

IP-Unilink



**R&D Cooperation
and**

**IP Management in HEIs in India
OCTOBER, 2010**



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The Education Sector in India

The Institution



Name	Indian Institute of Technology Roorkee
Logo	The official logo of the Indian Institute of Technology Roorkee, which is a circular emblem with a gear-like outer border and a sunburst-like inner design. The text "INDIAN INSTITUTE OF TECHNOLOGY ROORKEE" is inscribed around the perimeter.
Location	Roorkee-247 667, UTTARAKHAND, INDIA
<u>Number of</u>	(2008-2009) Updated
• Students (graduate)	2554
• Students (post-graduate)	1436
* Academic & Research staff	1179
* Administrative staff	1078

Contd....



History & Background



History spanning more than 150 years

- *Roorkee College* established in 1847
- Rechristened as *Thomason College of Civil Engineering* in 1854 after its mentor James Thomason.
- The college was elevated to the status of *University of Roorkee* as the first Engineering University of independent India on November 25, 1949.
- *Indian Institute of Technology Roorkee* on the 21st September 2001

Financial Support

Government funded (MHRD). Other sources of funds include student fees and research funding from industry and contributions from the alumni.

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Main academic Areas	Architecture and Planning, Biotechnology, Chemical Engineering, Chemistry, Civil Engineering, Electrical Engineering, Electronics & Computer Engineering, Mathematics, Mechanical and Industrial Engineering, Metallurgical and Material Engineering, Paper Technology, Physics
Main research Areas	<u>Centre of Excellence</u> Transportation System, Nano-Technology, Disaster Mitigation and Management
Main International Cooperation Partner Countries	United Kingdom, Sweden, Norway, Netherlands, Ireland, Germany, France, Finland, Denmark Austria, Brazil, China, South Africa, Malaysia, Japan , Nepal, Bangladesh, Pakistan, Iraq, Iran, Israel, Russia, Indonesia

Policy Making & Administration for HEI



The Ministry of Human Resource Development:- It is the ministry of Government of India responsible for the development of human resources and for major policies relating to higher education in the country.

Departments under this ministry are:

- *Department of School Education and Literacy*
- *Department of Higher Education*
- Laying down of **National Policy on Education**, and overseeing its implementation
- Planned development (including expansion of access and qualitative improvement) of:
 - ✦ **University & Higher Education**
 - ✦ **Technical Education**
- **Scholarships** to deserving students
- **Promotion of Books** and administration of **Copyrights Act**
- **International Cooperation** in the field of Education, including with **UNESCO**



Ministry of Health & Family Welfare :

Aims to :

- promote **medical education** across the country through the Medical Council of India
- undertake **architectural correction** of the Health System to enable it to effectively handle the increased allocation for Public Health.
- bridge **gaps in rural healthcare** through increased community ownership, decentralization of the programmes to the district level, inter-sectoral convergence and improved primary health care.
- achieve the **goal of the National Population Policy and the National Health Policy** through improved access to affordable, accountable and reliable Primary Health Services.

Ministries/Departments responsible for R&D



- Ministry of Agriculture
 - Department of Agricultural Research and Education
 - Department of Animal Husbandry and Dairying
- Ministry of Chemicals and Fertilizers
 - Department of Chemicals and Petrochemicals
 - Department of Fertilizers
 - Department of Pharmaceuticals
- Ministry of Communications and Information Technology
 - Department of Information Technology (DIT)
 - Department of Telecommunications (DOT)
- Ministry of Defence
 - Department of Defence Research & Development
- Ministry of Earth Sciences
 - India Meteorological Department (IMD)
- Ministry of Environment and Forests
- Ministry of Finance
 - Department of Economic Affairs
- Ministry of Food Processing Industries
- Ministry of Health and Family Welfare
 - Department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH)
 - Department of Health Research
- Ministry of Human Resource Development
 - Department of Higher Education.
 - Department of School Education and Literacy
- Ministry of Law and Justice
- Ministry of Micro, Small and Medium Enterprises



- Ministry of Mines
 - Ministry of New and Renewable Energy
 - Ministry of Petroleum and Natural Gas
 - Ministry of Power
 - Ministry of Railways
 - Ministry of Road Transport and Highways
 - Department of Road Transport and Highways
 - Ministry of Rural Development
 - Department of Rural Development (DRD)
 - Ministry of Science and Technology
 - Department of Biotechnology, Government of India
 - Department of Science and Technology (DST)
 - Department of Scientific and Industrial Research (DSIR)
 - Ministry of Statistics and Programme Implementation
 - Ministry of Steel
 - Ministry of Textiles
 - Ministry of Urban Development
 - Ministry of Water Resources
- Independent departments:***
- Department of Atomic Energy
 - Department of Space

The Indian Education System



Number of HEIs in India :

India's higher education system is the third largest in the world, after China and the United States

Universities

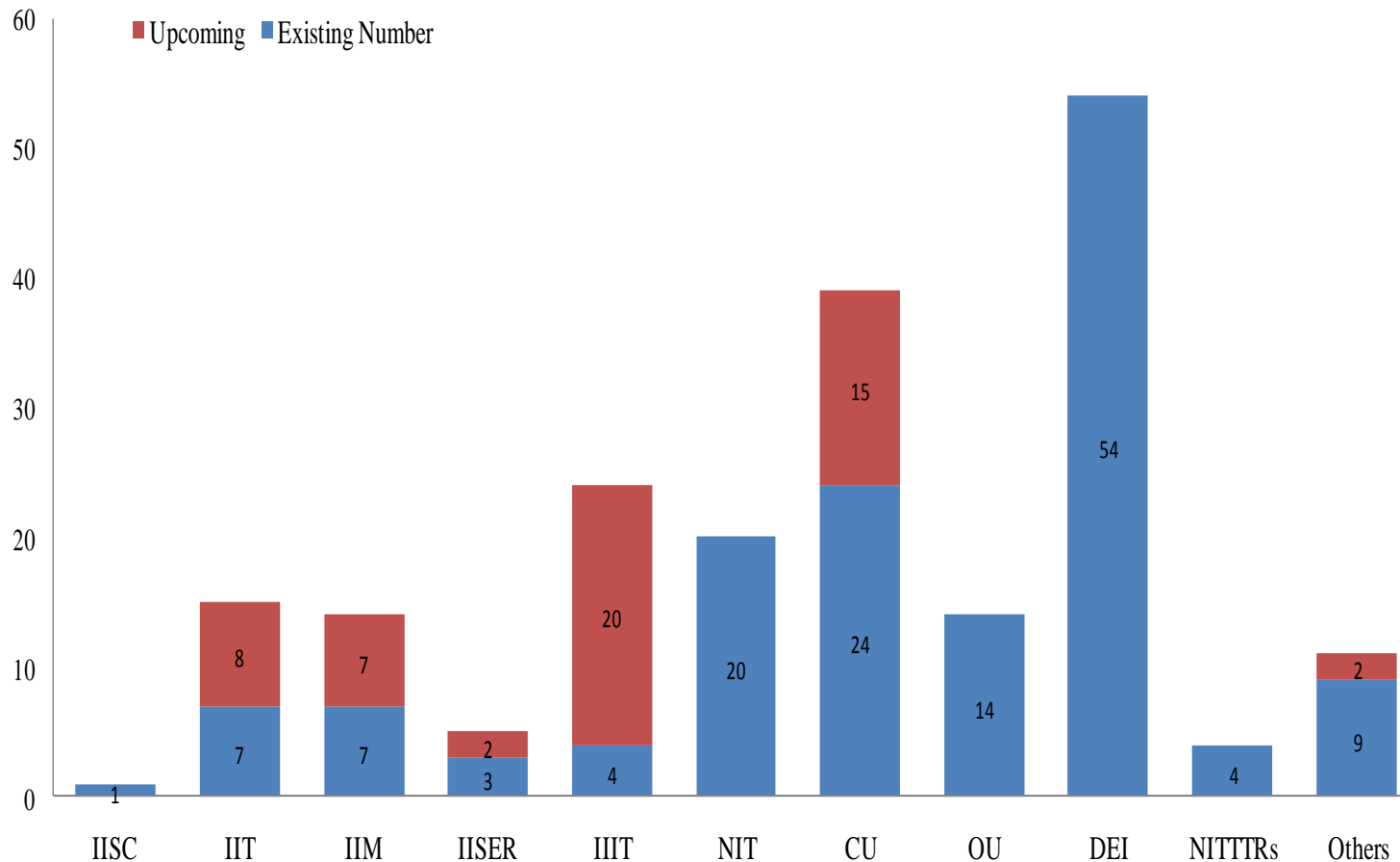
Type of University	Number
Central	39
State	251
Open	19
Deemed	130
Private	69
Universities to be re-examined	44

- In addition, there are 20,677 Colleges including 2,166 Women Colleges.
- The emphasis in the tertiary level of education lies on science and technology. Indian educational institutions consist of a large number of technology institutes.
- Distance learning is also a feature of the Indian higher education system.

Expanding the Existing Education Sector



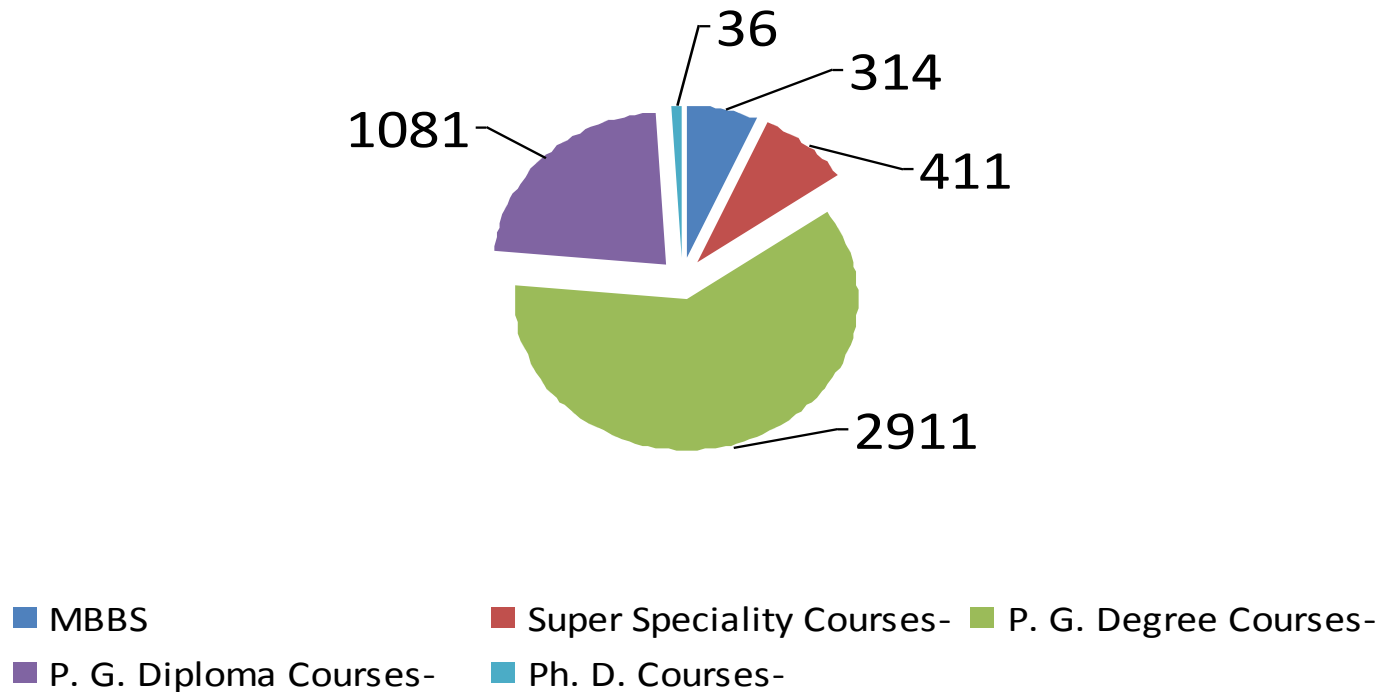
Higher Education Institutes in India



- IISC- Indian Institute of Sciences
- IIT-Indian Institute of Technology
- IIM-India Institute of Management
- IISER-Indian Institute of Science & Education Research
- IIIT-Indian Institute of Information Technology
- NIT- National Institute of Technology
- Central Universities
- Open Universities
- Distances Education Institutes
- NITTTRs- National Institute of Technical Teachers' Training and Research
- Others-(SPA- School of Planning and Architecture, ISMU- Indian School of Mines, etc..)



Medical Colleges based on specialisation



Source: http://mciindia.org/apps/search/show_colleges.asp

Funding and Accreditation- of Institutions



Funding:

The public institutes are entirely funded by government .

In case of privately funded institutions, funding is from Industrial Organizations, Trusts, Private Companies and through International Cooperation.

Accreditation-

❖ **UGC-University of Grant Commission** (<http://www.ugc.ac.in/>):

UGC is responsible for providing grants and funds for the development of various colleges and universities.

❖ **AICTE-All India Council for Technical Education**

(<http://www.aicte-india.org/>):

Promotion of Quality in Technical Education, Monitoring and evaluation. Maintaining parity of certification and awards technical education in the country.

❖ **NAAC- National Assessment and Accrediation** (<http://naacindia.org/>):

The activities and future plans of the NAAC ,that focus on making quality assurance an integral part of the functioning of higher education institutions.



❖ **Indian Council Of Social Science Research (ICSSR) New Delhi**

(www.icssr.org):

Promoting social science research, strengthening different disciplines, improving quality and quantum of research and its utilization in national policy formulation

❖ **The Indian Council of Agricultural Research (ICAR)** (www.icar.org.in):

The Council is the apex body for co-ordinating, guiding and managing research and education in agriculture including horticulture, fisheries and animal sciences in the entire country.

❖ **The Council of Architecture (COA)** (www.coa.gov.in):

Maintains a register of architects and oversees the maintenance of standards of recognized qualifications under the act by way of conducting inspection through committees of experts.

❖ **Medical Council of India(MCI)**(<http://mciindia.org>):

Inspection/visitation with a view to maintain proper standard of medical education in India.Permission to start new medical colleges, new Courses including P.G. or Higher Courses, increase of seats etc. Recognition/de-recognition of Indian Qualifications, Foreign qualifications

Higher Education Sector...highlights



- Indian education system has ***Public*** as well as ***Private*** institutions.
- The higher education institutions vary widely in terms of scientific output and research.
 - IISc and the IITs are ranked the best as these focus mainly on advanced research in ***Science, Engineering*** subjects.
 - AIIMSs are ranked the best for ***Medical education and research***.
 - NID and NIFTs are ranked the best in creative fields of ***Design and Fashion technology***
 - Universities and allied institutions focus their research in ***life sciences, natural and applied sciences, humanities, journalism, communication and arts***
 - The focus of research in IIMs (and other management institutions) is on ***Management related*** areas.
 - NITs are also making substantial contribution in research component in ***Engineering and Technology*** disciplines.
 - Private institutes are making rapid strides in various emerging fields of research.

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Sources of additional information :

www.aicte-india.org

www.education.nic.in

www.aiuweb.org

www.virtualcampuses.eu

www.frenchsciencetoday.org



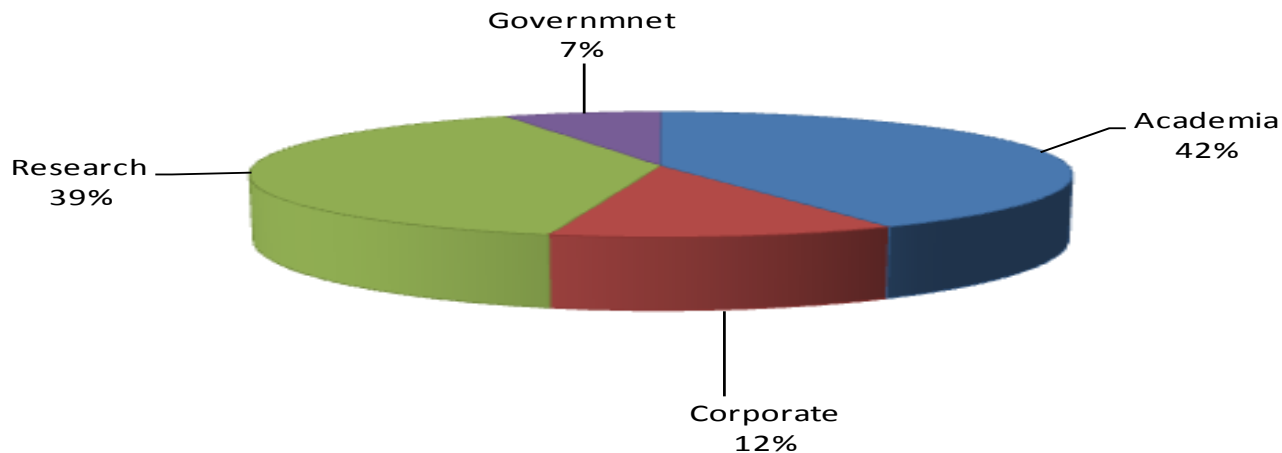
Cooperation With EU

R&D cooperation



R&D cooperation is primarily concentrated in the research and academic institutes of India. This is specially true of collaborations between India and EU. However, there has been an increase in research collaborations at the level of corporate and now also with Non-Profit organization of Government of India.

Most Active Type of Indian Institutions in Research Cooperation with the EU

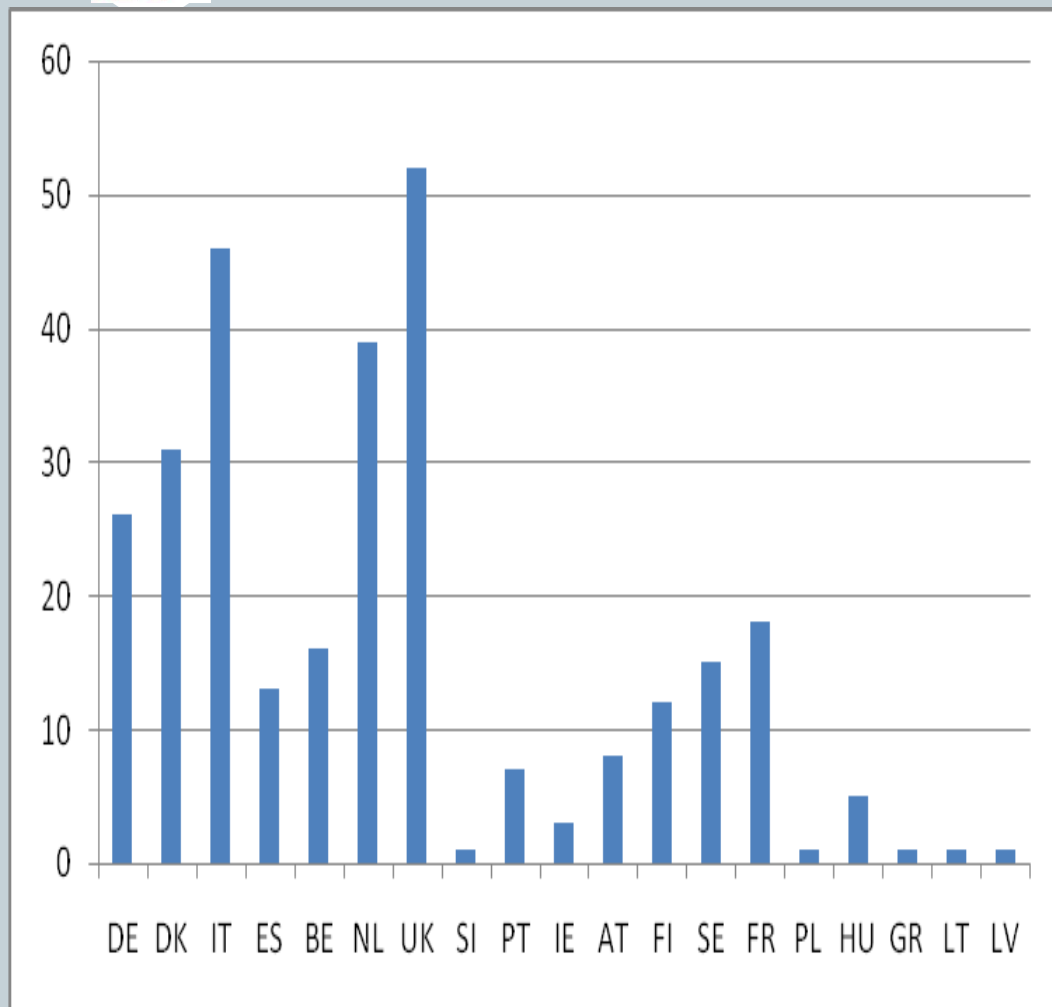


EU funded research projects with an Indian partner



EU-India cooperation reveals that countries like United Kingdom, Italy, Germany, Denmark, France and Netherlands were the most active players during the period 1994-2009.

However, some significant cooperation has also been found to exist with many other countries of Europe, including Belgium, Austria and Norway etc



Expanding Research Horizons



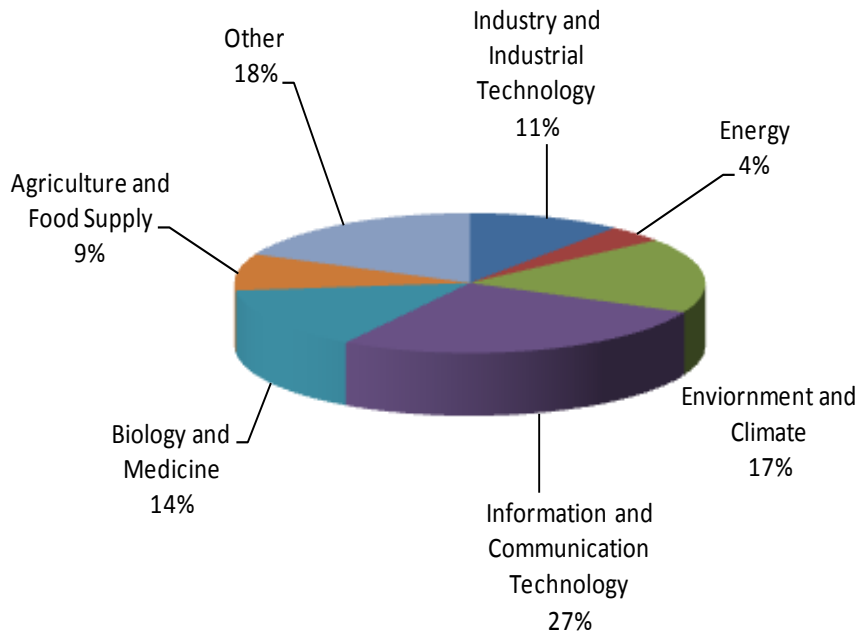
Main partner countries (including non-EU countries)

- Research collaborations of Indian HEIs is not restricted to only the EU countries but has also seen some historical collaborations with non-EU countries as well as some new partners have emerged in the recent years.
- Brazil, China, South Africa, Malaysia, Japan , Nepal, Bangladesh, Pakistan, Iraq, Iran, Israel, Russia, Indonesia are the non-EU partners in research collaborations.

Areas of Cooperation with EU



Main Areas of Research Cooperation between India and the EU

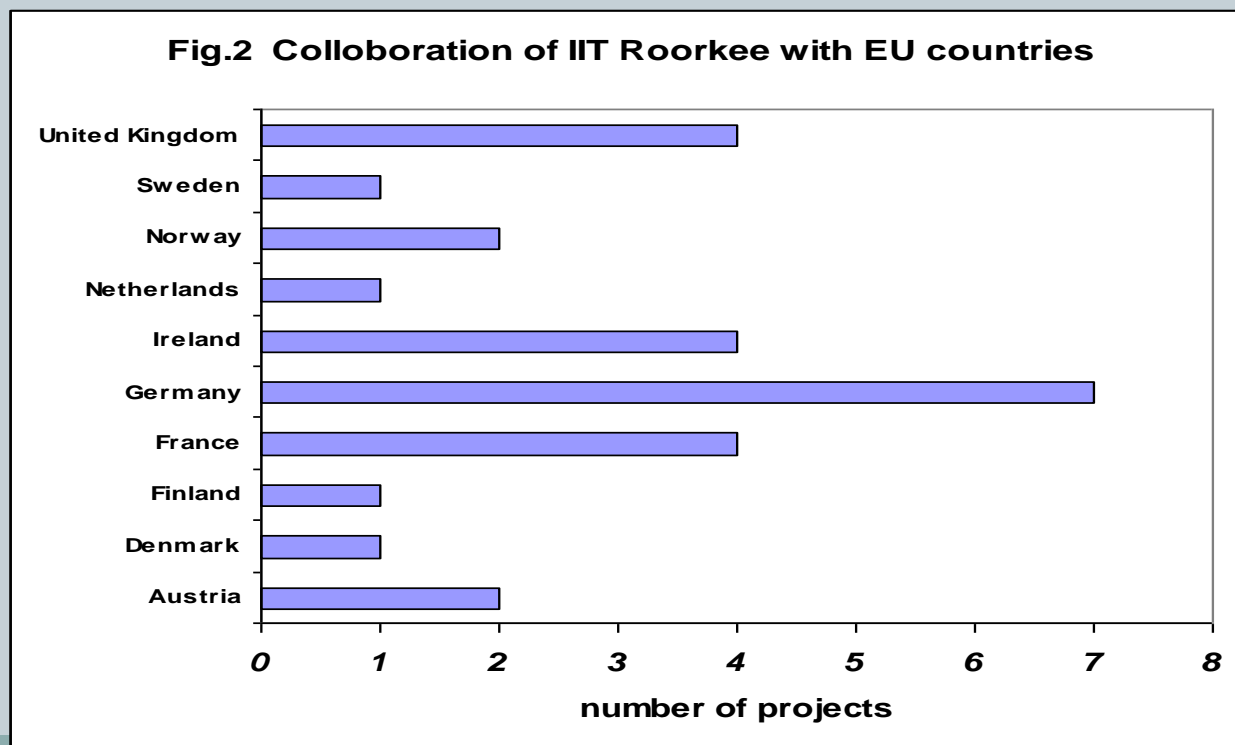


- The cooperation is mostly found to cover the areas of Information and Communication Technologies (ICT), Environment and Climate, Biology and Medicine, Industry and Industry Technology.
- However, a significant number of projects are found to lie in interesting but heterogeneous areas of cooperation, which are covered in the category 'Other'. This category largely includes cooperation in the areas of education, management and legal matters.

Collaboration of IIT Roorkee with EU Countries



- The Cooperation is well spread over many countries of Europe out of which the cooperation with Germany, France, Ireland and United Kingdom stand out.
- The Cooperation largely covers the areas of Environment and Climate, Agriculture, Energy as well as Industry and Industrial Technology.





Political Environment and Intellectual Property Rights

Political Environment



R&D Cooperation:

- Government of India has enacted several laws for advancement of education system with in the country and to promote a scientific temper and sprit of enquiry among the students and researchers.
 - Specific agreements for scientific cooperation
 - ❖ Intergovernmental Scientific and Technological Collaboration Agreement.
 - ❖ Collaboration Agreement between the Sincrotone of Trieste and the Department of Science and Technology (DST).
 - ❖ India- EU Cooperation Agreement on Fusion Energy Research
 - ❖ India Science and Technology Cooperation Agreement.

Intellectual Property Rights

Government of India has encouraged the creation of IP in HEIs.

Political framework of R&D cooperation with EU



- R&D under EU-India partnership is governed by the various policies formulated by Government of India.

A legal framework for the EU-India cooperation is laid down in EU-India Strategic Partnership [Communication from the Commission to the Council, the European Parliament and the European Economic and Social Committee of 16 June 2004: An EU-India Strategic Partnership COM(2004) 430 final].

The Partnership framework was agreed at the fifth EU-India Summit when it was formally decided to upgrade the EU - India relationship to the level of a Strategic Partnership, and to support this partnership through the implementation of an Action Plan agreed at the September 2005 Summit.

India is one of only six countries of such strategic importance for the EU, the others being Canada, China, Japan, Russia, and the United States.

Legislative Environment



Type of IP	Name and Date of Respective law	Source of information/possibility of download
Copyright	Copyright Act, 1957 Copyright Amendment Act, 1999	http://copyright.gov.in/Default.aspx
Patent	The Patents (Amendment) Act 2005 effective from 1st January 2005	http://www.patentoffice.nic.in/
Industrial Design	Design Act, 2000 Design Act, 2001	http://www.patentoffice.nic.in/
Trade Mark	The Trade Marks Bill, 1993	http://www.patentoffice.nic.in/
Geographical Indication	Geographical Indication of Goods Act, 1999 came in force with effect from September 2003	http://ipindia.nic.in/girindia/
Plant Variety	New Plant Variety and Farmers Rights Protection Act, 2001	http://plantaauthority.gov.in/about-authority.htm
Traditional Knowledge	In India, there is no system for protection of TK. Currently, India's TK Digital Library is being compiled to prevent wrongful patenting.	http://www.tkdil.res.in/ -

Ownership of IP



Ownership of the IP is determined by the IP policy of concerned HEIs.-

- 1) The Institute will require to be assigned to it such intellectual property as is created by the creators through the use of Institute-supported resources.
- 2) Ownership of copyright of all copyrightable work shall rest with the author with the following exceptions:
 - Sponsored and/ or collaborative activity
 - Software
 - In whole or in part depending on the degree of Institute-supported resources
- 3) The Institute may accept assignment of intellectual property owned by others provided that such assignment is found to be consistent with the public interest and the Institute's academic mission.

Internal regulation of ownership of IP within HEI -

As per the IPR Policy of respective HEIs.

Commercialization of IP



- When the creator discloses the generation of such intellectual property to the Institute, the sponsor will receive first refusal on an option to license the resulting intellectual property on terms to be negotiated on a case-by-case basis.
- Possible ways of commercialization of IP generated-
 - Commercialization through licensing of IP rights by the Institute.
 - Commercialization through licensing of rights by third parties.
- Decision to commercialize:
 - Lies with the researchers
- “Customs”/practices of IP management at universities in India –
 - Internal audit and assessment of patentability by experts within the institution.
 - IP Management carried out by the HEIs in collaboration with IP Agencies.

Good Practices followed in IIT Roorkee



Ownership of the research is governed by the IPR Policy of Individual HEIs and the sponsoring organization.

However, protection is financed by specific funds in the institute.

Following as per the IP Policy of IITR:-

Consulting Agreement: Any Intellectual property arising from consultancy should be assigned to the Institute in the interests of transparency and fair negotiation with consulting firms. The Institute will offer a first refusal option on the licensing of such Intellectual Property rights to the consulting firm.

Sponsored Projects: all intellectual property developed as a result of the sponsored research project shall belong to the Institute.

Good Practices Examples of IP Management in IITR



- **IP awareness program**

The IPR Cell of the Institute has started a short term training program for the new research scholars joining the institute in each semester with an objective to train the research scholars:

- ❖ To organize their research work through patent search
- ❖ For record keeping of the research work and
- ❖ On submission of disclosure for patent filing.

HEI' units involved

The IPR cell is responsible for the good practice. The coordinator and selected members of IPR Cell are specifically involved.

Expected effect

Creating awareness about the process of IP creation among researchers. The direct outcome is increase in number of disclosures filed.



- **The Intellectual Property Assessment Committee (IPAC)**

To facilitate assessment of disclosure, IIT Roorkee has formed an IP Assessment Committee (IPAC) consisting of a chairperson, IPR Coordinator and at least 3 faculty members with domain expertise in areas related to the creative work.

IPAC undertakes economic and technical feasibility analysis to determine the need for protection.

Experts from the area of disclosure are selected enabling protection of IP in the institute.

HEI' units involved

The IPR cell is responsible for the good practice

Expected effect

Facilitation of the IP assessment process



Technology Incubation and Entrepreneurship Development Activity (TIEDA) Centre

It has been set up at IIT Roorkee to encourage the students, the alumni and the faculty members of the institute to convert their ideas and concepts to products and technologies for their viable commercialization through start-up companies.

Two policies are framed with respect to TIEDA. They are:

- ***Faculty Entrepreneurship Policy***

To provide motivation and opportunity for commercializing new and futuristic technologies and facilitate the entrepreneurial policy, IIT Roorkee encourages the interested faculty members to open companies, to be on the board of companies in the capacity of a Director, Chairman or any such role.

- ***Technology And Business Incubation Policy***

This policy will encourage the students, faculty members and alumni of the institute to convert their ideas and concepts to technologies and products for viable commercialization by promoting incubation and startup ventures. This policy will primarily provide the shelter and support to new ideas culminating in start-up ventures with a clear planning for taking off from the institute after being nurtured for some time in the institute.

- ***HEI' units involved:*** TIEDA office

- ***Expected effect:*** Facilitation of commercialization and entrepreneurial practice.



TePP Outreach Centre

GoI Initiative under Department of Scientific and Industrial Research (DSIR)

The main objective of TePP outreach centre in IIT Roorkee was:

- ❖ To promote and support untapped creativity of individual innovators.
- ❖ To assist the individual innovators to become technology based entrepreneurs.
- ❖ To assist the technopreneur in networking and forge linkages with other constituents of the innovation chain for commercialization of their developments.

TePP Outreach Centre has been established in IITR campus to provide funds and encouraged the science and technology students for their innovative ideas.

TePP helps in initializing the commercialization of any innovations.

HEI' units involved

TePP Committee formulated under IPR Cell.

Expected effect: Facilitation of commercialization and entrepreneurial practice.



Thanks for your attention!