

Industry Oriented Interdisciplinary Research at Indian Institute of Science



Prof. C. E. Veni Madhavan

Chief Executive

Society for Innovation And Development (SID)

Indian Institute of Science, Bangalore

E-mail: sid@csic.iisc.ernet.in

Website: <http://sid.iisc.ernet.in>



**INDIAN INSTITUTE OF SCIENCE
BANGALORE-560 012**



Conceived in 1896 and established in 1909,
through an inspired vision of the
pioneering industrialist Jamsetji Tata



- Notified on 28 May 1909 as a Trust under Sec.5 of Charitable Endowments Act 1890
- Deemed University in 1957
- Funded by MHRD since 1993



An Institute designed to promote original investigations in all branches of learning and to utilise them for the benefit of India

Land Area 440 Acres



Gifted by Maharaja of Mysore Shri Krishna Raja Wodeyar

Residential and intellectually vibrant, wooded campus with rare species of birds and trees.

Student and Faculty Profile



- Faculties: Science and Engineering
(Deans)
- Students: ~2150 (Men 1780, Women ~ 370)
- Research: (PhD, Int. PhD) ~ 1200
- Course: (ME, MTech, MDes, MBA) ~ 500
- Faculty: 323 (Academic) 124 (Scientific)

Divisions

- Biological Sciences
- Electrical Sciences
- Mechanical Sciences
- Chemical Sciences
- Physical and
Mathematical Sciences
- Information Sciences



Biological Sciences Division

71 Faculty Members, 250 students and Post Docs

- Biochemistry
- Microbiology and Cell Biology
- Central Animal Facility
- Molecular Reproduction, Development and Genetics
- Molecular Biophysics Unit
- Centre for Ecological Sciences
- Primate Research Laboratories
- Structural Biology
- Immunology
- Enzymology
- Reproductive and Developmental Biology
- X-ray Crystallography
- Ecological and Environmental Studies
- Genomics
- Infectious Diseases (Sir Dorabji Tata Centre)

255 publications

Electrical Sciences Division

95 Faculty members 411 Students and Post Docs

- Electrical Engineering
- Electrical Communication Engineering
- High Voltage Engineering
- Computer Science and Automation
- Centre for Electronic Design and Technology
- Communications (Networks, Microwave, Optical)
- Microelectronics and Instrumentation
- Power Systems (including Dielectrics and Protection)
- Signal Processing
- Software Engineering (including Graphics and DBMS)
- System Sciences and Automation
- Information Technology
- Internet Technology
- Theoretical Computer Science and Architecture

194 Publications

Mechanical Sciences Division

162 Faculty members 520 Students and Post Docs

- Aerospace Engineering
- Mechanical Engineering
- Civil Engineering
- Chemical Engineering
- Metallurgy
- Centre for Atmospheric & Oceanic Sciences
- Management Studies
- Centre for Product Design & Manufacturing
- IISc-ISRO Space Technology Programme
- Joint Advanced Technology Programme
- Centre for Sustainable Technology (ASTRA).
- Aerospace Propulsion
- Aerodynamics
- Flight Mechanics & Control
- Aerospace Structures
- Fluid mechanics
- Combustion
- Turbo Machinery
- Technical Acoustics
- MEMS
- Tribology
- Robotics
- Soil Mechanics
- Theory of Structures
- Hydrology & Water Resource Engineering
- Transport Processes
- Reaction Engineering
- Biobenefication
- Ceramics
- Composites and Alloys
- Nanomaterials.
- Climatology and Ocean Science
- Computer-aided Product Design
- Rapid prototyping
- Sustainable Rural Technologies.
- Satellite Technologies.
- Management of Innovation

446 publications

Chemical Sciences Division

Chemistry at the Interface of Biology and Material Science

55 Faculty members 216 students and Post Docs

- Inorganic and Physical Chemistry
- Materials Research Centre
- Organic Chemistry
- Solid State and Structural Chemistry
- Sophisticated Instruments Facility
- Synthesis
- Organometallics
- Functional Polymers
- Supramolecular Chemistry
- Laser Spectroscopy
- Chemical Dynamics
- Smart Materials
- Magnetic Resonance Imaging etc.

371 Publications

Physical and Mathematical Sciences Division

78 Faculty Members 164 students and Post Docs

- Department of Physics
- Department of Mathematics
- Department of Instrumentation
- Centre for Cryogenic Technology
- Centre for Theoretical Studies
- Astronomy and Astrophysics Programme
- IISc-TIFR Mathematics Programme
- Condensed matter physics
- Theory and Experimental), Biocrystallography
- Electronic Instrumentation
- Thin film devices
- Optical Instrumentation
- Astronomy and Astrophysics,
- Algebra
- Topology
- Nonlinear Systems, Fluid Dynamics
- Functional Theory

219 Publications

Information Science and Services Division

27 Faculty members 80 students and Post Docs

- Supercomputer Education and Research Centre
- JRD Tata Memorial Library
- Digital Information Services Centre
- Bioinformatics Centre
- National Centre for Science Information
- High performance Computing Database Systems
- Multimedia
- Computer Architecture
- Computer-Aided Design
- High Speed Networks
- Visualisation
- Digital Information Systems Internet Technologies
- Information Technology
- Distance Education

255 publications

Our Strengths

- *Biotechnology*
- *Materials Science*
- *Information Technology*



- *A tradition of sustained excellence*
- *Mother of many Institutions in the country – networked*
- *Largest Scientific Library in the country*
- *Largest computing environment in this part of the globe*
- *Contributor to all major national initiatives*
- *A distinguished and highly acclaimed faculty*
- *Student access across the country*

Innovation Centre (SID)

The Society for Innovation and Development (SID) was founded in the year 1991, in close collaboration with the Indian Institute of Science (IISc) Bangalore. IISc is premier research institute which has contributed in a significant way towards the scientific and technological growth of the country as well as producing outstanding intellectuals to manage Industries, Business houses, and Institutions.



 INNOVATION CENTRE 

Innovation Centre
Society for Innovation Development (SID)
Indian Institute of Science

Chairman : Prof. P. Balaram (Director, IISc)

Chief Executive : Prof. C. E. Veni Madhavan

Mission

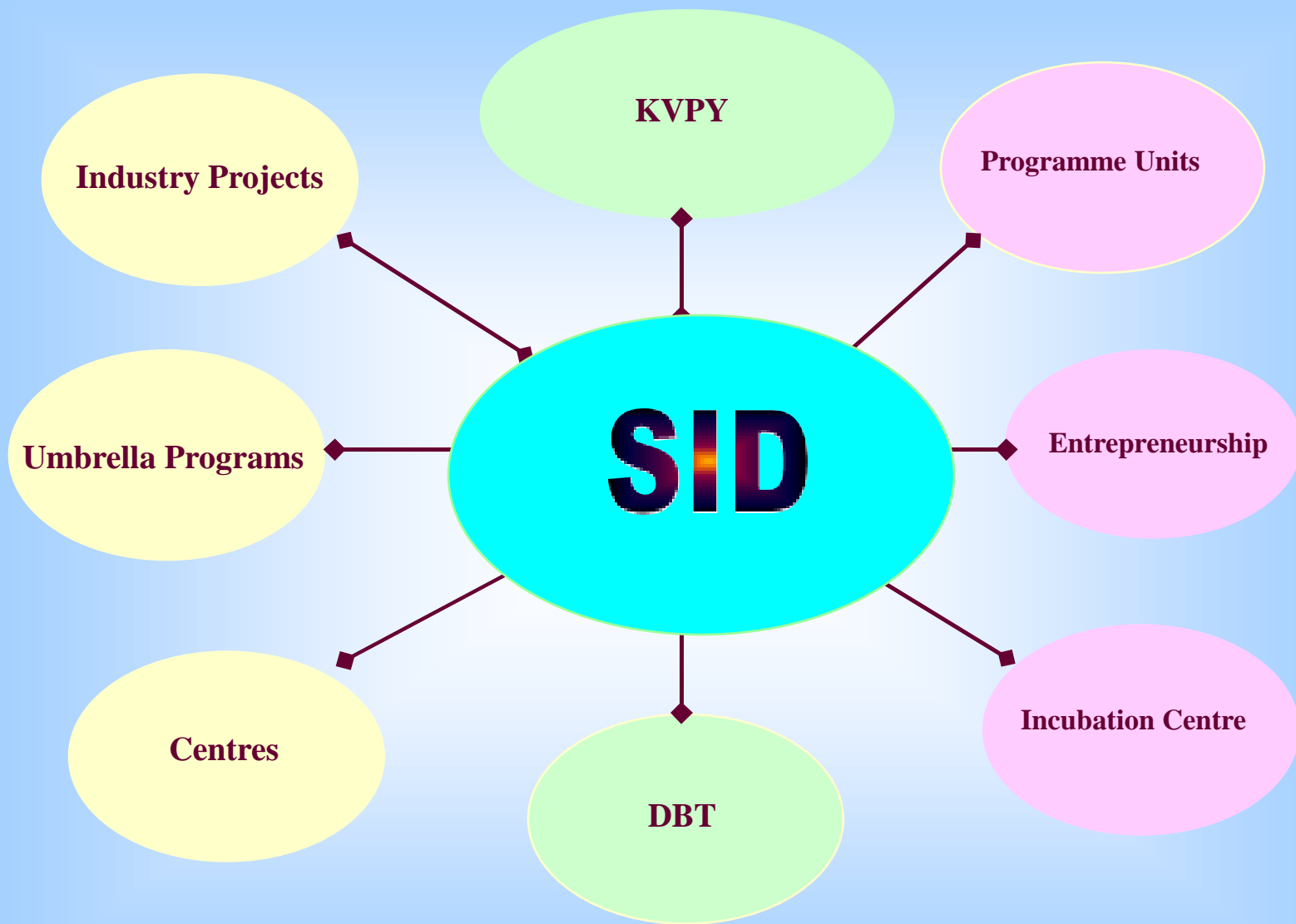
The mission of SID is to enable development and diffusion of IISc's innovations in science and technology by creating a purposeful and effective channel to help industries and business establishments to compete and prosper in the face of global competition, turbulent market conditions and fast moving technologies.

How SID Works

(Autonomous and proactive)

- Industry Friendly
- Faculty Friendly
- Flexible operational modes
- Better Communication

*at the same time take care of IISc's interests
(focusing on Innovation)*



Industry funded projects since 1994

- Number of Projects Initiated: **481**
- Number of Projects completed successfully: **241**
- Number of Companies involved in Interaction: **161**

Projects

IT

Honeywell

Intel

Microsoft

Nokia

Samsung

CISCO

Motorola

Texas Instruments

Ericsson

Nortel

HP Labs India

Mahindra & Mahindra

BT

Shantha Biotech

Indian Immunologies

Biological E cole

Mitokor

GPS Usha

Dabur Research Foundation

FMC India

Sir Dorabji Tata Centre

Sourav Chemicals

Unichem Laboratories

Cadila Pharmceuticals

Hindustan Lever Limited

Materials & Systems

General Motors

Tata Motors Ltd

Honeywell

Daimler Chrysler

Boeing

Pratt & Whitney

IMI Cornelius

ADA

NPOL

ISRO

DRDO

Research Centre Imarat

Umbrella Programmes

GENERAL MOTORS

HONEYWELL

INTEL

ALTECH (NORWAY)

Materials Research

Wireless

Wireless

Student Exchange

IT

Aerospace

Electronic
Procurement

Aluminium application
technologies

Wireless

IT

VLSI

Wootz File

Automation

MEMS

Supply Chain
Optimization

Systems

Sensors

Business chain

Embedded Systems

Neural Networks

Easy to improve interaction under the same MoU.

Industry R&D Centres

R&D Centres

- Cadila Pharmaceuticals Limited
- FMC Rallis India Limited
- Sir Dorabji Tata Centre for Tropical Diseases
- ViZiPhar Biosciences
- Bigtec India Ltd
- Cranes Software International Ltd
- Satyam Computers Services Ltd
- Tata Motors Limited

Advantages: Space provided to have better interaction with faculty, improve R&D interaction by identifying more projects, monitor on day to day basis, carryout clinical tests/develop systems for industry requirements.

Caution: needs constant monitoring by Scientific and Management Committees.



Entrepreneurship Centre



Innovation Centre

- Has succeeded in bringing faculty and industries together
- Created a proper environment for setting up R&D centres of industries in the campus
- Has become a model in setting up mission mode programs in different areas
- Encouraged faculty to become entrepreneurs
- Is setting up Incubation Centre to encourage staff and students of IISc to become entrepreneurs by providing seed money

A benchmark not only at the national level but also in other countries



Thank You

