



Institutional Development

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Institutional Development Themes

- Research Themes
- Research Capacity Upgrade
- Infrastructure Building
- Mindset Change



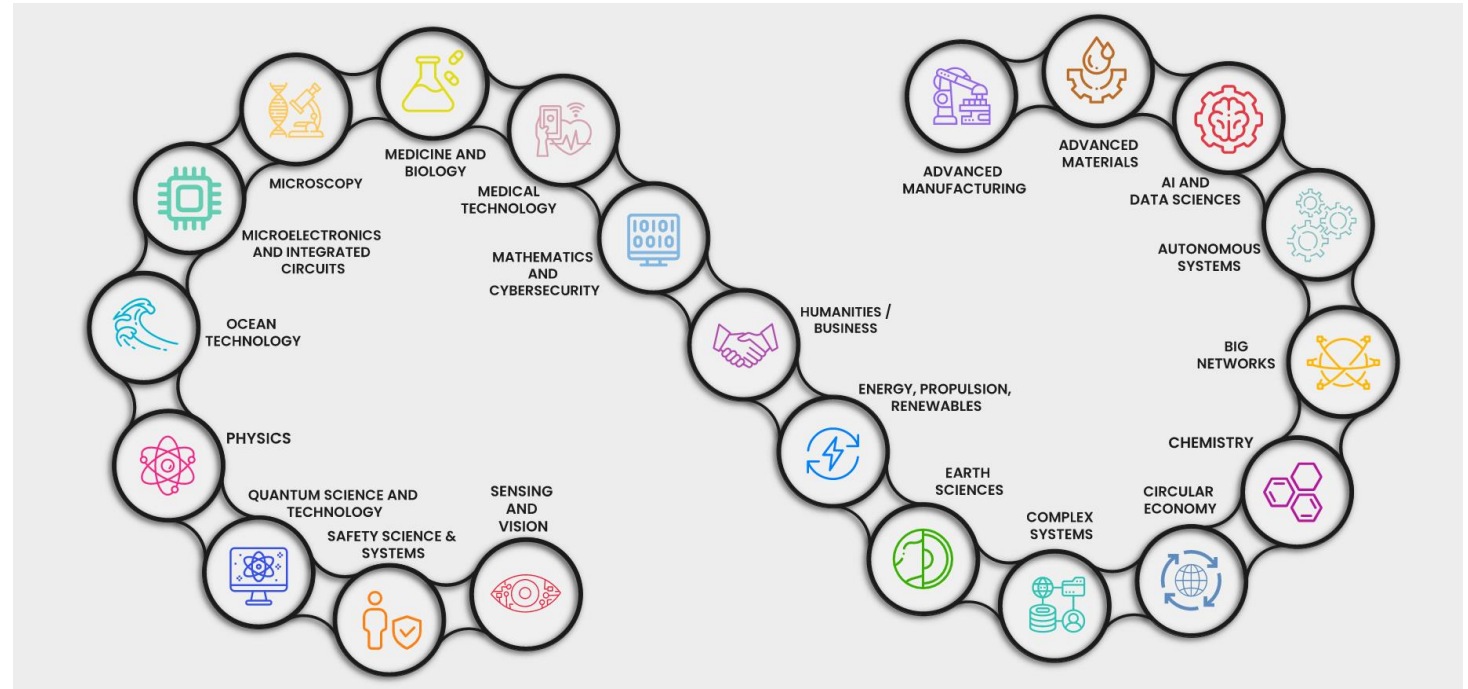


Identify
research
strengths of
local and
global
relevance

- University to assess internal strengths
- Understand relation to country's priorities - a part of University research should address this
- Interdisciplinary fields
- Set up centers of excellence
- International collaboration should be an inherent part and not an afterthought
- Bold problem statements

IITM-IOE research initiatives

70 Research Initiative
Projects in these domains –
15 of these awarded CoE
awards



IoE - CENTRES OF EXCELLENCE



Critical Transitions in
Complex Systems



NDE 5.0
Industrial Assets and
Process Management



Geophysical Flows Lab



Healthcare and Assistive
Technologies



Technologies for
Low Carbon and
Lean Construction



Center of Excellence in
RF, Analog, and Mixed
Signal ICs



Centre for Quantum
Information, Communication
and Computing



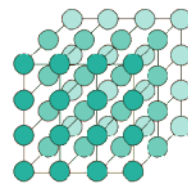
Sports Science
and Analytics



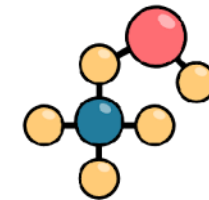
Maritime Experiments to
Maritime Experience



Centre for Soft Matter



Atomistic Modelling
and Materials Design



Centre of Excellence on
Molecular Materials and
Functions



Centre for Cancer
Genomics and Molecular
Therapeutics



Quantum Center for
Diamond and Emergent
Materials

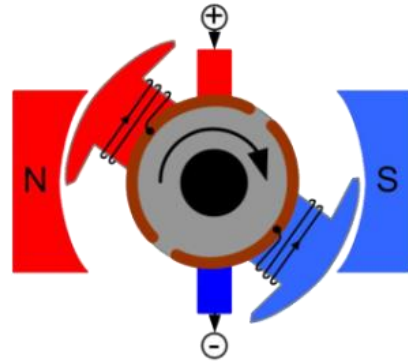


Energy Consortium

Nation Building



SHAKTI CLASS OF RISC-V PROCESSORS



Uninterrupted Power



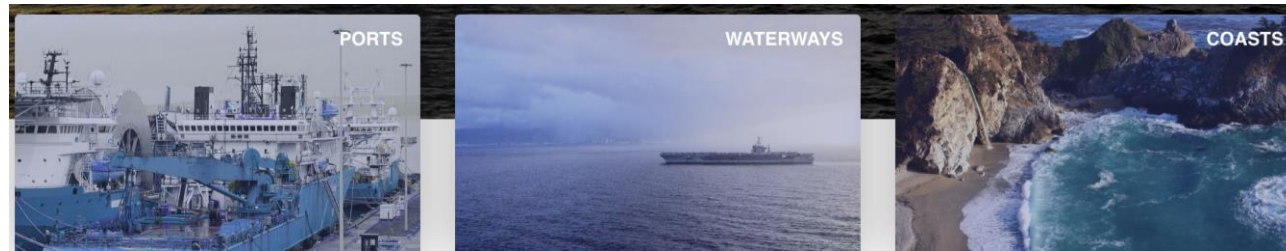
5Gi



Clean Water



Assistive Devices



National Technology Center for Ports, Waterways and Coasts



Affordable Housing

Research Capacity Upgrade

Develop multi- institutional networks

- Multi-institutional joint research
- Multi-institutional joint teaching programs

Large research programs harnessing inter- governmental funding

- Interdisciplinary
- Organic international group of faculty and students

Multi- institutional degree programs

- Joint degree by at most two partners
- Bank of credits allowing a percentage of course being taken from any partner
- Tuition sharing mechanisms leveraging hybrid classrooms



MoUs

141

Europe



46

North
America



67

Asia



17

Australia



10

Africa



1

South
America



Currently, 100+ International students are at IIT Madras and 60 IITM students are abroad on exchange mobilities this semester

Joint Doctoral Programs

- Equal partners
- Complementarity
- Home and host institution idea
- Joint publications
- Joint guidance
- Funding

Joint Doctoral Programs @ IITM



Joint Doctoral Programs



Joint Supervision Programs





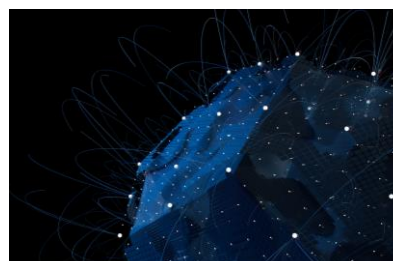
International Interdisciplinary Master's Programs



**Advanced materials
and nano technology**



**Biomedical
Engineering**



**Complex Systems
and Dynamics**



Data Science



Robotics



**Computational
Engineering**



**Cyber Physical
Systems**



**Energy
Systems**



**Quantum Science
& Technology**

Specially curated two-year MTech degrees for high-caliber international students, offered in-campus and away campus modes. State-of-the-art interdisciplinary programs for global work force

Joint Masters programs

- Develop joint masters programs
- Students spend time at both locations
- Leverage hybrid learning
- Joint degree attracting students from all over the world
- In interdisciplinary areas making it attractive

Joint Masters Programs



KU-IITM Joint Degree Program (MTech
Energy Systems)

Introduced in Aug 2022
Applications open for second batch
First batch to graduate in 2024



UNIVERSITY OF
BIRMINGHAM

Core courses in
Mathematical Foundations,
Data Analytics, Data
Structures and Machine
Learning

Industry
internship &
Master's Project

Elective courses in Artificial
Intelligence, Natural
Language Processing &
Computer Vision

Joint MSc in Data Science and AI
launched in Fall 2023

Infrastructure Development

- Engender an environment of facilities-sharing
- Centralize facilities as much as possible
- In many areas, high-quality research not possible without high-end equipment
- National aggregators needed
- National-level high-value centralized facilities needed (North, East, South, West)
- Develop collaborations that allows one to participate in global large-scale projects



Mindset Change

- Develop a global outlook
- Understand strengths and generate confidence
- Bold research statements and problems
- Maintain a healthy balance between incremental and blue-sky research
- Internally and externally collaborate, collaborate and collaborate
- Build a system that enables people to “Not Fear Failure”
- Followers can never Lead