Institute lectures are arranged on a regular basis. Various forums also are active to promote diversity related issues.

iii. Does the Institute have adequate mechanism to deal with issues related with discrimination and harassment? Reports of such cases and action taken should be made available:

Various committees are constituted to deal with such issues such as:

- Sexual Harassment Committee,
- Grievances Redressal Committee

III INSTITUTIONAL GRID FOR ASSESSMENT

	Academics & Pedagogy	Governance & Finance	Stakeholder Engagement	
			Internal	External
Infrastructure/Resources	I	IV	VII	X
Processes	II	V	VIII	XI
Outcomes	III	VI	IX	XII

I. Infrastructure/Resources – Academic & Pedagogy, R & D

A. Academic & Pedagogy

a. Class Rooms per Student/Average Number of Students

Class Rooms per Student	Average Number of Students
10181/400	25

b. Range of Degrees and Disciplines with student numbers each of them

Please see Specific Indicators 1.i. in page 41.

c. Student Faculty Ratio/Total Number of Teachers

Total Number of Teachers	Total Number of Students	Student Faculty Ratio
Please see specific indicators 2.a. in page 51.		

d. Number of Technical/Laboratory Assistants per student

Total Number of Students	Total Number of Technical /Lab Assistants	Number of Technical/ Laboratory Assistants per student
10181	289	1:35

e. Average size of group per project/lab work

Final year project work is always assigned to individual students. Efforts are made to offer individual mini-project or laboratory work to each student. In cases, where it is not possible, 2 or 3 students share the same mini-project or laboratory work.

f. Number of E-Classrooms

There are 9 dedicated large classrooms with all the facilities for video-conferencing. However, all the classrooms (Nearly 400) are e-classrooms as there are facilities for wi-fi, connectivity, and multimedia (if needed).

g. Library-Number of books, journals, magazines; Modernization of Library; Extent of Electronic accessibility to Library Resources

Please see Specific Indicators 2.g. in page 54.

h. Availability of Students' workshops/"Tinkering" Labs to students so that they may pursue their own ideas

Please see Specific Indicators 2.h. in page 55.

B. For Research & Development

a. Workspace, computers for PhD scholars

Please see specific indicators 4.i. in page 61.

b. Library Resource for PhD Students

1. List of library resources for PhD students is attached in Annexure – I
2. Library is also providing anti plagiarism services through TURN-IT-IN software

c. Research Grants /Seed Money from Internal Savings of the Institute to Young Faculty and PG students in last five years

Please see Specific Key Indicators 4.d. in page 59.

d. Number of Post Doctoral scholars Hired in the Institute in last five years

Please see Specific Key Indicators 4.n. in page 63.

e. Number of international Students as PhDs/Post-doctoral in last five years

Please see specific indicators 4.o. in page 63.

II. Processes – Academics &Pedagogy, R&D

A. Academic &Pedagogy

a. Average Number of Theory Credits/Courses per Semester

Programmes	Average Number of Courses	Average Number of Credits
B.Arch.	4	12
B.Tech.	4	16
Dual Degree	4	14-15
M.Sc-5 years	4	14-16
M.Tech.	5	23
M.Tech.-3 years	5	15
MCP	5	23
MBA	10	24
Executive MBA	3 per term	8
Joint M.Sc.- Ph.D.	4	13
MMST	5	21
MHRM	8	24
LLB	33	37

b. Average Number of Lab Credits/Courses per Semester

Programmes	Average Number of Lab Courses	Average Number of Lab Credits
B.Arch.	3	9
B.Tech.	1-2	3-4
Dual Degree	2	3-4
M.Sc-5 years	2	4-5(Chy.&Phy) 2-3(HSS &Maths
M.Tech.	3 Total Labs	6
M.Tech.-3 years	2 Total Labs	4

MCP	3 Total Labs	6
MBA	1 Total Lab	3
Executive MBA	1 Total Lab	2
Joint M.Sc.- Ph.D.	1-2	4-7
MMST	5 Total Lab	10
MHRM	3 Total Lab	7
LLB	Nil	Nil

c. Average Number of Minor/Major Projects per Semester

Programmes	Average Number of Minor/Major Projects	Average Number of Minor/Major Projects Credits
B.Arch.	2	12
B.Tech.	1 Project in 7 Sem. And 1 Project in 8 Sem.	6 and 4 Credits
Dual Degree	4	35
M.Sc-5 years	2	18
M.Tech.	2 Major	40
M.Tech.-3 years	2 Major	40
MCP	2 Major	40
MBA	2 Minor	8
Executive MBA	3 Minor	15
Joint M.Sc.-Ph.D.		
MMST	2 Minor, Major 1	8, 34
MHRM	2 Minor	8
LLB	2 Minor	6

d. Average Number of Presentations by students per Semester

Students make many presentations per semester – for their project work, laboratory work (almost weekly basis per laboratory), seminars, and also in tutorials.

e. Average Number of assessments (tests/quizzes/examinations) per Semester

Every theory subject has a mid-term and an end-term examination – it also has a number of tests, quizzes, and term papers. Same thing holds for laboratory subjects.

f. Average Number of Lectures by Industry Persons per Semester

Efforts are made to include lectures by industry persons in relevant classes. Apart from that, Industry persons visit the departments regularly for general lectures to students.

g. Average Number of HSS Courses per Semester

Programmes	Average Number of HSS Courses Per Semester
B.Arch.	2 HSS
B.Tech.	2 HSS
Dual Degree	2 HSS
M.Sc-5 years	2 HSS
M.Tech.	
M.Tech.-3 years	
MCP	
MBA	Some
Executive MBA	Some
M.Sc.- Ph.D. Dual Degree	
MMST	
MHRM	7 HSS
LLB	

For all PG courses except MHRM average HSS subject per Semester is Zero.

h. Periodicity of curriculum review/mechanism for programme review at the UG and PG levels

Please see Specific Indicators 1.Iv.b. & c. in pages 47-48.

i. Regular Students feedback on courses, curricula and pedagogy based on last five year data

Please see Specific Indicators 2.c. in page 52-53.

j. Average time between conduct of examination and announcement of results

About two to three weeks.

k. Number of Distance Education Courses, Par-time courses, specially designed short-term courses in identified areas for industry personnel in last five years

About 200 distance education courses are developed through NPTEL. About 200 pedagogy projects are undertaken. A large number of short-term courses are organized. Recently, a number of International Summer and Winter Term (ISWT) courses are also being organized.

B. For Research & development

a. Course Work Mandated for PhD Students and Average Course Done per PhD Students

*Please see Specific Indicators 1.*iv.e.*in page 48.*

b. Number of international conference/workshops attended by PhD students (for exposure/presentation) in last five years

Please see Specific key Indicators 4.j. in page 62.

c. Collaborations internally and with other institutes: number of papers/projects/PhD students with collaborating authors/mentors in last five years

Please see Specific Indicators 4.e. in page 59.

d. No. of PhDs with 2nd Guide from industry/other premier institution in last 5 years

Total Number of PhD Students	2nd Guide from Industries/other premier institutions
1817 (currently pursuing)	66 (currently pursuing)

e. Average hours of student-Guide engagement per week

About 8 hours.

f. Visiting researcher programmes: Strength/Extent of Engagement measured e.g. by

i) Number of international visiting researchers who stay for at least a week in last five years

Please see Specific Indicators 4.p.i in page 63.

ii) Number of Courses/Workshops with International Participation in last five years

Please see Specific Indicators 4.p.ii in page 63.

III. Outcomes – Academic & Pedagogy, R & D

A. Academic & Pedagogy

a. Industry Perception of Student's employability/performance (through surveys)

Excellent – a large % of students are employed by industry from in-house placement cell.

b. Number of Students who were Motivated to opt for careers in Engineering/Science/Technology Sectors. Based on Available Data for at least last five years.

Please see Specific Indicators 2.d. in page 54.

c. How many M.Tech. Students were motivated into PhDs in last five years

Please see Specific Indicators 4.l. in page 62.

d. Student Placements

a) Number of National and Multinational companies came in campus for placement in last five years

National Companies	Multinational Companies
List of companies visiting IIT Kharagpur T&P is given in Annexure VII	

b) Number of Student as ratio of total students placed through campus placement in last five years

2008-2009

Students	Total Graduated	Total Registered	Placed	Total in %age
UG	699	665	546	80.6
PG	930	529	246	46.5
MS/PhD	269	10	10	100.0

2009-2010

Students	Total Graduated	Total Registered	Placed	Total in %age
UG	730	801	704	87.8
PG	855	542	366	67.5
MS/PhD	184	35	29	82.8

2010-2011

Students	Total Graduated	Total Registered	Placed	Total in %age
UG	790	876	788	89.9
PG	722	657	438	66.6
MS/PhD	**276**	22	22	100.0

2011-2012

Students	Total Graduated	Total Registered	Placed	Total in %age
UG	975	971	828	85.2
PG	872	692	460	66.4
MS/PhD	**245**	30	30	100.0

2012-2013

Students	Total Graduated	Total Registered	Placed	Total in %age
UG	1012	1052	922	87.6
PG	1002	724	454	62.7
MS/PhD	193	40	40	100.0

c) Average Salary (as per Survey)

B.TECH : 11.7 LPA
DUAL DEGREE : 9.67
M. TECH : 8.69

B. Research & Development

a. Range of Research Activities: (1) Volume, (ii) Breadth

Please see Specific Indicators 3.a. in page 56.

b. Publications per Faculty/Masters/PhD Students in last five years

Please see Specific Indicators 3.b. in page 56.

c. Publications per Faculty/Masters/PhD Students in a list of top 10 journals in broad research fields as identified by the Institution's departments/centres/schools. This list of journals should be whetted appropriately by an independent group of peers/experts and updated periodically every 5 years or more years

Please see Specific Indicators 3.c. in page 57.

d. Number of PhD graduates who pursued a career in academics, (abroad or IIT/IISC/TIFR/CSIR/BARC/R&D Labs etc.). Base on available data, for at least last five years

Please see Specific Indicators 4.m. in page 63.

e. Average Number of Citation per Department/Centre/School

Please see Specific Indicators 3.d. in page 57.

f. PhD Placements in last five years

Please see specific indicators 1.iv.f in page 50.

g. Other major research contributions: Technology Developed, Technology Transferred, Patents Filed, Patents Obtained, Copyright Filed, Copyright Obtained in last five years

Please see specific indicators 3.f. in page 58 and 5.A.d. in page 65.

h. Recognitions & Awards (National and International) to Faculty/Research Staff/Post-Graduate Students in last five years

Please see Specific Indicators 3.g. in page 58.

i. Average time that it takes a new faculty to set up laboratory

Please see specific indicators 4.a. in page 58.

j. Retention of young faculty: what percentage of young faculty remains with Institute for at least ten years? Base on data of previous decade

Please see Specific Indicators 4.b. in page 59.

IV. Infrastructure/Resources – Governance & Management

a. Non-Faculty/administrative/Technical Staff students Ratio

Total Number of Non-Faculty Members	Administrative Members	Technical Staffs
1020	519	443

b. Staff shortage in various areas

Sl.	Areas	Approved Strength	In Position	Total Number of Shortage
As per MHRD norm, there is a dynamic sanctioned strength (Students:Faculty:NonTeachingStaff :: 10:1 : 1.1). As there are 10181 students, there are shortages of faculty members as well as non-teaching staff.				

Faculty shortage data are available in Annexure VIII

c) Workspace for non-faculty staff

Adequate

d) Number of administrative staff per computer

Adequate

e) Range of services offered

Academics, Finance and Accounting, Establishment, Estate etc.

f) ERP System/Software

IIT Kharagpur is building its own automation system.The ERP system of the Institute is J2EE based open source using Spring Framework, JSP, Servlet, Web Service, JQuery, RDBMS, JDBC. The system is hosted on Apache, Tomcat and Postgres servers under LINUX environment. We use JAVA, SQL, XML, HTML, Javascript for programming.

Several modules have already been deployed and are active while development of other modules is in progress.

g) Systems for RTI

Public Information Officer and First Appellate Authority of the Institute deals with the RTI matters. Moreover, the Institute is complying with the various orders/provisions/guidelines as forwarded by the Government time to time and the Institute takes immediate action with utmost care for each and every request of individual seeking for any kind of information.

V. Processes - Governance & Management

a. Outsourcing of non-core processes in last five years

On need basis.

b. Automation of processes with view to increase efficiency of delivery in last five years

Computer is available with all staff members.

c. Procurement Norms (E-tendering/procurements)

Please see 7.iii.c.in page 77 for Procurement Norms.

So far no E-tendering in our Institute. However, the Institute is in process to adopt E-tendering system through ERP.

d. Number of Finance Committee and BOG meeting held in last five years

Number of Finance Committee	Number of BOG meeting
09	20

e. Average attendance in Finance Committee and BOG meetings

Finance Committee	BOG meeting
5	7

f. Number of RTI addresses at PIO/Appellate/CIC level in last five years

PIO Level	Appellate Level	CIC Level
2009 - 86	2009 – 10	2009-07
2010 - 94.	2010 - 21	2010-01
2011 -126	2011 - 45	2011-03
2012 -112.	2012 - 17	2012-12
2013 -155.	2013 - 27	2013-15

g. Marketing, Brand Communication and Promotion through mass-media & social media in last five years

	Mass Media	Social Media
Marketing		
Brand Communication	Submission of data for international and domestic ranking Publishing positive articles on print media related to research, collaborations, awards & accomplishments of faculty, students and alumni	Facebook page and group; Linkedin Profile and group; Twitter Handle; Google+; YouTube channel Posting messages and videos of Director, Deans and other key people
Promotion	Articles on print media about news and events about IIT Kharagpur Coverage of events and interviews by electronic media – e.g. Convocation Press Conference	Event registration and participation Posting of news related to research, awards and accomplishments of faculty, students and alumni

h. Feedback from stakeholders on governance and management

Please see Vision 20-20 document.

VI. Outcomes – Governance & Management

a. Number of non-core activities outsourced in last five years

Need-based – it is done as per the need at a given time.

b. Number of processes automatedon ERP

Please see Annexure - IX

c. Average time taken to provide information under RTI

Information is being provided to the applicants within 30 days from the date of receipt of the applications.

d. Website hits, average time spent; feedback on website from stakeholders

Sl	Details of website	Website hits	Average time spent
1	www.iitkgp.ac.in	~ 10,000 per day	1:38 min

e. Results of the internal/external stakeholders survey

Please see Vision 20-20 document.

VII. Infrastructure/Resources – Internal Stakeholders (Faculty, Non-faculty, students, families)

As the infrastructure/resource related to academics and administration has been taken into consideration in earlier paragraphs, the infrastructure/resources here refer to engagement outside the field of academics and administration.

a. Infrastructure related to hostels, sports facilities, wellness centre, campus, cultural events and personality development

Hostels

As discussed earlier.

Sports Facilities

Please see specific indicators 7.iv in page 78.

Wellness Centre

Please see specific indicators 7.iv in page 78.

Campus

As discussed earlier.

Cultural Events

Personality Development

Please see specific indicator 7.iv in page 78.

VIII. Processes - Internal Stakeholders (Faculty, Non-faculty, students, families)

As the process related to academic and administration has been factored in earlier, the process here refer to engagement outside the field of academics and administration.

a. Number of sports events, cultural events [intra/inter-IITs] in last five years

Cultural Events:

Kshitij (Asia's largest techno-manegmentprogramme) – 5 times
Spring Fest - 5 times
Hall-related programmes - 19x5 = 95 times
etc. etc.

Sports Events:

Inter-IIT - 5 times
Inter-Hall programmes - 5 times
Shourya - 3 times
etc. etc.

b. Number of informal interaction between Warden and Students in last five years

Hall	Number of Informal Interaction
Ashutosh Mukherjee Hall	30
Azad Hall	22
B C Roy Hall	Once in a month
Gokhale Hall	Once in a month
HomiBhabha Hall	Once in a month

J C Bose Hall	Once in a month and as and when required.
LalaLajpatRai Hall	Once in a month and as and when required.
LalbahadurSastry Hall	Approx 24 meeting in last two years
Madan Mohan Malviya Hall	Once in a month
MegnadSaha Hall	58 times in last five years
Mother Teresa Hall	As and when required
Nehru Hall	As and when required
Patel Hall	Twice in each semester
Radha Krishnan Hall	15-20 in each year
Rajendra Prasad Hall	8 in last year
Rani Laxmibai Hall	15 in last two years
Sarojini Naidu / Indira Gandhi Hall	Total 115 in last five years
Vidyasagar Hall	Every day except Sunday and holiday between 7pm to 8pm.
ZakirHussain Hall	Total 5 in last three years

c. Number of personality development workshops in last five years

A number of such programmes are held from time to time – such as computer awareness programmes, special skill oriented training programmes etc.

d. Number of lectures from eminent people (academicians, industries etc.) on issued related to general understanding of public life, career management etc. in last five years

Time to time, institute lectures are being held on such issues – at least 10 to 15 such Programmes are held per year.

IX. Outcomes – Internal Stakeholders (Faculty, Non-faculty, students, families)

a. Outcomes of the internal stakeholder's survey (comprehensive and includes issues related to academics, administration, overall development of the student, hostel/social amenities/campus infrastructure and life in campus

See the Vision 20-20 report for the details.

X. Infrastructure/resources – External Stakeholders (industry, alumni, community, government/parliament

a. Industry –Research Park, State-of-art Lab Equipment, Industry Cell

b. Alumni –access to library, sports and other institute infrastructure

Access to Library

From Alumni Office:Special Access to library, sports facilities is provided when alumni visit the Kharagpur campus

From Library:All resources are IP based access. However, password based access will be provided soon to the alumni and faculty who will be away from the campus for official tour.

Access to other Institute Infrastructure

Alumni have access to the Institute guest houses at Kolkata and Kharagpur

c. Community - Green Office, student engagement, Community relevant technology

d. Government/Parliament – Annual Reports, Audit Reports, Budgetary Allocation

Annual Reports

Every year annual report is prepared and presented and submitted to the Govt. India.

Audit Reports

Every year it is placed in both houses of parliament along-with Audited A/Cs.

Budgetary Allocation

Done by MHRD, Govt. Of India.

XI. Processes - External Stakeholders (Industry, Alumni, community, Government / Parliament)

a. Industry – industry-academia workshops, number of lectures by industry, industry visits by students, number of PhD by industry personnel, Number of faculty working with industry, placement process in last five years

Placement Process

b. Alumni – career management, Road Shows, Cultural Shows

Career Management

On the alumni web portal, an online job site has been launched which lists job openings in the Institute and other organizations as received by the Office of AAIR

Road shows

Alumni Chapter Events are organized in various cities round the year to improve networking and alumni engagement

Cultural Shows

Socio-cultural shows are hosted during the Annual Alumni Meet, PAN IIT, Chapter Events

c. Community –Courses/projects by students on community relevant issues NSS work, Leadership/inputs to other technical colleges for up-gradation of academics and pedagogy through training and other workshops, Numbers of city / state / country relevant project taken up by faculty/PhD students in last five years.

Items	Total Numbers
Courses/Projects by students on community Relevant Issues	
NSS Work	Please see Annexure - X
Leadership/Inputs to other Technical Colleges for up-gradation of academics and pedagogy through trainings and workshops	
Numbers of city/state/country relevant project taken by faculty/PhD students	

d. Government/Parliament – Annual Development Plan, Internal Consultation for Budgetary Allocation, Pro-active disclosure through RTI/website

Annual Development Plan

Internal Consultation for Budgetary Allocation

All HODs, HOSs and HOCs are consulted before finalization of BE and RE.

Pro-active disclosure through RTI/website

Please see Institutional Grid IV.g in page 94, V.f in page 95, and VI.c in page 97.

e. Survey of each group of External Stakeholders

XII. Outcomes – External Stakeholders (Industry, Alumni, community, Government / Parliament)

a. Number of Industry Sponsored Projects and revenues from them in last five years

Please seeSpecific Indicators 5.A.b in page 64.

b. Industry perception of employability/performance for students from institute

c. Contribution from Alumni in last five years

Please see specific indicators 5.D.a in page 68.

d. Outcomes of community relevant issues

As mentioned earlier, the Institute has undertaken several community related issues in the last five years and solved many problems of the community. It is relevant to mentions that the community in adjoining areas of the Institute has also been benefited.

e. Delays in submission of Annual Reports/Audit Reports

There is no delay in submission of annual report/audit reports. The reports are submitted in time to the MHRD, Govt. of India for necessary action as a statuary requirement. The comments and observations made by the ministry if any are properly addressed and reported to the Govt. well in time.

ANNEXURE- I

ABOUT CENTRAL LIBRARY OF IIT KHARAGPUR

The Central Library of IIT Kharagpur started in a small room of the Institute old Building (ShahidBhavan) in the year 1951, and moved to its present premises in 1956. Since then, it has grown in size and content to take the present shape. With the developments in computers, microelectronics and communication technologies, the behavioral characteristics of the information seekers have been changing rapidly and the library is trying its best to adapt with the technological advancement. For the last six decades, the library has been the lifeline of the academic activities of the Institute. It is no exaggeration to state that the **Central Library of IIT Kharagpur is one of the largest and finest technical libraries in Asia**. It has been catering to the needs of the ten thousand students of undergraduates, postgraduates, research scholar, seven hundred faculty members and more than thousand staff members of the 19 departments, 9centres 8 schools and 15 research facilities of the Institute.

The Library is well equipped with modern facilities and resources (print and electronic) in the forms of CD-ROMs, DVD-ROM, online databases, micro-documents, video cassettes, books, journals, patents, standards, theses, reports, etc. It has also developed a full-fledged Digital Library equipped with necessary modern equipment in order to provide various digital mode Library services. Digital Library section of the **Central Library has developed an institutional digital repository using open source software DSpace**, which preserve the institute's intellectual output for campus wide access and digital preservation for the posterity.

The Library routine services have been fully automated using the library database management software 'LibSys' version 7. It is an integrated Library management software package, with all the required modules for automated library management systems. The Central Library being a core member of INDEST-AICTE Consortium under the aegis of the Ministry of Human Resource and Development provides online access to many important full-text databases in Science and Engineering subjects as well as abstracting database services. The Central Library website, which is developed by **open source software namely "Drupal"**provides online access to all these e-resources. In addition to INDEST-AICTE Consortium e-resources, Central Library, IIT Kharagpur also currently subscribed a good length of e-resources (e-journals, e-books and e-database). At present, Central Library provides IP based access to 40, 000 full-text e-journals, and 20,000 full-text e-books to the users. List of e-resources subscribed INDEST-AICTE Consortium and IIT Kharagpur is given below.

A). Full- Text Databases:

1. ALL ACM Journals
2. All ACS Journals (access from volume 1 to issue 1)
3. All Sage Journals (access from volume 1 to issue 1)
4. All Springer Journals (access from volume 1 to issue 1)
5. All Elsevier Journals (Access from Volume 1 to Issue 1)
6. All Annual Reviews Journals (access from volume 1 to issue 1)
7. All Institute of Physics Journals (access from volume 1 to issue 1)
8. All Emerald Journals
9. All ASCE Journals
10. All ASME Journals
11. All Taylor & Francis Journals
12. All Oxford University Press Journals
13. All SIAM Journals
14. All Optical Society of America Journals
15. All Electrochemical Society Journals
16. All Nature group Journals
17. Maney Publications Journals
18. All IEEE and IEE Journals
19. RSC Archives Journals
20. Science Magazine - Online Edition
21. John Wiley Package (Science and technology) Journals
22. GeoScienceWorld Database
23. JSTOR Database
24. Informs Pubs Suite Database
25. Proquest's ABI/INFORM Database
26. ProQuest - Dissertations & Theses database
27. Capitaline Database
28. IndiaStat Database
29. Hein Online (law journals)
30. WIPS (patent database)
31. Manupatra (law database)
32. Westlaw International (law database)

33. EBSCO databases
- Business Source Complete
- Communication & Mass Media Complete
- MagillOnLiterature Plus
34. ASME Standards (Non BPVC Code)
35. ASTM
36. BSI Standard
37. IEC Standards
38. BIS Standards
39. British Standards
40. Euro Codes Standards (Civil Engg / Structural Engg)

B) Abstracting Databases

1. MathSciNet (Mathematical Review)
2. SciFinder Scholar (Extended version of Chemical Abstracts)
3. Science Citation Index of WOS (Abstracting, Indexing and Citation Database)
4. Scopus (Abstracting, Indexing and Citation Database)

C) Journal Citation Reports -2012 (JCR)

D) E- Books

1. All Springer E-Books (access from 2006 to current)
2. All CRCnetBASE (access from 2006 to current)
3. Cambridge University Press (selected law books)
4. Elsevier Book Series (selected chemistry books)
5. Wiley E-Books (selected chemistry books)
6. Gale Cengage (selected law book)

Library Timing: The Central Library of IIT Kharagpur is kept open from 8 am to 12 midnight on all the week days and week-end days, except Institute holidays.

Library Collection (print and e-resources): The Library is having a collection of more than 3.5 lakh documents, subscribing about 300 print journals, and providing access to over 40,000 online full- text journals and several abstracting databases. Besides, there are 45,000 e-books. The collection consists of Books, Back-volumes of Periodicals, Theses, Conference Proceedings, Standards, Reports, Microforms, and CD-ROM/DVD-ROM Databases and Audiovisual materials.

The Library has two buildings, the Main Building and the Annexe Building. Books, Theses and Standards are kept in the Main Building. Current Periodicals, Bound Journals, CD-ROM/DVD-ROM Databases and lecture of various video courses are kept in the Annexe Building.

Special Gallery: The Library sets up gallery of books on special topics from time to time. At present, the topics include (1) History of Science & Technology, and (2) Works of Nobel laureates. The galleries are located in the foyer of the Central Library.

Classical and Contemporary Literature Section: Literature represents a language or a people; culture and tradition. But, literature is more important than just historical or cultural artefact. Literature introduces us to new worlds of experience. We learn about books and literature; we enjoy the comedies and the tragedies of pomes, stories, and plays; and we may even grow and evolve through our literary journey with books. Judging the importance of literature the Central Library has recently introduce a Classical & Contemporary Literature (CCL) Section with a collection of 800 titles in English and different Indian regional languages. Apart from OPAC searching to identify and locate a particular title of the user's interest from CCL Section one printed catalogue is also kept ready in the Section. The book from the Section will be issued for 15 days only.

Display of New Books: Usually every Tuesday new books are displayed near the Library foyer. A list of these new books along with a short write-up on each book is posted on the notice board adjacent to the room and is also circulated via 'g-mail'. A new book may be borrowed once its display period expires.

Indian News Paper Corner: The Library has recently opened an Indian Magazines Corner which is located in the Library foyer. Popular Indian weeklies and monthlies are displayed here. These are not lent out.

Digital Library and collection: The Digital Library is housed in the First Floor of the Annexe Building. The Digital Library Collections consist of online e-Databases, CD-ROM Databases, Video courses, and other audio visual materials. There are about 32 Video courses that consist of lectures given by IIT Kharagpur faculty on subjects covered in various curricula. User education programme is conducted twice a week for enabling the users to use the Digital Library resources effectively.

Online Question Papers: Soft copies of old question papers of B. Tech/B.Arch. /M. Sc. mid- and end-term examinations of the Institute are available online at Library web site.

RFID System: In order to further modernize the Central Library, a small scale RFID (Radio Frequency Identification) project has been executed at the Library. In this RFID project we have already tagged about 5000 selected fast moving titles which are available through RFID enabled systems. This RFID system includes a self check-in I check-out station (RFID staff station); EAS security gate and a book drop box. We have also planned to implement the RFID systems for the entire book collection of Central Library in this financial year.

CCTV: To ensure proper surveillance of various potential locations of this large Library, we have recently installed 45 CCTV camera heads. These cameras have been located evenly at both buildings of the Library. Two digital video recorders continuously provide real time outputs of all 45 cameras for viewing at the 'Console Room', and also at specific terminals located at Security Checkpoint and other sections of the Library. The DVR recorders can store the real time outputs of all 45 cameras (4-5 snaps/second) for over a month in its memory. Installation of the CCTV at the Central Library has immensely facilitated effective surveillance of all important locations of the Library.

Institutional Digital Repository (IDR): Central Library has developed an **Institutional Digital Repository using open source software namely DSpace.** The IDR collects, preserves and disseminates in digital format the research output (PhD theses, Technical reports, Faculty publications, etc.) of IIT Kharagpur research community. It enables the Institute community to deposit (self archiving) their preprints, post prints and other scholarly publications using a web interface, and organize these publications for easy retrieval. At present, the access of 'Institutional Repository' is restricted within the IIT Kharagpur campus LAN only and submission of documents to this repository is also limited to the IIT Kharagpur research community only.

For details, visit Central Library website, address: http://www.library.iitkgp.ernet.in

ANNEXURE - II

ACTIVITIES OF SPONSORED RESEARCH AND INDUSTRIAL CONSULTANCY (SRIC), IIT KHARAGPUR

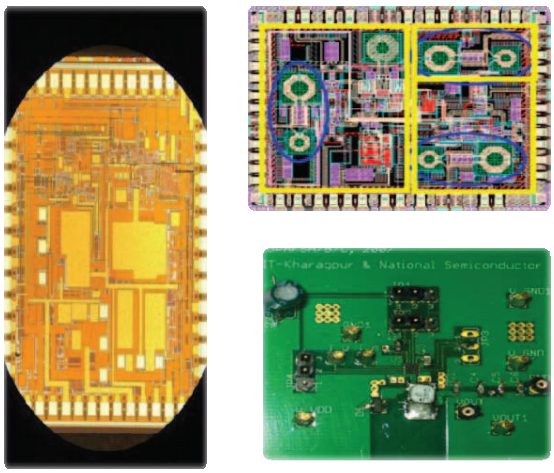
IIT Kharagpur is highly rated for the quality and breadth of its research enterprise, for the innovation of its faculty, for the excellence of its PhD programmes, and for the amount of funding received in support of its research initiatives. We are particularly noted for our openness to multidisciplinary research, and several new initiatives expand a long IIT Kharagpur tradition of cross-disciplinary research and collaboration. Today, our faculty and researchers in energy and the environment are exploring the development of renewable technologies to enable us to coexist with a bio-diverse planet. Through computation and information technologies, IIT Kharagpur researchers are deepening our comprehension of a multi-faceted world. Our research groups in nanotechnology and microscale processes are enabling the development of new materials and methods that support a safer, more cost-effective, and sustainable environment. The impact of our research ripples through India and around the world. IIT Kharagpur's research programmes reach across the campus and beyond, linking together 19 departments, 17 academic centres and a large number of advanced R&D laboratories, stimulating the integration of inquiry, new knowledge, and education.

Some of the noteworthy research initiatives and collaborative research facilities in recent years include:

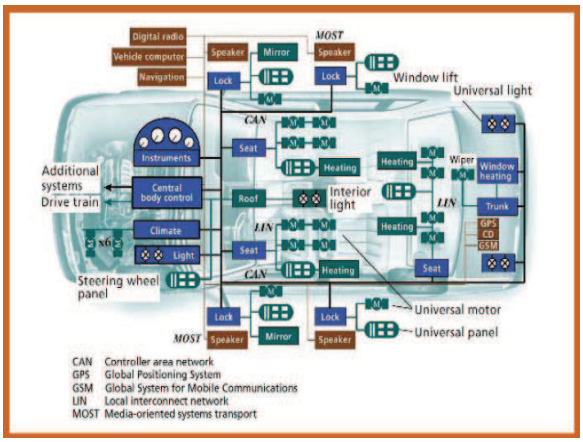
• Sustainable Food Security through Technological Interventions for Production, Processing and Logistics
• Signals and Systems for Life Science
• Centre of Excellence in Microfluidics
• Future of Cities - Phase I In Search of Solutions
• Science-Technology & Cultural-Heritage interface
• AI for Societal Needs
• Centre for Railway Research
• P. K. Sinha Centre for Bioenergy
• Steel Technology Centre
• R&D Centre in collaboration with DVC
• Tea Engineering Research Centre
• Centre of Excellence in Information Assurance

• National Programme in Marine Hydrodynamics
• Vodafone-Essar-IIT Kharagpur Centre of Excellence in Telecommunications
• National facilities for EPMA
• Rural Technology Action Group (RUTAG)
• General Motors Collaborative Research Programme
• Advanced VLSI Design Laboratory
• Research Laboratory in Electronics Controls and Software

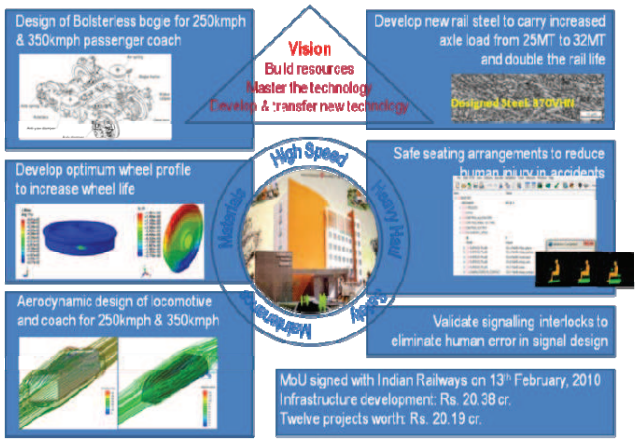
Advanced VLSI Consortium [2006-2012]
More than 15 VLSI and EDA companies



Chips Designed in Advanced VLSI Laboratory



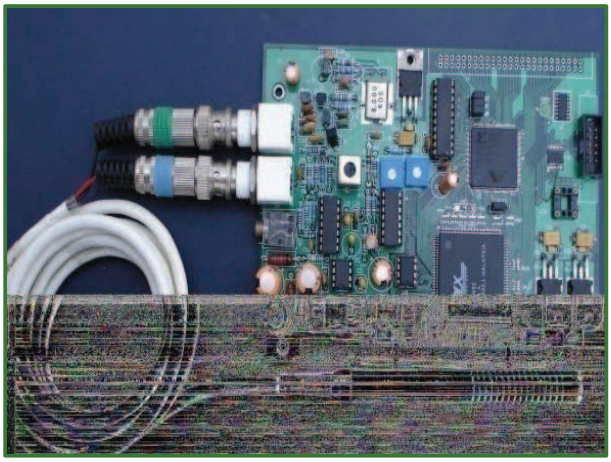
Automotive Control Design and Analysis



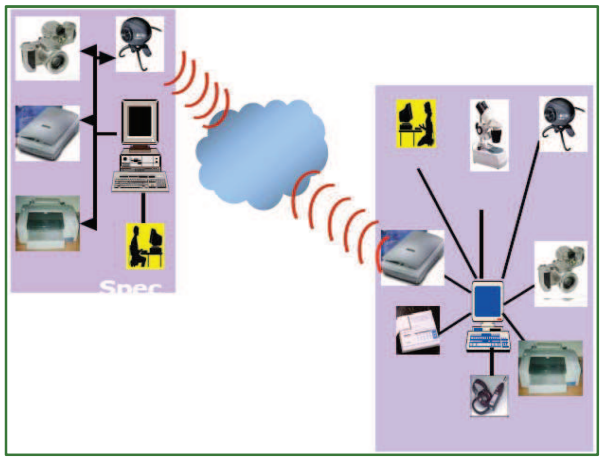
Centre for Railway Research: Academia Industry Partnership

In the past year IIT Kharagpur has received a number of high-value and flagship projects from the government and the industry such as,

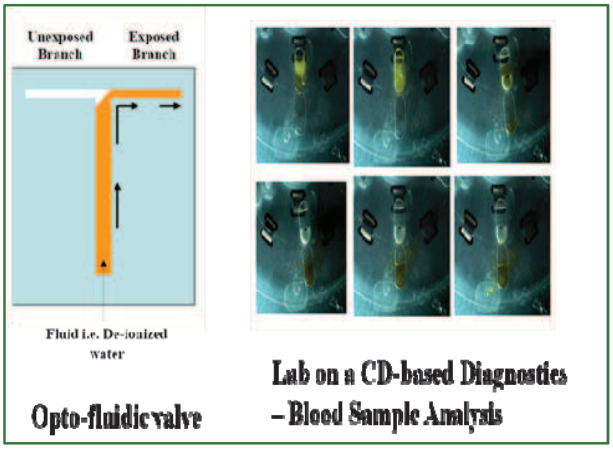
- Teachers empowerment, student empowerment and integration of tools for improvement - synchronous delivery (talk to a teacher) by MHRD, New Delhi
- Online monitoring system for OHE traction parameters by RDSO, Lucknow
- Design & development of an on-board intelligent embedded platform for detection of weak failure modes and prognosis of severe faults in locomotives and associated equipment by RDSO, Lucknow
- Preparation, characterization and performance of functionalized membrane with improved anti-fouling properties by BRNS, DAE, Mumbai
- Thermomechanically processed high strength bainitic steel rails for Indian Railways by RDSO, Lucknow
- Aerodynamic design of traction rolling stock with speed potentials of 250 km/h upgradeable up to 350 km/h by RDSO, Lucknow
- Studies on shrinkage swelling characteristics of some Indian coals to ascertain recoverability of CBM from deep seated coal and shale resources by CMPDI, Ranchi
- Development of rubber compound and repair techniques for trailing cables of underground mining machines, by CMPDI, Ranchi
- Developing suitable pedagogical methods for various classes, intellectual calibers and research in e-learning ice - main phase by MHRD, New Delhi



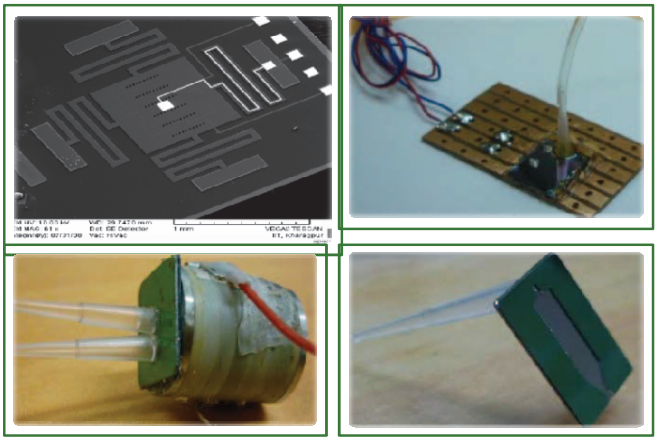
Low Cost Ultrasound



Low Cost Telemedicine



Microfluidics atIIT Kharagpur



Fabricated MEMS structures at IIT-Kharagpur

Besides these newly initiated research projects, IIT Kharagpur has been engaged in a number of ongoing innovative and socially relevant funded research activities. A partial list of which includes the following:

• Smart nano-sensors for medical, coal mine and environmental monitoring by SERB, New Delhi
• Development of microbial fuel cell for direct electricity recovery during waste water treatment by SERC, New Delhi.
• Supporting consolidation, replication and upscaling of sustainable waste water treatment and reuse technologies for india (saraswati) by DST, New Delhi.
• Fast fixed point algorithms for identifying alertness and emotions, Sumsung, Korea.
• Development of technology and prototype facility for enhancement of shelf life of fruits and vegetables through active packaging & modified atmosphere storage by DBT, New Delhi.
• Involvement of functional single nucleotide polymorphisms (SNP) of matrix metalloproteinase (MMP) gene promoters in the cell type specific regulation of human MMPs: intrinsic genetic characteristics in cancer cell progression by DBT, New Delhi.
• Scientific evaluation of high voltage insulator conditions/predictions of residual life of composite insulators by RDSO, Lucknow
• Total synthesis of mayamycin, a c-glycosidicangucycline by SERB, New Delhi
• Development of composition and standardization of properties of composite brake blocks for application in coaches of indian railways by RDSO, Lucknow

• Experimental & numerical studies on deep excavation under static & seismic conditions by SERB, New Delhi
• Novel polymeric composite membranes for selective separation of gas mixtures by SERC, New Delhi
• Development of expert system for Indian blast furnace by Ministry of Steel, New Delhi.
• Aakash Development Laboratory (AADL) at IIT Kharagpur by MHRD New Delhi.
• Catalytic hydrolysis by a microbial enzyeme with potential of an antibiotic target by DST, New Delhi
• Suspension and bogie technology for high speed trains by RDSO, Lucknow.
• Development of pilot scale palletisation technology for Indian geothitic/hematite ore with varying degree of fineness by Ministry of Steel, New Delhi.
• Tracking of ultrasonography machines towards prevention of its misuse by Ministry of Health and Family Welfare, New Delhi.

The total funding received by IIT Kharagpur in the last 5 years is more than 650 Crores, thorough 1578 Research and Consultancy Projects. During the year 2012-2013 the Institute received from the Government, private and international funding agencies/enterprises 145 research projects for a total value of Rs. 129.87 crores and 151 consultancy projects worth Rs. 14.5 crores aggregating a total of 296 projects for Rs. 144.37 crores**.**

The Intellectual Property Rights and Industrial Relations (IPR & IR) Cell under SRIC is responsible for the licensing and the transfer of technologies developed by researchers at IIT Kharagpur to the commercial sector. Till date, more than 400 patents were filed and more than 120 were granted and a total of 19 technologies were transferred. Last year year IPR&IR Cell under SRIC carried out ***unique drive – 100 Days 100 Patents***. The Institute Faculties, students and staff supported and responded whole heartedly and more than 200 abstracts were received and finally more than 100 patent applications have been sent out to patent attorneys for the filing applications to patent office. The Entrepreneur Cell under SRIC supports a variety of incubation programmes funded by the Government.

Students are encouraged and supported to take up innovative challenging problems. One of the examples is **TeamKART** under Formula Student. Formula Student (FS) is Europe's most established educational motorsport competition, run by the Institution of Mechanical Engineers. It seeks to challenge university students to conceive, design, build, cost, present and compete as a team with a small single-seat racing car in a series of static and dynamic competitions. Recently IIT Kharagpur team has participated in Silverstone track in UK.

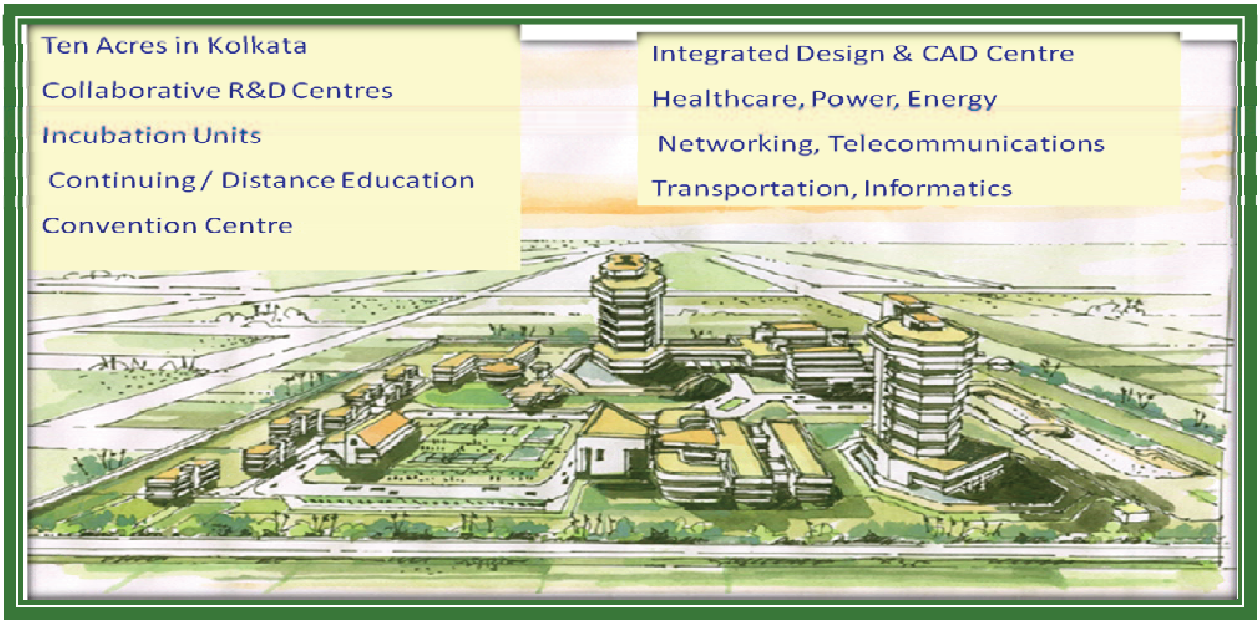
Technology Transfer Group (TTG) is a students' initiative under the aegis of SRIC, IIT Kharagpur, which believes in the potential of the Institute as a premier Research & Development

centre. TTG acts as a link between the industry and the academia to facilitate transfer of industry ready technologies and presenting IIT Kharagpur as a research consultant. TTG also organized **TED^{X}*IIT Kharagpur event on the theme – The Unturned Page***.The event last year hostedeminent speakers such as **Professor SugataMitra, Mr. ShubhranshuChoudhary,** Mr.**KailashSatyarthi,** ***and*** Mr. Aniruddha Sharma who mesmerized the IIT community by sharing their experiences.

SAE Formula Car

Aircraft Design

Student Innovation Programmemes



Future: Proposed Kolkata Science Park

ANNEXURE - III

ACTIVITIES OF CONTINUING EDUCATION PROGRAMME (CEP)

Degree: QIP sponsored (AICTE Approved) M.Tech/Ph.DProgramme

1. QIP (AICTE Approved)

	2009-10	2010-11	2011-12	2012-13	2013-14
M.Tech	15	16	09	06	07
Ph.D	14	10	22	8	10

2. CEP – M.Tech (3 Year Course) for AICTE approved Engineering College faculty and working industry professionals

ICT	00	05	26	09	00
ECE	04	14	15	12	00
EE	04	10	27	11	00

3. Short Term Courses/Conferences/Workshops/Seminars

QIP-(AICTE)	39	13	09	08	09
Self -(self sponsored)	59	74	58	53	58
Conference/ Workshop/Seminars	20	17	17	13	17

4. Talk to Teachers Programme under CE Cell

Talk to Teachers Programme : under NMEICT, New Delhi	Training/upgrading 10,000 teachers of different Engineering Colleges/Institutions

5. Other Programmes:

Book/Curriculum Development:15 numbers for 5 years

6. International Summer and Winter Term 2014-15

Indian Institute of Technology Kharagpur is starting its first international summer and winter term (ISWT) where the national and international participants will get an opportunity to seek knowledge and experience from reputed International faculty through intensive study of subjects and personal interactions. By bringing together participants and faculty from India and around the world, the ISWT will not only be academically stimulating but also offer an opportunity to make new friends and to interact with international experts.

Participants from Industry, Research Organisations, Faculty and Students from all over the world are welcome to register for the 19 subjects offered during the summer term and 9 subjects during the winter term. These subjects are designed around current and multidisciplinary themes of Science, Engineering, Management and Law. The duration for each subject is of 2 weeks or 10 working days with a judicious blend of lectures and tutorials per day.IIT Kharagpur will issue a course completion certificate to all participants that attend classes regularly. The students registered for these courses, optionally, will have the opportunity to obtain additional academic credits based on the evaluation and grading process. His/her home university/Institute will be mainly responsible for transferring ISWT academic credits. IIT Kharagpur will only provide information on the grading system, subject syllabus, and the academic policy.

Courses to be offered during summer/winter 2014

• Geological Exploration by Ground Penetrating Radar
• Introduction to Global Spectral Modeling
• Portfolio Optimization
• Thermal Processing of Foods
• Advanced Technologies for Wastewater Treatment and Recycling
• Modeling of Fluvial Processes
• Engineering Asset Management
• Advanced Plasma Processing: Fundamentals and Applications
• Advanced Formal Techniques in Design, Verification and Testing of Digital Integrated Circuits
• Microwave Imaging
• Geospatial Technologies in Hydrological Modeling
• Numerical Ocean Modeling

• Biofuels: Policy and Law
• Distortion Prediction and Control of Large Ship Structural Units
• On-site Wastewater Treatment and Management
• Big Data Analytics
• Hydrology and Climate Change
• Methods & Techniques in Cognitive and Clinical Neuroscience
• Communication Strategies for Change
• Lecture Series by Prof. Sir Michael Berry
• Geostatistics in Ecological Modeling
• Introduction to Geophysical Fluid Dynamics
• Genomics, Metagenomics and Metabolic Engineering
• Micro & Nano-scale Transport for Bio and Energy Applications
• Spatial Ecology & Remote Sensing
• Aircraft Design Practices
• Multi-scale Modeling of Advanced Materials

ANNEXURE – IV

NO. OF ARTICLES PUBLISHED AND CITATIONS BY IIT KHARAGPUR IN LAST FIVE YEAR PERIOD

Article and Citation Data are taken from SCOPUS on 14Dec2013

Department wise

SL. NO.	DEPARTMENT	ARTICLES	CITATIONS (Up to 14-Dec-2013)	
1	Advanced Tech. & Development Centre	64	173	
2	Aerospace Engineering	125	1451	
3	Agricultural & Food Engineering	409	2366	
4	Architecture & Regional Planning	12	19	
5	B C Roy Technology Hospital	2	1	
6	Biotechnology	333	4276	
7	Centre for Educational Technology	20	9	
8	Centre for Theoretical Studies	47	242	
9	Central Research Facility	16	70	
10	Centre for Development of Advanced Computing	1	-	
11	Chemical Engineering	402	2611	
12	Chemistry	670	6128	
12	Civil Engineering	294	1755	
12	Computer and Informatics Centre	3	3	
15	Computer Science & Engineering	585	1047	
16	Cryogenic Engineering	81	372	
17	Electrical Engineering	410	1445	
18	Electronics & Electrical Communication Engineering	764	1477	
19	G S Sanyal School of Telecommunications	119	143	

20	Geology & Geophysics	234	1310	
21	Humanities & Social Sciences	57	92	
22	IIT Kharagpur	92	393	
23	Industrial Engineering & Management	166	811	
24	KalpanaChawla Space Technology Cell	17	43	
25	Materials Science Centre	421	2399	
26	Mathematics	277	844	
27	Mechanical Engineering	583	2796	
28	Medical Science & Technology	251	1050	
29	Metallurgical & Materials Engineering	452	2987	
30	Mining Engineering	106	330	
31	Ocean Engineering & Naval Architecture	84	263	
31	Oceans, Rivers, Atmosphere and LandSciences	27	43	
33	Physics & Meteorology	577	2204	
34	Rajiv Gandhi School of Intellectual Property Law	15	54	
35	Reliability Engineering Centre	27	21	
36	RM School of Engineering Entrepreneurship	2	-	
37	Rubber Technology Centre	290	2830	
38	Rural Development Centre	8	39	
39	School of Information Technology	304	870	
40	School of Water Resources	13	42	
41	Vinod Gupta School of Management	36	45	
	Grand Total	**8396**	**43054**	

ANNEXURE - V

SENSITIVENESS TO ON-CAMPUS ENERGY ISSUES AT IIT KHARAGPUR IN LAST FIVE YEARS

As a part of the GO GREEN campaign initiated by AIESEC, IIT Kharagpur chapter, the preliminary energy analysis of IIT Kharagpur was carried out with a support from Ecozen Solutions, a startup of IIT Kharagpur students. A team of forty students, along with two foreign interns, under the guidance of Prof. N. K. Kishore and Prof. P. Bajpai from Electrical Engineering Department, IIT Kharagpur carried out intensive data collection and surveys in campus over a period of 4 months (Jan 2010 – Apr 2010). The objective was to study the energy consumption trend and pattern in IIT Kharagpur campus, and to identify the scope of potential energy conservation measures.

The team was divided into three groups, each looking after different aspects of energy analysis –

(i) Electrical,

(ii) HVAC (Heating, Ventilation, and Air-Conditioning) and

(iii) Fossil Fuels

Based on outcomes and findings of the survey and energy analysis a report was prepared. The report presents details of the recommendations proposed for improvement of energy scenario, and the future plan for its implementation.
Based on the recommendations of the report for reducing the carbon footprint and improve energy efficiency, the Institute has taken up several measures. Some are listed below:

1. All street lights in the campus are being replaced in phases with LED Street Lights (100 already replaced)

2. All Corridor Lights in Institute buildings are being replaced in phases by LED Lights (350 already replaced, 800 are in pipeline)

3. To harness solar energy institute has already installed more than 40 kW PV panels and more than 160 kW is to be setup soon.

4. The campus electricity distribution system has installed capacitor banks at 11 kV (1000 + 850 + 1542 kVAR) and 0.4 kV (250 kVAR) levels at different substations to improve load power factor to improve system efficiency and to reduce electricity consumption.

5. To improve quality of power supply STATCOM devices have been installed at 4 substations of the campus distribution system.

6. Many hostels and residential houses in the campus had more than 40-50 years old wiring. These were safety hazards and also introduced more losses due to leakage. Complete internal rewiring has been done for these old building now, they also fitted with residual current breakers with overload protection (RCBOs). This has improved reliability of power supply and also reduced energy leakage.

7. To control pilferage and allow for accurate meter reading intelligent energy meters have being installed.

ANNEXURE - VI

DETAILS OF FEMALE STUDENTS ON ROLL

Department and Degree-wise Female Students on Roll

UG				PG		
Departments	**Degrees**	**Female**		**Departments**	**Degrees**	**Female**
CY	2 YRS M.SC	17		BM	EMBA	3
GG	2 YRS M.SC	14		IP	LLB	44
MA	2 YRS M.SC	15		EC	M. Tech.(3 Yr.)	11
PH	2 YRS M.SC	13		EE	M. Tech.(3 Yr.)	10
CY	5 YRS M.SC	26		IT	M. Tech.(3 Yr.)	7
GG	5 YRS M.SC	22		BM	MBA	25
HS	5 YRS M.SC	38		AR	MCP	36
MA	5 YRS M.SC	24		HS	MHRM	12
PH	5 YRS M.SC	10		MM	MMST	4
AR	B.ARCH	48		AE	MTECH	8
AE	B.TECH	6		AG	MTECH	64
AG	B.TECH	23		AT	MTECH	1
BT	B.TECH	21		BT	MTECH	19
CE	B.TECH	20		CE	MTECH	25
CH	B.TECH	30		CH	MTECH	27
CS	B.TECH	18		CL	MTECH	5
EC	B.TECH	34		CR	MTECH	2
EE	B.TECH	37		CS	MTECH	14
IM	B.TECH	8		EC	MTECH	32
ME	B.TECH	18		EE	MTECH	10
MI	B.TECH	2		ET	MTECH	1
MT	B.TECH	22		GG	MTECH	6
NA	B.TECH	7		ID	MTECH	2
AE	M.TECH DUAL	5		IM	MTECH	1
AG	M.TECH DUAL	23		IT	MTECH	7
BT	M.TECH DUAL	29		MA	MTECH	4
CE	M.TECH DUAL	14		ME	MTECH	5
CH	M.TECH DUAL	13		MM	MTECH	1
CS	M.TECH DUAL	11		MS	MTECH	11
EC	M.TECH DUAL	38		MT	MTECH	14
EE	M.TECH DUAL	13		NA	MTECH	1
IM	M.TECH DUAL	11		PH	MTECH	3
ME	M.TECH DUAL	11		RE	MTECH	1
MI	M.TECH DUAL	1		RT	MTECH	3
MT	M.TECH DUAL	8		WM	MTECH	3
NA	M.TECH DUAL	5				
Total		**655**		**Total**		**422**

Department and Degree-wise Female Students on Roll

RS				MS		
Departments	**Degree**	**Female**		**Departments**	**Degree**	**Female**
AE	RS	7		AE	MS	1
AG	RS	38		AT	MS	5
AR	RS	14		BM	MS	2
AT	RS	20		CH	MS	1
BM	RS	11		CL	MS	1
BT	RS	23		CR	MS	1
CE	RS	13		EC	MS	3
CH	RS	18		EE	MS	5
CL	RS	4		GG	MS	1
CR	RS	3		IT	MS	3
CS	RS	10		ME	MS	1
CY	RS	29		MT	MS	3
EC	RS	12		RE	MS	1
EE	RS	8		RJ	MS	1
ET	RS	5		**Total**	MS	**29**
GG	RS	12				
GS	RS	4				
HS	RS	17				
ID	RS	2				
IM	RS	2				
IP	RS	3				
IT	RS	7				
MA	RS	16				
ME	RS	5				
MI	RS	6				
MM	RS	17				
MS	RS	7				
MT	RS	9				
NA	RS	1				
PH	RS	11				
RD	RS	1				
RE	RS	3				
RJ	RS	5				
RT	RS	6				
WM	RS	6				
Total		**355**				

ANNEXURE - VII

A PARTIAL LIST OF COMPANIES VISITING IIT KHARAGPUR TRAINING AND PLACEMENT CELL

1	*Engineers India*
2	*Schlumberger*
3	*I.T.C. Ltd.*
4	*IBM (IRL) (Telephonic)*
5	*Capital One*
6	*McKinsey*
7	*Microsoft*
8	*Fair Isaac*
9	*Morgan Stanley (FID) Telephonic*
10	*British Gas*
11	*Inductis*
12	*Alcatel Lucent*
13	*Nvidia, Bangalore*
14	*Amazon*
15	*Yahoo*
16	*J.P.Morgan (GTP)*
17	*Advent Asia*
18	*Maxim-IC*
19	*Cisco*
20	*D.E.Shaw*
21	*Adobe*
22	*Z.S.Associates*
23	*Adventity*
24	*I Runway*
25	*ANZ*
26	*Keeple Feels*
27	*Sybase*
28	*RemfriSagar*
29	*Ranault Nissan*
30	*Amarchand&Mangaldas*
31	*Deloittee*
32	*GE*
33	*Marvel*
34	*Mentor*
35	*IOCL*
36	*Data Bazzar*
37	*TVS Motors*
38	*Reliance Industries*
39	*Crain Energy*
40	*Barclay Capital*
41	*Ittiam*
42	*Hindustan Unilever Ltd*
43	*Strand Life*
44	*Symantec*
45	*Noble Denton*
46	*Maharan International*
47	*Oracle*
48	*Sabre Holdings*
49	*Future First*
50	*ETRI*
51	*Tata Steel*
52	*Market Rx.*
53	*Netapp*
54	*Sun Micro System*
55	*Anindus*
56	*Cyber Marine*
57	*I.O.C.L.*
58	*Pipava*
59	*Siemens*
60	*I.B.M. (I..S.L.)*
61	*Ericsson*
62	*IVY Compect*
63	*Infosys*
64	*Texas*
65	*Solar Semiconductors*

66	*IVIZ Techno Solutions*
67	*N.T.P.C.*
68	*Verizon*
69	*P.W.C.*
70	*Irevana*
71	*Tata Motors*
72	*Tibco*
73	*Analog Device*
74	*Fluent*
75	*ikova*
76	*Novell*
77	*Think3*
78	*Atrenta*
79	*Airbus*
80	*Samsung*
81	*John Deer*
82	*BEL-CRL*
83	*Areva*
84	*L & T*
85	*T.C.S*
86	*Mu Sigma*
87	*ADP*
88	*Mecon*
89	*Dar Group*
90	*Headstrong*
91	*C-dot*
92	*ACC*
93	*Zebec Marine*
94	*Oil India*
95	*Couth IT*
96	*Zeus Numerix (Telephonic)*
97	*S.R.F.-CH*
98	*Quest Global*
99	*Indian Register of Shipping(IRS)*
100	*Infosys*
101	*Hewlett Packard*
102	*TCE Consulting Engineering Ltd.*
103	*Osram*

104	*MisraDhatu Nigam (MIDHANI)*
105	*Mazagon Dock*
106	*Cavium Networks*
107	*Escorts Ltd*
108	*Qwest Software Services*
109	*Coal India*
110	*Jindal Steel*
111	*CESC*
112	*Hindustan Aeronautics Ltd (HAL)*
113	*Global IP Services PLLC*
114	*LMJ International*
115	*D.R.D.O.*
116	*CES*
117	*LM Glass Fiber*
118	*GX Technologies*
119	*Icfai Institute*
120	*N.M.DC*
121	*Saipem India*
122	*i2 Technologies*
123	*DGB Earth Sciences*
124	*B.H.E.L. (at Kolkata)*
125	*Dr. Reddy's Lab*
126	*Wipro*
127	*Intergraph*
128	*Veetee Fine Foods Ltd.(Tele)*
129	*L.&T (E- Engg)*
130	*S.A.I.L.*
131	*DGH*
132	*T.A.F.E.*
133	*Syngenta*
134	*Meccademia*
135	*Kirloskar (Telephonic)*
136	*Telcon*
137	*PagalguyInzane Labs*
138	*Q.Tech. (Telephonic)*
139	*Cerner Health Care*
140	*Mahindra & Mahindra (Telephonic)*
141	*Astra Microwave (Vedio Conf.)*

142	*Cosmic Ferro Alloy*
143	*Transmarket Group*
144	*I.D.M.C.*
145	*Law Firm NarenThappeta (Telcon)*
146	*Secon Pvt. Ltd. (at Bangalore)*
147	*Electro Steel*
148	*Time vision Infotech*
149	*O.N.G.C. (Kolkata)*
150	*Infotech Enterprise (at Hyderabad)*
151	*S.A.I.L (Geology) (at Dhanbad)*
152	*Frost & Sullivan (Telephonic)*
153	*Lovely Professional University*
154	*KLA Tencor*
155	*S. Majumdar& Co*
156	*G.S.K. (Vedio Conf.)*
157	*Haldia Petro Chemicals*
158	*B.P.C.L. (at Kolkata)*
159	*Emergent Ventures (Telephonic)*
160	*G.A.I.L India*
161	*KITS University*

162	*KITS University (2ND VISIT)*
163	*Temple City Institute*
164	*Goa Shipyard*
165	*Kwality Milk Products*
166	*Andrew Yule*
167	*Bharat Forge (Pune)*
168	*Bharat Dynamics (WT)*
169	*Tavant (Telephonic)*
170	*Vellore Inst. Of Technology (Kolkata)*
171	*Siegwerk Pvt. Ltd.*
172	*Surya Roshni*
173	*HINDALCO*
174	*Mott Macdonald Pvt. Ltd.*
175	*RTC (Off Campus)*
176	*Rajiv Gandhi IPL (off Campus)*
177	*Feedback Ventures {Cocubes}*
178	*National Engineering Industries*
179	*Tata Ryerson*
180	*Accenture*
181	*Fowler Westurp*

ANNEXURE - VIII

FACULTY SHORTAGE DATA

Sl	Code	Departments/Schools/Centres	Student Strength	Faculty Strength	Teacher-Students Ratio
1	ET	CENTRE FOR EDUCATIONAL TECHNOLOGY	19	4	1:4.75
2	CL	CENTRE FOR OCEAN RIVER ATMOS. & LAND SC	53	7	1:7.6
3	CR	CRYOGENIC ENGINEERING CENTRE	26	10	1:2.6
4	AE	DEPARTMENT OF AEROSPACE ENGINEERING	296	15	1:19.7
5	AG	DEPARTMENT OF AGRICULTURAL ENGINEERING	586	36	1:16.3
6	BT	DEPARTMENT OF BIO-TECHNOLOGY	321	13	1:24.7
7	CH	DEPARTMENT OF CHEMICAL ENGINEERING	545	25	1:21.8
8	CY	DEPARTMENT OF CHEMISTRY	338	33	1:10.2
9	CE	DEPARTMENT OF CIVIL ENGINEERING	539	36	1:15
10	EE	DEPARTMENT OF ELECTRICAL ENGINEERING	737	29	1:25.4
11	GG	DEPARTMENT OF GEOLOGY & GEOPHYSICS	414	24	1:17.3
12	MA	DEPARTMENT OF MATHEMATICS	414	30	1:13.8
13	ME	DEPARTMENT OF MECHANICAL ENGINEERING	1011	44	1:23
14	MT	DEPARTMENT OF METALLURGICAL ENGINEERING	406	27	1:15
15	MI	DEPARTMENT OF MINING ENGINEERING	381	16	1:23.8
16	NA	DEPARTMENT OF OCEAN ENGG & NAVAL ARCH.	282	12	1:23.5
17	PH	DEPARTMENT OF PHYSICS	322	27	1:11.9
18	AR	DEPTT. OF ARCH. AND REGIONAL PLANNING	309	19	1:16.3
19	HS	DEPTT. OF HUMANITIES & SOCIAL SCIENCE	274	25	1:11
20	IM	DEPTT. OF INDUSTRIAL ENG. &MANAGEMENT	352	12	1:29.3
21	CS	DEPTT.OF COMPUTER SCIENCE & ENGINEERING	618	30	1:20.6
22	EC	DEPTT.OF ELECTRONICS	864	35	1:24.7

		&ELECTL. COMM.ENG			
23	GS	G.S SANYAL SCHOOL OF TELECOMN.	27	5	1:5.4
24	MS	MATERIAL SCIENCE CENTRE	96	10	1:9.6
25	RJ	RAJENDRA MISHRA SCHOOL OF ENGG ENTERPREN	14	5	1:2.8
26	IP	RAJIV GANDHI SCHOOL OF INTEL PROP LAW	127	10	1:12.7
27	RE	RELIABILITY ENGINEERING CENTRE	32	4	1:8
28	RT	RUBBER TECHNOLOGY CENTRE	67	8	1:8.3
29	RD	RURAL DEVELOPMENT CENTRE	1	3	1:033
30	IT	SCHOOL OF INFORMATION TECHNOLOGY	126	6	1:21
31	MM	SCHOOL OF MEDICAL SCIENCE & TECHNOLOGY	98	9	1:10.9
32	WM	SCHOOL OF WATER RESOURCES	27	2	1:13.5
33	ST	STEEL TECHNOLOGY CENTRE	0	1	-
34	BM	VINOD GUPTA SCHOOL OF MANAGEMENT	292	16	1:18.25
35	AT	ADVANCE TECHNOLOGY DEVELOPMENT CENTRE	119	0	Other department faculty are involved
36	TS	CENTRE FOR THEORETICAL STUDIES	4	0	-do-
37	ID	RANBIR AND CHITRA GUPTA SCHOOL OF INFRASTRUCTURE DESIGN AND MANAGEMENT	44	0	-do-
			10181	**588**	**1:17.3**

Based on Total Student Strength of 10181, and <u>Faculty : Student Ratio 1:10</u> as prescribed by MHRD:

Total Student Stregth	Sanctioned Faculty	Total Faculty Stregth	Faculty Shortage
10181	**1018**	**588**	**430**

ANNEXURE – IX

NUMBER OF PROCESSES AUTOMATED IN ERP

Module wise Progress of ERP: Modules Developed, Being Developed and Implemented

Sl. No.	Module	Work done so far

1	ERP Frame work	• System security (single sign on)
		  ○ *For identification of ERP stake holders, authentication with their credentials and authorization with proper access privilege*
		• Load balanced server Architecture
		  ○ *For improving accessibility to ERP operations*
		• Role based access control
		  ○ *For distributed assignment of roles across departments and for providing access based on privileges of roles and individuals*
		• Work delegation - for delegating work to subordinates with/without certain privileges
		• Workflow based processing
		  ○ *This is a generalized framework for automating all business processes. It helps reducing programming effort to map business logic.*
		• Generalized Interface Framework using JqGrid
		  ○ *The is a generalized framework for the unique user interface across applications.*

2	System Administration	• Digital signature framework – this is a framework for issuing digital signature to all stake holders of the Institute. This framework also facilitates to sign documents digitally
		• Development of work flow system for ERP developers to restrict direct access to production data base and production application servers
		  ○ *This ensures any change in production server to follow an approval path. Nobody can alter/ delete any program/database object directly*
		• Assignment of menu roles to individuals
		• Menu Documentation
		  ○ *Menu Narration and upload process related documents*
		  ○ *Role Based Task , Schedule code with description and Workflow node details*
		  ○ *Technical Details (Technology used for this menu or process)*
		  ○ *Testing Details(Type of testing, inputs, results and remarks)*

3.	Academic	• On line application for all PG and Research Admission channels • Complete processing of applications – hard copy management, short listing, selection, call letter, offer letter, final processing of offer letter • Admission processing • Smart card management • Semester registration including fee management • Time table processing • Attendance • Examination processing • Feedback • Grade Management • Result processing • Awards and prizes • Approval for late registration • Customized fee pay-in slip generation • Graduating processing - curricula compliance, convocation information processing, grade card, provisional degree and final degree certificate generation • Subject proposal • Course proposal • Deregistration and Revocation process • EAA programme management o *EAA programme co-ordinator and programme officer allocation* o *EAA group allocation* o *EAA group change* • Scholarship processing • Permission for attending conference without financial assistantship o *Student's application* o *Dean's approval* o *Issuance of office order* • Life cycle of a Ph D scholar o *Application handling, processing, selection, joining, DSC formation, enrolment* o *Annual progress report* o *Registration for degree* o *Enhancement of research assistantship after 2 years* o *Extension of research assistant ship for final yar in 2 installments* o *Synopsis*

		○ *Panel of examiners* ○ *Synopsis processing* ○ *Change of panel of examiners if required* ○ *Thesis submission* ○ *Thesis processing* ○ *Reminders to external examiners* ○ *Changes in processing of thesis and examiners* ○ *Final viva voce and final thesis submission* • Teaching assistantship to Ph D institute scholars for 1 year if they have not completed their research work within stipulated time
4.	SRIC	• Project Management • Accounts processing ○ *Bill processing* ○ *Payment processing* ○ *Receipt processing* ○ *Tax processing* ○ *DDF, FDF Management*
5.	Hall Management Council	• Student/project staff Hall allocation • Room allocation in Halls of residence • Updating mess dues for on-roll students • Monitoring mess due updating hall-wise
6.	Accounts - students'	• Fee structure preparation for new admission by Academic section • Fee structure preparation and report generation for on role students by Academic section • Pay-in-slip generation for all students at the time of new admission as well as for semester registration • Handle for add waiver or modify fees amount for special order students • Fees payment verification(for new admission and on roll students) by Accounts section • Fees reconciliation and head wise transferable amount generation • After reconciliation acknowledgement generation for Halls, Gymkhana, HMC, Academic section • Generating Excel Reports for data transfer and fund collection • Handle for monitoring fees payment and fee receipt generation • Date wise fees collection and record monitoring • Fees setup and maintenance (handle for module configuration) • Student ledger implementation • Accrual accounting implementation for fees module

6	Accounts contd - salary of employees	• Gross Pay Computation • Net Pay Computation
6.	Accounts contd - pension	• Pension Computation • Transferring stakeholder state from onroll to pensioner
7.	Establishment - faculty recruitment	• Publication of advertisement – office order generation • Online application acceptance format and its receipt • Pre-scrutiny of frozen applications • Application hard copy management • Short listing Departmental level o *Committee formation* o *Fixing additional short listing criteria* o *Update of application by applicant* o *Providing access to committee members to view application and its details* o *Initial short listing at department level* o *Seminar and its evaluation* o *Final short listing at Department level* o *Recommendation to Institute* • Short listing at Institute level • Referee and reviewer's on line assessment • Selection Process o *Experts, Visitors' nominee data management* o *Interview Board formation* o *Generate call letter and send email to applicants* o *Provide access to selection committee expert/visitor's nominee to view the short-listed applications* o *Selection result* o *Generate reports after interview* o *Final approval of selection by BOG* o *Sending offer letter to successful applicants along with attachments they are to submit while joining*
8.	Training and Placement	• Company registration and login outside ERP • Fill Job Notification Form by company • T&P section get the interface to activate/deactivate all companies and their JNFs • Generating students' CV automatically from ERP and applying to JNFs • Company get the interface to shortlist candidates • Interview date fixation and selection of candidates • Monitoring of all processes

ANNEXURE – X

EXTRA ACADEMIC ACTIVITIES AT IIT KHARAGPUR

1. INTRODUCTION

IIT Kharagpur through institutional Extra Academic Activities (EAA) make students assimilate important character qualities and help them in understanding their relation with the society. Recruiters of our graduating students give weight to EAA involvement as it ensures ability to work in a team, ability to lead, ability to find solution to real-life problems etc. IIT Kharagpur UG curriculum engages each student in first two years (one year for B.Arch. program) in one of the four institutional EAA activities.

National Service Scheme (NSS) is the largest of institutional EAA activities at IIT Kharagpur. It is administered according to the guidelines of the Ministry of Youth Affairs and Sports, Government of India and endeavors to add an extra dimension to the higher education by motivating youth towards community service. It requires three hours of community service work to be performed by each student every week over the entire academic session. Participating students are only entitled to their usual privileges at IIT Kharagpur if their performance in the program is satisfactory.

At present NSS team of IIT Kharagpur includes about 500 students every year (a five-year total of about 2500 students), drawn mainly from the 1st and 2nd year of the undergraduate program; 16 Program Officers, a Program Coordinator, drawn from faculty members of the institute; and a part time accountant. The current yearly expenditure of the program stands at about Rupees four lakh ten thousand, of which Rupees three lakh seventy thousand is the grant-in-aid sanctioned by the Central and State government. Currently, the team is organized into 15 units, each comprising of between 60 and 70 students that cover 20 villages or slums around Kharagpur.

2. ACTIVITIES

NSS – IIT Kharagpur work on a range of social issues including teaching, organization of blood donation camp, environmental awareness campaign, water quality and treatment of water. Its regular and special activities are summarized in the following subsections.

2.1 Regular Activities

Each unit identifies activities in adopted villages or slums based on their survey at the beginning of each academic section in consultation with local government representatives (e.g., Panchayat Memebers, and Municipal Councillors), community workers and leaders (e.g., School Teachers,

Rural Medical Practitioners, and Anganwadis) and government officials (e.g., SDO, BDO, and forestry officials). Main activities undertaken by the units during their weekly involvement are teaching, computer training, helping the villagers in many of their activities etc. A number of pictures documenting a few of these activities are also presented.

Meetingwithvillagersonworkplan,awell-boundarywork(panchayetmemberinthemiddle)

Teachinginvillage,SDOawardingscholarship,transferofscholarshipfundedbyIITstudents

Treeplantationinvolvingchildren,medicalcampinvillages,exposureinanganwadicentres

2.2 Special Activities

Special activities include NSS Annual Camp, celebrations of the Independence Day and NSS Day, and participation in government initiatives, e.g., collection of donations for riot victims to mark the Rashtriya Sadbhavna Diwas and online filing for SC/ST certificates for the residents of the villages adopted by NSS – IIT Kharagpur. Some relevant pictures are shown here.



CelebrationofIndependenceDay,RepublicDay,150th birthanniversaryofVivekananda



ScheduledTribe(ST)certificatecampatvillages,awardofcertificateinafunctionatIITKGPbyMs.AmitaSharma,AdditionalSecretary,MHRD;Prof.U.B.Desai,Director,IITHtoherright.



BuildingMurramroadinvillagesduringNSSAnnualCamp–laying,levelingandonestretch



Rotimakingatlunchtime,clothdistribution,skitperformanceonsocialissueinannualcamp

3. OTHER EAA ACTIVITIES

The emphasis of IIT Kharagpur in providing important life building and personality development skills is unique as it makes all 1st and 2nd year UG students participate in at least one of the four formal Extra Academic Activities. While NSS grooms 1000 students as mentioned before, there are three other EAA programs to cater to students.

(i) NCC gives training to about 400 students and in recent times our NCC students are getting Governor's Medal almost every year for their brilliance.

(ii) Health and Fitness program trains about 900 students who conduct physical training in a group twice a week at sunrise. This is a kind of unique in the country for students of an academic institutions and these students also conduct various awareness campaign on physical and mental wellness through rally, poster, videos, newsletter etc.

(iii) Gymkhana trains about 150 students from whom we have Basketball Gold winner in recent inter-IIT event or hockey team player playing in Beighton Cup.

Thirteen faculty members of the institute take help of trained professionals in conduct of these programs. Here are few pictures on these activities.


Post Beighton, IIT team eyes league debut

NCCAirWingaero-modeling,NCCEME'C'certificateaward,NewsreportonGymkhanateam


Anamaya

Earlymorningfieldexercise,Anti-addictionrally,NewsletterofHealthandFitnessteam

ANNEXURE - XI

IIT KHARAGPUR STUDENT ACHIEVEMENTS

Achievements in the Technical Domain:

- The prestigious Schlumberger Foundation Faculty for the Future scholarship for the year 2014 has been awarded to Ms. Shahab Fatima of the Reliability Engineering Centre. Schlumberger has granted US $6.3 Million to 168 women scientists through its Faculty for the Future program for the 2014-2015 academic year.

- The Global Business Challenge (GBC) 2014 hosted by CIMA, world's leading management accounting body, completed its India finals in Mumbai on April 13, 2014. Team God Particles of IIT Kharagpur, comprising of four students – Vaibhav Bhargava, Naman Agrawal, Pranav Gargieya and Raunak Mukherjee, emerged as the winner. Vaibhav Bhargava was declared the Best Speaker.

- A team from IIT Kharagpur, was selected to represent India at the global level of the Hult Prize competition. It secured third position in its regional finals held at Sao Paulo on 8th March 2014. The team members were: Vivek Kumar, Shobhit Gupta and Soumyadeep Majumdar.

- Other noteworthy participation of IIT Kharagpur at Hult Prize competition includes:

    - Saif Khan, Khalid Abdullah, Imbesat Ahmad and Abhisek Dutta- represented IIT Kharagpur at Dubai
    - Abhishek Chandwani, Risha Kaushal, Ravikiran Maddali, Riva Verma and Praneel Jain- represented IIT Kharagpur at San Fransisco
    - Abhinav J Jain, Rishabh Kataruka, Karan Gujral, Chirag Garg and Vikas Dubey- represented IIT Kharagpur at London

- The formula style prototype race car, designed, manufactured and tested by the undergraduate student team- Team KART, at the Formula Student 2013, UK (conducted annually by Institution of Mechanical Engineers) cleared all the six scrutinizing inspections namely Tech, Safety, Chassis, Noise, Brake and Tilt, as per the rules and norms governed by the MSA (Motor Sport Association) and SAE (Society of Automotive Engineers). Out of the six Indian teams, Team KART was one among the two teams to qualify for the dynamic events.

- Three teams from IIT Kharagpur are named toppers at the American Express event Analyze This 2013 (a Pan IIT Data Analytics Competition Team) out of 700 participants. The top slot went to Team Crackers and Crunchers who successfully derived data to analyzing cricketing performance of a player in a single match with the help of artificial neural networks. The 2nd positioned Team Amex Analyzers used intuitiveness of linear regression and innovative player performance index which included use of concepts like individual performance,

consistency and value to team. The 3rd position was secured by Team Teen Munim whose work was based on Rank Boost Algorithm.

- A three-member team from IIT-KGP has emerged as the winner of the Kolkata round of the Sweden India Nobel Memorial Quiz 2013. They have qualified for the grand finale scheduled in New Delhi. Other quizzing achievements include:

    - Ranked fourth at Nihilanth - the Inter IIT- IIM Quiz Festival
    - Gold in India Quiz (Team: Kanisk Samota, Yogarshi Vyas and Arijit Patra)
    - Silver in Sports Quiz (Team: Yogarshi Vyas, Ajay Viswanathan and Mhilesh Gurujala)
    - Silver in Mela Quiz (Team: Yogarshi Vyas, Ajay Viswanathan and Somashish Ghosh)
    - 1st round at NDTV Croma Tech Grandmasters (Team: Yogarshi Vyas and Anirudh Deb)
    - Cleared zonal round at TATA Crucible- The Business Quiz (Team: Yogarshi Vyas and Saswat Panigahi)

- Team AGV, in the Intelligent Ground Vehicle Competition held at the Oakland University, Michigan, USA during June 7th–10th, 2013, successfully completed the pre-finals at world-wide 5th place and finished the finals at world wide 9th place. It was the first Indian team to complete the Basic course and reach the Advanced course.

- A team from IIT-KGP won the Intel India Embedded Challenge for their 'Autonomous underwater vehicle for coastal monitoring applications'. The team comprised of SiddarthaKhastgir and Anubha V. Sahoo. Winners have the opportunity to participate in 'The Next Big Idea', a technology entrepreneurship contest run by the Department of Science and Technology and the Indian Institute of Management, in conjunction with Intel India.

- BetaGlide, a start-up run by two student-entrepreneurs from IIT Kharagpur and mentored by TiE - The Indus Entrepreneurs, won the Mercury Fund Investment Prize. The team received several financial commitments totalling over $1million at the Rice Business Plan Competition (RPBC), the world's richest and most competitive student business plan competition in Houston in April 2014. BetaGlide was founded by two final year KGPians Amritanshu Anand and Anshul Singhle from departments of Geology & Geophysics and Computer Science & Engineering respectively.

- Bharat Reddy Kunduru, Arun Kumar Kota and Bhargava Gorthy, MBA students of Vinod Gupta School of Management won the first prize in finance flagship event 'Prometheus' of Ensemble 13 - Annual international management conclave of XLRI, Jamshedpur.

- Divij Sharma of Vinod Gupta School of Management won the first prize in TCS Smart Manager Case Study Contest conducted by Tata Consultancy Services across B-schools in India & abroad. Along with a cash prize, the article will feature in The Smart Manager magazine which has an estimated readership of over 300,000.

- Chandan Karfa of CSE and Pijus Kundu of ATDC were selected for Innovative Student Projects Award 2013. They received the award at the Award Ceremony held during the Academy Annual Convention on December 13, 2013 at Basuri Guru Auditorium, ITER, Siksha O Anusandhan University, Bhubaneswar.

- Rutwik Kishan Rao, Vighnesh Kamat and Vibhunanda Mishra from RGSOIPL have secured the Runner-up position in the prestigious Oxford University India Moot Court Competition (2013-14) organized by Oxford, Delhi, between March 14 & 16, 2014. The team also won the Best Memorial award.

Kshitij- the Annual Techno- Management Fest of IIT Kharagpur

Conducted under the patronage of **UNESCO**, Kshitij is the Asia's largest techno- management fest in terms of the participation and the prize money offered to the students. It also boasts of numerous associations with world renowned institutions like **IMechE, IEEE, ACM, ASME** and many others. Kshitij 2014 saw numerous dignitaries visiting the institute including the likes of **Dougal Jerram** (British geologist and Earth Scientist), **Nawazuddin Siddiqui** (critically acclaimed actor), **Shazia Ilmi** (public activist and ex- anchor at Star News), **Amitabha Ghosh** (Chairman- Mars Rover Mission NASA) and **Roel Verteggal** (Pionees in human Computer Interaction).

Other extra academic achievements include:

- Ph.D student of School of Medical Science & Technology, Dr. Bikas Arya has been selected for this year's Fulbright Scholarship. He will spend a year at the International Vaccine Access Center of the Johns Hopkins Bloomberg School of Public Health.

- Mr. Sourav Kumar Bagchi, a Research Student under the guidance of Prof. N. Mallick and Dr. P. S. Rao (AgFE), has been awarded Best Poster Award by the National Conference on "Frontiers in Algology and Algal Biotechnology" (NCFAAB), Viswa-Bharati, Santiniketan, West Bengal.

- Ms. Anuja Das, an M.Tech. 2nd year student of the Department working with Prof. Rabibrata Mukherjee, has been selected for the Late Lakshmi Nandakumar Award of IIChE for best paper presentation entitled "Dewetting of Polymners" in SCHEMCON-2013 by a Lady Student.

- Ms. Nitika Gupta a Research Scholar of Department of Ocean Engineering & Naval Architecture, was awarded the Young Scientist Award for the best Technical Presentation on the paper titled "Impact of Climate Change on the Inter-annual Seasonal Variability of Ocean Wave Climate in the Indian Ocean" at the National Seminar of Climate Change & Biodiversity organized by the Central University of Odisha, Koraput during 23-24 November, 2013

- Ms. Nagalaxmi Jandhyala, 2nd year M.Tech student and Mr. Manab Mallik, Research Scholar of Department of Metallurgical and Materials Engineering have been awarded the First and Second prize respectively for oral presentation in the 67th Annual Technical Meeting of the Indian Institute of Metals.

- Mr. Partha Laskar, research scholar in the Chemistry Department, received best poster award at the 5th Asian Conference on Colloid and Interface Science (ACCIS, 20-23rd Nov, 2013) organized by Asian Society for Colloid and Surface Science at North Bengal University. The certificate was awarded by American Chemical Society.

Achievements in the Sports Domain:

1) Long time standing **Inter IIT Hammer Throw Record** broken by Rahul Koshal. Daljit Singh with a throw of 35.96m was the holder of Inter IIT record from 1973 until Rahul Koshal broke it by a throw of 38.40m in the Inter IIT Sports meet at IIT Guwahati 2013.

2) Anupam, Shreyas Mahajan, Chirag Fialoke and Darshan Varier made an **INTER IIT RECORD in 4x100 medley relay** made in INTER IIT 2011 at IIT kharagpur.

3)Shrriesh Balasubramanian has won the doubles title and was runner up in the **All India Tennis Association Talent Series**. Shrinesh has all secured 9th position in the **ASIAN juniors Tennis Tournament.**

4) Abhishek Malhotra represented Jharkand In the **35th National games** held at Kerala. Also got selected for the **4th Junior Open Squash National Championship.**

5) During the fitness test of the squash players of **Sri Lanka, Pakistan, Malaysia, Korea, Macau, Singapore, China and India**, Abhishek Malhotra from India survived till the 12th around and won the race conducted by **Indian Squash Academy.**

6) Chirag Fialoke broke the **Under 19 National Record in both 200m butterfly and 1500m freestyle**. Also he was the individual champion in the **CBSE swimming Nationals.** Chirag also won the **Inter IIT Individual Championship** by winning 5 gold medals in 5 individual events In Inter IIT Sports Meet 2011 at IIT Kharagpur.

7) Darshan Varier won the I**ndividual Championship** by winning 5 gold medals in 5 individual events in Inter IIT Sports Meet 2012 at IIT Roorkee.

8**)** IIT-Kharagpur Men Basket Ball Team emerged as Champions in the **BFI IMG-Reliance Inter College Championship.** It is the first time, a sports team from IIT Kharagpur has become State Champions and now, they head for 'National Championship'. This news has been featured in major TV Channels and some newspapers.

9) Anirudh Raju represented Himachal Pradesh in U-16 **State level Cricket tournament**.

10)Football- 4 Players - Ravish kumar , Shraddhesh, Bharat Bhati , Shailesh Mohan played against **EAST BENGAL** this year for KGP XI.

11)Ashwin Kumar won the silver medal in the **Chhattisgarh Badminton OPEN State tournament.**

12) Chandan Karwat was selected for the trial camp of under 16 Central Zone Cricket conducted by BCCI(Board of Control for Cricket in India) and further got selected for the coaching in the National Cricket Academy of India.

13) IIT-Kharagpur Women Basket Ball Team won the Bronze medal in the BFI IMG-Reliance Inter College Championship.

14)Mallika Saharia has won the Inter IIT women Lawn tennis title from consecutive 3 years (2011, 2012 , 2013) .

Achievements in the Social and Cultural Domain:

Spring Fest- the annual social cultural fest of IIT Kharagpur

Celebrating its 55th edition this year, Spring Fest 2014 was special in more than one way. With a novel theme of The Great Indian Carnival, and a catchy tagline 'Dil Se Desi", Spring Fest 2014 was expected to be an acme of celebration and joy, which it indeed was. The dazzling performances by **Agnee, Swarathma**, the unique style of music of **Underground Authority**, the sheer brilliance of the Salim- Sulaiman and the energetic performance of **Pentagram** duo won hearts of the humongous crowd that had arrived to Kharagpur to witness and take part in Spring Fest 2014. We also saw Spring Fest conducting the IIT Kharagpur Model United Nations, which has been gradually gaining an elite position in the MUNning circuit in India. Along with taking **Shuffle, the street dance competition**, being taken nationwide along with **Nukkad, the street play competition**, this edition also saw Spring Fest going global with the advent of the new "**International Carnival**" featuring celebrated performers from various countries like **Chris Cheong , a magician and mentalist** from **Malaysia**, **Jack Glatzer, a violinist from Portugal**, **Benny Prasad, a well travelled musician**, **Murray Molloy, a sword swallower from Ireland**, A**lmost Trio, a juggling duo from Hungary** and **Jonathan Kay, an Indo-Jazz saxophonist from Canada**.

- Phenomenal success of **The Viral Fever- India's first online youth entertainment network**. Formed by KGPians Arunabh Kumar, Biswapati Sarkar and Jitendra Kumar; TVF releases trending videos very frequently over YouTube which is followed closely by the youth of the nation.

- **Monkey Cap- IIT Kharagpur's rock band** was the finalist at Channel V India Fest, and finished in the top 7 out of over 2000 bands spread across the country. It has also played on the Red Bull Tour Bus; an international initiative by Red Bull to showcase the top bands of the country. **Aritra Basu**, one of the lead members of the band, was recently admitted into the **Berklee College of Music**, considered world's premier learning lab for the music of today.

ANNEXURE - XII

Terms of Reference for Review of IITs (2008-2009 to 2012-2013)

I. GENERAL CONSIDERATIONS

A. Progress in relation to previous projections

- Progress in relation to IIT's Charter
- Progress in relation to Institute's existing Vision and Mission statements

A. Plans for the Future

- ♦ Projections made
- ♦ Strategies formulated

B. Measures adopted towards A and B above

II. SPECIFIC INDICATORS

1. CURRICULUM AND COURSE OFFERED

i.Range of Degrees and Disciplines
ii. Consistency of Curricula with Academic Vision
iii. Vision for Curricula and Academic Offerings 5-10 Years in the Future
iv. Quality of Programmes (Under-Graduates/Post-Graduates)
a. Relevance to Recruiters (Industries/Academic Institutions/R&D Labs)
b. Periodicity of Curriculum Review at Both UG and PG Level
c. Mechanism for Programmes Review at the UG and PG Level
d. Course Work Mandated for Masters Students and the Average Courses Done Per Masters Student
e. Course Work Mandated for PhD Students and the Average Courses Done Per PhD Student
f. Students Placements in Last Five Years

2. TEACHING ENVIRONMENT

a. Teachers Adequacy: (eg. Teacher-Student Ratio for Each Academic Department)
b. Average Number of Tutors in Courses with more than 100 Students
c. Quality of Engagement of Teachers with Students (Average Students Feedback on Courses, Curricula and Pedagogy) based on last five years data.
d. Number of Students who were Motivated to opt for careers in Engineering/Science/Technology Sectors. Based on Available Data, for at

least five years.)

e. Adequacy of Infrastructure Teaching Labs and Equipments, for example by Assessing Average Number of Students per Experiment in Core Courses.

f. Adequacy of Laboratory Assistance

g. Modernization of Libraries: Extent of Electronic Accessibility to Library Resources

h. Availability of Students' workshops/"Tinkering" Labs to students so that they may pursue their own ideas.

i. Feedback from Employers in Science/Engineering sectors. The Placement office should be mandated to obtain annual feedback from employers (Industries/R&D Labs/Academic Institutions) about the quality and performance of the Institute's students in key parameters

j. International Assessments Reports of Departments, Centers, Schools. These Reports should have been discussed at length in the Institutes' Senate.

3. RESEARCH AND DEVELOPMENT

a.Range of Research Activities: (1) Volume, (ii) Breadth

b. Publications per Faculty/Masters/PhD Students

c. Publications per Faculty/Masters/PhD Students in a list of top 10 journals in broad research fields as identified by the Institution's departments/centers/schools. This list of journals should be whetted appropriately by an independent group of peers/experts and updated periodically every 5 years or more years.

d. Average Number of Citation per Department/Center/School

e. Number of papers with citations that are more than the average number of citations of the journals in which they are published.

f. Other major research contributions: Technology Developed, Technology Transferred, Patents Filed, Patents Obtained, Copyright Filed, Copyright Obtained.

g. Recognitions & Awards (National and International) to Faculty/Research Staff/Post-Graduate Students

4. R&D ENVIRONMENT

a. Average time that it takes a new faculty to set up lab

b. Retention of young faculty: what percentage of young faculty remains with Institute for at least ten years? Base on data of previous decade.

c. Consultancy and project money from non-internal source

d. Research grants / seed money from internal savings of the Institute to young faculty/post–doctoral fellows/post-graduate students in last five years

e. Collaborations internally and with other institutes: number of papers/projects/PhD students with collaborating authors/mentors.

f. Adequacy of Research Infrastructure, Labs and Equipments

g. Adequacy (number and competence) of research and technical assistants/officers/engineers

h. Number of large interdisciplinary research projects

i. Work space for PhD scholars, i.e. do they get their own desk/computers?

j. Number of international conference/workshops attended by a PhD students (for exposure/presentation)

k. Number of papers with PhD student as first author.

l. How many M.Tech. students were motivated into pursuing PhDs. How many joined PhD programmes at own/sister institutes? Base on available data, for at least last five years.

m. Number of PhD graduates who pursued a career in academics, (abroad or IIT/IISC/TIFR/CSIR/BARC/R&D Labs etc.). Base on available data, for at least last five years.

n. Number of post-doctoral scholars hired in the Institute.

o. Number of international Students as PhDs/Post-doctoral.

p. Visiting researcher programmes: strength/extent of engagement measured e.g. by

i. Number of international visiting researchers who stay for at least a week.

ii. Number of courses/workshops with international participation.

q. Internal assessment reports of departments, centers and schools. These reports should have been discussed at length in institute's senate.

5. EXTERNAL STAKEHOLDER ENGAGEMENT

A. Industry collaboration

a. Number of PhD/Masters Theses directly linked to/funded by industrial projects.

b. Total Income from Industries Sponsored Projects in last five years

c. Technology Transfer/Adopted by Labs, Industries in last five years

d. IPR and Patents in last five years. Please report patents obtained/filed separately

e. Curriculum Development Initiative for Industries

B. Contribution to National Development Goals/Priorities

a.Number of nationally relevant research projects, e.g. in sectors of defense, medicines, environment, energy, health, infrastructure, etc. in last five years

b. Engagement/help/leadership provided to other technical institutes/labs in areas of teaching and research, e.g. via program such as TEQIP, or availability of specialized laboratories etc. in last five years

c. Policy Inputs/Consultancies in last five years

C. Social Responsibility

a. Community relevant projects, social outreach in last five years

b. Sensitiveness to on-campus labour/environment/energy/water/land etc. issues

c. Environment/energy/land/employment impact on local communities

D. Alumni Engagement

a.Contribution from Alumni in last five years

b. Engagement with Alumni (Academic/Publicity/Policy/Growth)

6. VISION FOR THE FUTURE

Institute and its departments/centers/schools should spell out its strategies vision for next decade.

7. GOVERNANCE AND FINANCIAL RESOURCES

I. Management

a. Adequacy of Administrative support/systems in relation to the level of activities envisaged?
b. Responsiveness of the system to faculty, students needs
c. Periodic feedback/evaluation of administration from institute's stakeholders (faculty/ research staff / students etc.) Should include parameters gauging sensitivitiy/efficiency and pro-activity/transparency

II. Financial Resource Management

a. Fund Mobilization (besides MHRD)
    i. Internal revenue generation as percentage of Non-Plan Expenditure
    ii. Corpus Fund
b. Cost Efficiency
    i. Cost per student
    ii. Fee per student per annum/Non-Plan Expenditure per student
    iii. Total fee paid by Students (discounted)/per annum average salary

III Transparency

Mechanism of transparency in place by the Institute as also steps that have been taken for internal quality assurance
a. Transparent decision making process
b. Academic Issues, research grants, systems for recognition/awards etc.
c. Procurement Processes
d. Infrastructure development, right from requirement to planning execution
e. Proactive disclosure on all critical issues.
f. Placing information in public domain: website

IV Infrastructure: Is the support infrastructure (IT, Hostels, faculty/Staff housing, sports facilities) adequate? And how sensitive and eco-friendly it is to the campus and surrounding environment (land/water/energy/greenery)

8. STAKEHOLDERS SURVEY

a. Internal Stakeholders
    i. Students
    ii. Faculty
    iii. Non-Faculty

b. External Stakeholders
    i. Industry
    ii. Alumni
    iii Community Leadership
    iv. Government/Parliament

9. DIVERSITY

i. What is the current status of diversity (gender/international) on campus?
ii. Does the Institute have programmes to promote diversity among students, staff and faculty?
iii. Does the Institute have adequate mechanism to deal with issues related with discrimination and harassment? Reports of such cases and action taken should be made available.

INSTITUTIONAL GRID FOR ASSESSMENT

	Academics & Pedagogy	Governance & Finance	Stakeholder Engagement	
			Internal	External
Infrastructure/Resources	**I**	**IV**	**VII**	**X**
Processes	**II**	**V**	**VIII**	**XI**
Outcomes	**III**	**VI**	**IX**	**XII**

I. INFRASTRUCTURE/RESOURCES – ACADEMIC & PEDAGOGY, R & D

A. Academic & Pedagogy

a. Class Rooms per Student/Average Number of Students
b. Range of Degrees and Disciplines with student numbers each of them
c. Student Faculty Ratio/Total Number of Teachers
d. Number of Technical/Laboratory Assistants per student
e. Average size of group per project/lab work
f. Number of E-Classrooms
g. Library-Number of books, journals, magazines; Modernization of Library; Extent of Electronic accessibility to Library Resources
h. Availability of Students' workshops/"Tinkering" Labs to students so that they may pursue their own ideas

B. For Research & Development

a. Workspace, computers for PhD scholars
b. Library Resource for PhD Students
c. Research Grants /Seed Money from Internal Savings of the Institute to Young Faculty and PG students in last five years
d. Number of Post Doctoral scholars Hired in the Institute in last five years
e. Number of international Students as PhDs/Post-doctoral in last five years

II. PROCESSES – ACADEMICS & PEDAGOGY, R&D

A. Academic & Pedagogy

a. Average Number of Theory Credits/Courses per Semester
b. Average Number of Lab Credits/Courses per Semester
c. Average Number of Minor/Major Projects per Semester
d. Average Number of Presentations by students per Semester
e. Average Number of assessments (tests/quizzes/examinations) per Semester
f. Average Number of Lectures by Industry Persons per Semester
g. Average Number of HSS Courses per Semester
h. Periodicity of curriculum review/mechanism for program review at the UG and PG levels

i. Regular Students feedback on courses, curricula and pedagogy based on last five year data
j. Average time between conduct of examination and announcement of results
k. Number of Distance Education Courses, Par-time courses, specially designed short-term courses in identified areas for industry personnel

B. For Research & development

a. Course Work Mandated for PhD Students and Average Course Done per PhD Students
b. Number of international conference/workshops attended by PhD students (for exposure/presentation) in last five years
c. Collaborations internally and with other institutes: number of papers/projects/PhD students with collaborating authors/mentors in last five years
d. No. of PhDs with 2nd Guide from industry/other premier institution in last 5 years
e. Average hours of student-Guide engagement per week
f. Visiting researcher programs: Strength/Extent of Engagement measured e.g. by
    i) Number of international visiting researchers who stay for at least a week
    ii) Number of Courses/Workshops with International Participation

III. OUTCOMES – ACADEMIC & PEDAGOGY, R&D

A. Academic & Pedagogy

a. Industry Perception of Student's employability/performance (through surveys)
b. Number of Students who were Motivated to opt for careers in Engineering/Science/ Technology Sectors (based on Available Data for at least last five years)
c. How many M.Tech. Students were motivated into PhDs in last five years
d. Student Placements
    a) Number of National and Multinational companies came in campus for placement
    b) Number of Student as ratio of total students placed through campus placement
    c) Average Salary (as per Survey)

B. Research & Development

a. Range of Research Activities: (1) Volume, (ii) Breadth
b. Publications per Faculty/Masters/PhD Students in last five years
c. Publications per Faculty/Masters/PhD Students in a list of top 10 journals in broad research fields as identified by the Institution
d. Number of PhD graduates who pursued a career in academics, (abroad or IIT/IISC/TIFR/CSIR/BARC/R&D Labs etc.) based on available data, for at least last five years
e. Average Number of Citation per Department/Centre/School
f. PhD Placements in last five years
g. Other major research contributions: Technology Developed, Technology Transferred, Patents Filed, Patents Obtained, Copyright Filed, Copyright Obtained in last five years
h. Recognitions & Awards (National and International) to Faculty/Research Staff/Post-Graduate Students in last five years
i. Average time that it takes a new faculty to set up laboratory
j. Retention of young faculty: what percentage of young faculty remains with Institute for at least ten years?

IV. INFRASTRUCTURE/RESOURCES – GOVERNANCE & MANAGEMENT

a. Non-Faculty/administrative/Technical Staff students Ratio
b. Staff shortage in various areas
c. Workspace for non-faculty staff
d. Number of administrative staff per computer
e. Range of services offered
f. ERP System/Software
g. Systems for RTI

V. Processes – Governance & Management

a.Outsourcing of non-core processes in last five years
b. Automation of processes with view to increase efficiency of delivery in last five years
c. Procurement Norms (E-tendering/procurements)
d. Number of Finance Committee and BOG meeting held in last five years
e. Average attendance in Finance Committee and BOG meetings
f. Number of RTI addresses at PIO/Appellate/CIC level in last five years
g. Marketing, Brand Communication and Promotion through mass-media & social media in last five years
h. Feedback from stakeholders on governance and management

VI. Outcomes – Governance & Management

a. Number of non-core activities outsourced in last five years
b. Number of processes automated on ERP
c. Average time taken to provide information under RTI
d. Website hits, average time spent; feedback on website from stakeholders
e. Results of the internal/external stakeholders survey

VII. INFRASTRUCTURE/RESOURCES – INTERNAL STAKEHOLDERS (FACULTY, NON-FACULTY, STUDENTS, FAMILIES)

a. Infrastructure related to hostels, sports facilities, wellness centre, campus, cultural events and personality development

VIII. PROCESSES – INTERNAL STAKEHOLDERS (FACULTY, NON-FACULTY, STUDENTS, FAMILIES)

a. Number of sports events, cultural events [intra/inter-IITs] in last five years
b. Number of informal interaction between Warden and Students in last five years
c. Number of personality development workshops in last five years
d. Number of lectures from eminent people (academicians, industries etc.) on issued related to general understanding of public life, career management etc. in last five years

IX. OUTCOMES – INTERNAL STAKEHOLDERS (FACULTY, NON-FACULTY, STUDENTS, FAMILIES)

a. Outcomes of the internal stakeholder's survey (comprehensive and includes issues related to academics, administration, overall development of the student, hostel/social amenities/campus infrastructure and life in campus

X. INFRASTRUCTURE/RESOURCES – EXTERNAL STAKEHOLDERS (INDUSTRY, ALUMNI, COMMUNITY, GOVERNMENT/PARLIAMENT

a. Industry – ResearchPark, State-of-art Lab Equipment, Industry Cell
b. Alumni – access to library, sports and other institute infrastructure
c. Community - Green Office, student engagement, Community relevant technology
d. Government/Parliament – Annual Reports, Audit Reports, Budgetary Allocation

XI. PROCESSES – EXTERNAL STAKEHOLDERS (INDUSTRY, ALUMNI, COMMUNITY, GOVERNMENT/ PARLIAMENT)

Industry – industry-academia workshops, number of lectures by industry, industry visits by students, number of PhD by industry personnel, Number of faculty working with industry, placement process
Alumni – career management, Road Shows, Cultural Shows
Community – Courses/projects by students on community relevant issues NSS work, Leadership/inputs to other technical colleges for up-gradation of academics and pedagogy through training and other workshops, Numbers of city / state / country relevant project taken up by faculty/PhD students
Government/Parliament – Annual Development Plan, Internal Consultation for Budgetary Allocation, Pro-active disclosure through RTI/website
- Survey of each group of External Stakeholders

XII. OUTCOMES – EXTERNAL STAKEHOLDERS (INDUSTRY, ALUMNI, COMMUNITY, GOVERNMENT / PARLIAMENT)

- Number of Industry Sponsored Projects and revenues from them
- Industry perception of employability/performance for students from institute
- Contribution from Alumni
- Outcomes of community relevant issues
- Delays in submission of Annual Reports/Audit Reports
- Outcome of Survey of External Stakeholders