International Institute of Information Technology Bangalore

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RESEARCH AND DEVELOPMENT MANUAL

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1.Introduction:

The International Institute of Information Technology Bangalore, a Deemed University, popularly known as IIIT-B, was established in 1999 with a vision to contribute to the IT world by focusing on education and research, entrepreneurship and innovation. The Institute is a registered not-for-profit society funded jointly by the Government of Karnataka and the IT industry.

Since its inception, IIIT-B, with its unique model of education, research, and industry interaction, has grown in stature to become an institution of considerable repute in academic as well as corporate circles. The Institute works in partnership with the corporate sector, while retaining the freedom of an academic institution. It is inspired by other renowned institutions, and also strives to emulate an academic culture that is on par with the best international institutions.

Mission:

To build on the track record set by India in general and Bangalore in particular, to enable India to play a key role in the global IT scenario through a world class institute with a focus on education and research, entrepreneurship and innovation.

The goal at IIITB is to develop professionals of the high quality to cater to the needs of industry and academia. Such education will be based on a broad grasp of the fundamental principles of the sciences and scientific methods, a deep understanding of specific area of specialization, an ability to solve new problems, and a capacity to learn continually and interact with multidisciplinary groups. Above all, IIITB aims at developing in its students a capacity for free and objective enquiry, courage and integrity, and awareness and sensitivity to the needs and aspirations of society.

This manual provides details about the Research and development policy, R&D administration and Research funding available for the research.

Expectations:

The institutional expectations from faculty and research scholars include the following:

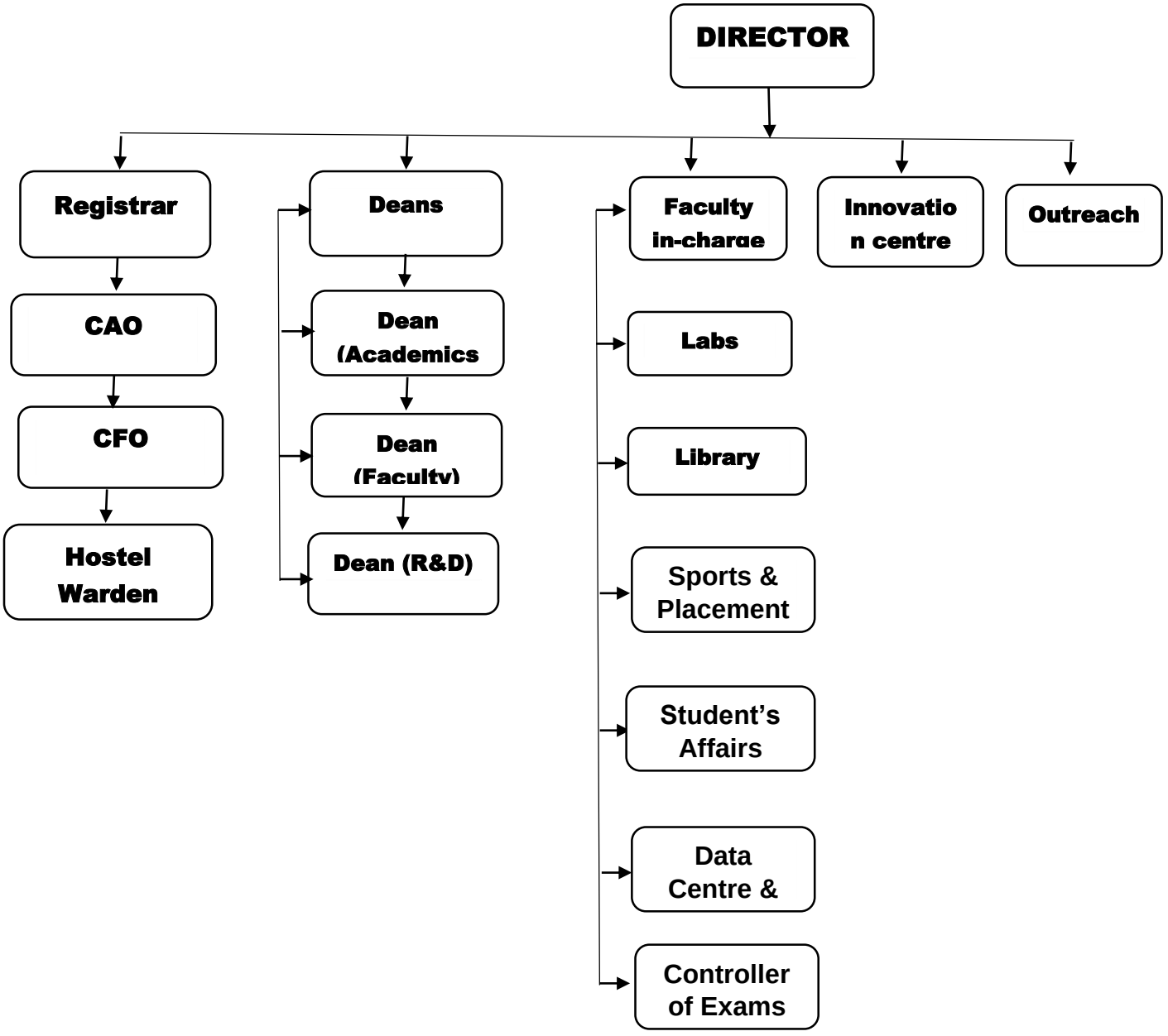
a. Commitment to research quality: Create a formal research group or a lab, and/or associate formally with a research center. Have an online presence for your research group that documents details about its members, projects, processes, activities and outcomes. Create formal processes for your research group, involving periodic seminar talks, research meetings and any other relevant activity. Subject all your research work to rigorous, external review from peers in your area who are unconnected to you or your group members professionally or personally.

b. Research Ethics: Proactively and periodically conduct awareness development meetings in your research group about research ethics involving but not limited to the following issues: plagiarism, research claims, managing human subjects, privacy protection, data security, ethics of online behavior, etc.

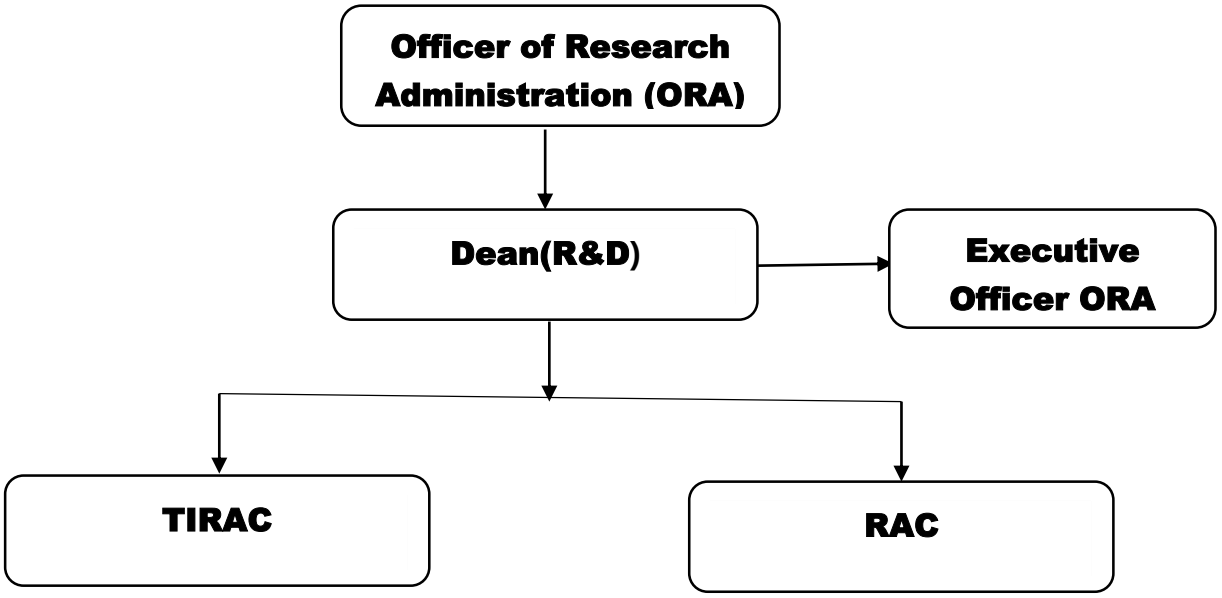
c. Resource generation: Proactively involve yourself in proposing research projects to research centers or external funding agencies. Actively collaborate with other faculty members and external agencies to propose research agendas that push the state of the art, and/or addresses relevant social challenges.

d. Social outreach: Proactively involve in making your research relevant to some stakeholders in the larger society. These may include the industry, government, non-governmental organizations, other universities, or citizens of the society at large. The Office of Research Administration (ORA) headed by Dean (R&D) shall be in charge of overseeing the implementation of the institutional research policy.

2. Organisation of Institute



3. Organisation of Office of research administration



4. IIITB Research Policy

Research is an integral part of the institutional mission of IIITB. All faculty members have PhDs from reputed institutions from India and abroad. They are expected to pursue an active research agenda in addition to their teaching, administration and outreach responsibilities. IIITB has the following modalities of research engagements with students:

- PhD research scholars
- MS (by Research) scholars
- MTech thesis students
- iMTech thesis students
- Research associates and visiting scholars

In addition to the above, IIITB has laid out several institutional mechanisms to foster a culture of research and aid researchers in reaching out to stakeholders in the industry and society at large. These include the following:

A. Research Centre
B. Research areas
C. Research labs

A. Research Centre

The research Centers at IIITB are multi-disciplinary with participation from several faculty members across different research domains. They could focus on a vertical, such as healthcare, or a horizontal, such as machine intelligence. These centers, run by faculty and driven by students and staff, have active collaborations with academia, government, and industry.

a. E-Health Research Center (EHRC): EHRC at IIIT-B is an interdisciplinary center for applied research in the area of electronic (digital) health. The Center is an outcome of the initiative at IIIT-B in promoting effective use of Information & Communication Technologies (ICTs) to meet the healthcare needs of the under-served and marginal population groups in India and similar regions across the world, with a focus on affordability, accessibility and availability of technology solutions covering [medical]

devices, [health] data, and delivery [platforms and models]. The Center currently focuses on themes of mental health, disability, and malnutrition, predominantly.

b. Centre for Information Technology and Public Policy (CITAPP): CITAPP at IIIT Bangalore is an interdisciplinary think-tank set-up to focus on the policy challenges and the organizational demands made by technological innovation. Of particular interest to the Centre is how technological advances, along with institutional changes that harness the legitimacy and the powers of bureaucracies and market, address the needs of undeserved communities.

c. Machine Intelligence and Robotics(MINRO): MINRO is a center of excellence for conducting applied research in the use of artificial intelligence and robotics in different verticals, such as healthcare, smart cities, education.

B. Research Areas:

The areas under which active research is going on is as follows

a. Computer Science
b. Data Sciences
c. Electronic system design
d. Information technology and Society
e. Mathematics and basic sciences
f. Networking communication and signal processing
g. Software Engineering

C. Research Labs:

Various Research labs of world class standard related to various research areas are set up in IIITB to assist the research activity.

1.Computer Science:

Computer Science Laboratory(CSL) at IIIT-B is interested broadly in the areas of Algorithms, Optimization, and Robotics. Major focus areas include: Robust optimization under uncertainty, with applications to supply chains, real time search, banking, smart grid, transportation, gaming and allied areas. This work couple's algorithms with information theory. Approximation algorithms, machine learning, cryptography and linguistics. Novel robot skeletons using generalized mechanisms, incorporating magnetics distributed throughout. Algebraic number theory. Electronic design automation including statistical timing analysis and optimization for digital

circuits, power analysis and optimization and formal verification, semiconductor manufacturing, statistical optimization, combinatorial optimization, and design and analysis of algorithms. Visualization (scientific and information), high-performance computing, computational geometry and topology. Others, such as, various aspects of power line communication for AMR over low voltage power lines, which include channel modeling, transceiver design and MAC layer design.

2. Data Science:

The Data Sciences research domain focuses on all aspects of data management, processing, modeling, and information retrieval. The current areas of interest include: Database Design, Information Retrieval, Network Analysis, Mining Latent Semantics, Data Mining and Data Warehousing, Knowledge Representation and Reasoning, Linked Data and Semantic Web, NoSQL Databases, Stream Data Management, Multimedia Management using Control Theory, Analytics, Graphics & Visualization, and GPU Computing, Applied Machine Learning, Computational Social Sciences, Computational Topology.

a. Document Engineering Lab: Documents still constitute a significant content type in the enterprise today. Document Engineering deals with developing algorithms, techniques, tools and processes that help in creating and manipulating the content, format, and representation of documents. There are several challenges being addressed as part of Document Engineering. The DocEng lab explores the various standards and tools available in this space. Following are some of the projects from the Lab:

- Pralekhasaara (for interactive content chunking and assembling)
- ORCA (Online Repository for Content Assembly)
- DocuBhasha (translation of documents, supported by Microsoft Research)

b. Graphics-Computing-Visualization Laboratory: The Graphics-Computing-Visualization Laboratory (GVCL) at IIIT Bangalore works in the broad areas of graphics, visualization, and scientific computing. The GVCL is currently involved in projects related to three-dimensional visualization of LiDAR data, analytics work-flow visualization, small-world-network visualization, volume visualization, and GPU computing. The lab is funded by various projects from government agencies and the

industry viz, DST, Nvidia and EMC.

c. Information Convergence Lab: Information convergence is concept that is focused on interoperability of information scattered across multiple dimensions and multiple sources and destinations. The focus of the Information Convergence Lab (I-COG Lab) is to first identify and define various information convergence challenges that are relevant to the real world. The current focus of the lab is to start with a study of information convergence challenges specifically targeted at large enterprises and the government. Based on this understanding of the needs and contexts of information convergence, the lab will specify reusable frameworks that address these challenges in a unified and integrated environment. The focus would be to develop standards-based solutions that can be applied widely.

d. Multimodal Perception Lab: The Multimodal Perception lab focuses on human-centered sensing and multimodal signal processing methods to observe, measure, and model human behavior. These methods are used in applications that facilitate behavioral training, and social media analysis; and enable human-robot interactions (HRI). The focus is mainly on vision and audio modalities. Probabilistic graphical models form the backbone of the underlying formalism.

e. Web Sciences Lab: The Web Sciences Lab (WSL) at IIIT-B is focused on understanding the web in all its aspects. Research interests of the WSL include enabling technologies for the web, web-scale data management, web mining, network analysis and socio-cognitive models of web dynamics.

3.VLSI Systems:

The VLSI Systems domain encompasses a broad range of topics covering several aspects such as, digital and analog hardware systems, FPGA implementations, custom fabricated VLSI circuits, design methodologies around EDA flows, verification and validation, system prototyping. Further, it also includes realization of real time embedded systems where both the hardware and the software components are treated agnostically based on end system requirements; embedded implementation of feedback control using variegated sensors. We also focus on emerging technologies based on Micro and Nano-electro mechanical devices – fabrication of 2D/3D structures, characterization and

system applications. Active areas of research can be classified in to the following domains:

a. High Density Electronics System (HIDES) Lab: The lab is used extensively to carry out high-end research as well as to support undergraduate and post-graduate teaching. The lab has Intel and Arduino controller boards; an ABB commercial robot; a Firebird V robotic kit; Agilent Parametric Analyzer; Cascode DC Probe station; Carl Zeiss High resolution optical microscope; Makerbot 3D Printer; Wet lab for wet etching, copper plating, and dip soldering; Thermal and Electron beam evaporator; and high end oscilloscopes, function generators and power supplies. The lab also has a variety of software suites, including: IC nanometer Design suite, VLSI Design, Verification and Test suite, PCB Expedition suite and Mechanical Analysis suite from Mentor Graphics; Cadence VLSI Design suite, Ansys HFSS, National Instruments Multisim, etc.

b. Center for Electronics and Embedded Systems (CEEMS) Lab: The CEEMS Lab is a multi-disciplinary lab that supports research and education in Embedded hardware and computing, wireless communication and computer vision. Facilities in the lab include spectrum analyzer, signal analyzer, vector signal generator, controller, processor and sensor boards; and software's including Code Composer Studio, Real View Development Suite, National Instrument Labview, Lego Mindstroms Education Nxt software, 3S Device Management Software, Xilinx 13.0, etc and CEEMS lab is funded by the Government of Karnataka.

4. Information Technology and Society:

The Information Technology and Society research domain at IIITB is broadly concerned with the social role of information and communications technologies (ICTs) with a focus on the policy challenges and the institutional demands posed by technological change. Teaching and research in the stream focuses on three inter-related areas.

First, it seeks to understand innovation and the organization of production in the ICT industry, or how, why and where ICTs are produced. A second area of interest is in how ICTs can be used to harness the legitimacy and the powers of bureaucracies and markets to address needs in different social domains. Of special interest are the domains of governance, education, health and manufacturing. A third area is the tools and analytical techniques that can be deployed to understand the production and consumption of ICTs. These include geographical information systems, modeling,

simulation and visualization. The domain encourages inter-disciplinary research and has associated faculty members with expertise in social sciences, including in economics, economic geography, sociology, development, management, governance and public administration.

a. Center for Information Technology and Public Policy: The Center for Information Technology and Public Policy (CITAPP) at IIITB focuses on the policy challenges and the organizational demands made by technological innovation. The Center is interested in interactions between technology and society and is particularly concerned with how technological advances, along with institutional changes, address the needs of under-served communities. It seeks to provide a means to nurture and transform public policy through the use of IT by engaging with academic faculty and researchers, policy planners, political leaders and community representatives, technology vendors, public officials and civil society organizations. The Center brings together best-practices demonstrating the power of IT and analytical tools for information management, modelling, and forecasting. It engages in research and evaluation studies of topics where IT and public interest intersect.

5. Networking, Communication and Signal Processing:

The Networking, Communication and Signal Processing research domain focuses on all aspects of networking, communications, and signal processing. The current topics of interest are: Computer networks, Network security, Wireless communication, Signal processing, Medical signal processing, Computer vision, Control of unmanned systems using image processing and computer vision.

a. Networking and Communication Lab (NCL): NCL's main focus of research areas are Medium Access Control (MAC) protocols for broadband wireless network, IoT (in particular, Energy saving of 4G-A, 5G, QoS), Cognitive Radio, Transport Layer Security, SDN in Access Network. This Lab has received R&D projects from Hewlett Packard, Motorola Research, Intel, Microsoft, Tata Power SED, Honeywell, Nokia and Cognizant. It has also received multiple R&D project from Department of Electronics and Information Technology (DeitY), Govt. of India. For detail please click on NCL name above.

b. Mobile Computing and IMS Innovation Lab: In this lab the projects are sponsored by HP and Nokia. The R&D focus on video and audio streaming including handheld

devices, as also Video Media Platform, Charging, Service Delivery in IMS using Application Servers, XDMS, HSS and Presence servers. Moreover, this lab addresses issues related to quality of service modeling in IMS architecture with respect to differential traffic.

c. Multimodal Perception Lab: The Multimodal Perception lab focuses on human-centered sensing and multimodal signal processing methods to observe, measure, and model human behavior. These methods are used in applications that facilitate behavioral training, and social media analysis; and enable human-robot interactions (HRI). The focus is mainly on vision and audio modalities. Probabilistic graphical models from the backbone of the underlying formalism.

d. Wireless Sensor Network (WSN) Lab: Machine to machine (M2M) communication is going to be one of the major areas of R&D in networking and communication specialization. M2M faces multiple challenges and some of the major issues related to efficient communication between sensors, protocols, power saving in sensor, etc. In IIITB we have a WSN lab which supports multiple R&D projects on sensor networks. This lab has been sponsored by Govt. of Karnataka for development in embedded systems.

6.Software Engineering:

Software engineering (SE) brings together interesting avenues of both fundamental and applied research contributing to the broad spectrum of activities involved in the creation of large, complex, industrial strength software systems having high quality, dependability and within reasonable resources. The current research covers a wide variety of areas ranging from empirical to formal aspects of SE. At IIITB, the research in SE covers both upstream (requirement and design) and downstream (testing and maintenance) SDLC activities cutting across a variety of application domains (enterprise, embedded etc.). Here is a list of some of the broad areas in which our faculty members are working: Pattern oriented software engineering, software architecture, distributed software engineering, model driven software engineering (MDSE), software testing, verification and validation (V&V) of web-services and V&V of embedded software (cyber-physical systems and adaptive systems) among others.

a. Software Design Laboratory: The research focus here is on the design and architecture of software. Design patterns approach for the software development

process is studied, with special emphasis on the impacts of design principals and patterns on the flexibility as one of the prime focus.

b. Software Engineering Laboratory: Primary research focus of SE lab at IIITB is on formal aspects of software engineering. Current projects that we are working on involve:

- architecture analysis, testing, verification and program analysis for embedded software,
- verification and validation of web software, and
- software testing.

The aim of the lab is to expand the scope to include all aspects of software engineering, from requirements and design to testing and verification. Software specification and programming languages are two areas under consideration for exploring.

5.Funding of projects

Funding for projects is sponsored by various stakeholders. Different funds available are

1.Government sponsored projects

Government sponsor projects which have tangible deliverable and likely to impact the society at large. Various Govt funding agencies are as follows:

a. Government of Karnataka
b. Department of science and technology (DST)
c. Ministry of Electronics and information technology(MeitY)
d. Science and Engineering research board (SERB)

2.Corporate CSR funds

Corporate Social Responsibility (CSR) is the funding and grants under which Research Institution can get financial and other support from the corporate sector. Companies sponsor projects and research which are path breaking and likely to have impact on the society as a whole.

3. Academia/Institution funding

Research institution often collaborate with institution seeking the expertise available in the institute. Topics which are multi-disciplinary in nature often find sponsorship from Universities and institution of repute.

4.Industry driven projects

Some projects are industry driven where it is domain specific and the company invest in projects and topic which are relevant and important in transformation of their future operation. Google and Microsoft sponsored projects are relevant in this category.

Fellowships and grants available:

Research scholars registered for a research programme can avail scholarship through Fellowship from Government under schemes through DST or CSIR. Company sponsor can be availed when the Research scholar does research in the field of interest to the company which sponsoring the project. Scholarships available in the institute are a. Ministry of Electronics and Information Technology, Government of India initiated “Visvesvaraya PhD Scheme for Electronics and IT”.

b. Young Faculty Research Fellowship.

c. SERB CRG grant.

d. Empowerment and Equity Opportunities for Excellence in Science(EMEQ)

Project Scrutiny:

The organization that Sponsored the Project to the Institute and gives necessary financial support for successful completion of the project in time. The amount received from the organization is sanctioned by Director after due diligent approval from Dean (R&D). Depending on the budget of the project the approval/scrutiny committee changes**.**

a. Project which has budget less than 1 cr is put through TIRAC committee for approval.

b. Project which has budget greater than 1 Cr is put through RAC committee for approval.

Principal Investigator (PI):

PI is a faculty member who is a subject expertise in his respective field who has experience in conducting research project as well as industrial consultancy. Normally, the faculty member submits a research proposal and discuss the impact of the deliverable with the sponsor and is instrumental in getting the project sanctioned. For administrative reasons, the office of research headed by Dean (R&D) with his office maintains a record of the sanctioned project, vets the project for correctness in terms of legal and financial aspects and recommend the project to Director for financial concurrence. Office of research acts a nodal agency to maintain repository as well.

Research Associate/ Project assistant/Co-Investigator (Co -PI):

A faculty member co-opted by the Principal Investigator to work jointly with him is the Co-PI. Research associate and project assistant for the project can be hired by PI as specified by the sponsor in the term and conditions mentioned in the MoU.

Hiring Process:

The process of hiring them is done through Dean (R&D). The shortlisting of the applications project staff is to be done by the PI and sent to Dean (R&D) for approval. The selection committee for the recruitment of project staff for each project will comprise of the following members in the selection committee:

a. Dean(R&D) - chairman
b. Principal investigator(PI)- Member
c. A Subject Matter Expert (nominated by PI)- Member
d. External member (from academia/industry)-Member

Rules and Regulation for Appointment of Project staff:

All project appointments will be contractual and on the basis of consolidated monthly emoluments. The tenure of contractual staff will be of the duration of the project or a maximum period of five years. Selected RA/ Project assistant shall be made as per the guidelines specified by the sponsoring agency with approval of Dean(R&D)

a. On recommendation from Dean(R&D), the Appointment Letters should be issued by Registrar.
b. The Dean (R&D) shall fix, on the recommendations of the selection committee, the monthly consolidated emolument and the duration of the contractual appointment. The contract is to be renewed every year on recommendation of the PI. On completion of each year of service during the contract period, extension in tenure may be considered by the Dean (R&D) on recommendations of the PI of the concerned project. Application to be put up for approval of Dean(R&D).
c. RA shall not get transferred from one project to another after completion of the project for which he has been recruited. However, PI can recommend special cases with justification to Dean (R&D) for approval.
d. Project employees may be allowed to pursue higher education subject to fulfillment of the requirements of the institute. PIs shall recommend them for registration for MS/PhD programme in the institute.

Rules and regulations for conduct:

a. Follow the general code of conduct specified by institute
b. Maintain secrecy of the project and details. Display academic integrity and shall not divulge any information regarding the project details.
c. PIs shall be leave granting authority in case of Project staff as per the laid out regulations.
d. Dean (R&D) may, at his discretion, constitute committee(s) to conduct disciplinary proceedings, if necessary against project employees. On the basis of the report, suitable disciplinary action may be initiated and punishment will be imposed

by the Dean (R&D).

7.TECHNOLOGY INNOVATION AND RESEARCH ASSISTANCE COUNCIL(TIRAC)

Introduction:

The Institute and its Innovation Centre receives multiple research and innovation in a form that it permits

a. creation of multiple solution by individual PI
b. collaboration with faculty members
c. Partnership with industries or external agencies with interest in the same domain

The aim of research is to utilize the grants in research which create a positive impact in the society. TIRAC evaluates the proposal and approves them for funding through project funds or Institute research grant.

Members of TIRAC:

a. Dean (R&D), IITB innovation chairperson,
b. In charge of institutional finance,
c. Dean (Academics),
d. CEO Outreach,
e. Grant PI- Mandatory invitee for proposal considered under this grant,
f. Secretary TIRAC

Duration of members:

The term of the Committee is for a period of three years. The members are selected by Academic council which is approved by Director.

Conduct of Meeting:

a. The committee to meet every fortnight to evaluate the proposals received and review the previous decisions taken during TIRAC meetings.
b. If more proposals are received then, Dean (R&D) will approve for the TIRAC based on the member's availability and feasibility to hold the meeting

c. Secretary to take approval from Dean (R&D) and promulgate the time date and venue for the meeting in advance. Further, request PI and faculty members to forward proposal and other issues to the committee.
d. Secretary to collate all the agenda points and prepare the agenda for TIRAC and share it will Dean (R&D) a day prior to the actual meeting.

Role of TIRAC:

The TIRAC committee when evaluating the proposal, it should consider the following

a. Whether the proposal is in line with spirit of the fund provided by the Sponsor
b. Whether the research will convey the relevance and impact it will produce on the society
c. Whether the Proposal is technically sound.
d. whether the space of work is clearly spelt out and role of each parties in achieving the work is clearly spelt out
e. whether the financial budgeted and requested in commensurate with the scope of the work put out in proposal
f. whether the scope of work identifies the milestones and also spells out the financials to be disbursed on achieving the milestone.
g. Whether the proposal clearly specifies the IP right of the parties involved.

TIRAC committee will either approve or reject the proposal based on the findings from the proposal. The Committee will suggest the PI to consider the necessary changes and submit for approval. **Financial sanction will not be issued unless cleared by the committee**.

8.RESEARCH ADVISORY COMMITTEE (RAC)

Introduction:

The International Institute of Information Technology Bangalore (IIIT-B) had constituted a two-member Research Advisory Committee (RAC) comprising Prof. B. S. Sonde and Prof. S. S. Prabhu in 2013-14 to advise the Institute on various aspects of Sponsored R&D, Consultancy and related activities taken up at the Institute. One of the specific items assigned to RAC was to conduct annual review of the Sponsored R&D Projects and recommend steps to be initiated to bring about quality improvement in this activity.

Members of the RAC:

Members of the committee will be selected from eminent academicians/ industrial experts who have adequate experience in steering major projects in R&D. The members will be recommended by the academic council/ Senate and approve by the director.

Role of RAC:

(a) Review the major projects undertaken by IIITB

(b) Review the progress of the Projects for its technical correctness and feasibility of reaching the milestones.

(c) Suggestions to improve the quality of research

(d) Advise measures to increase the sources of funding

(e) Analyze major delay in project which delays the milestone to be achieved

(f) Review the implementation of IP rights.

(g) Review the procedure of Non-Disclosure agreement

(h) Procedure of charging institutional overheads and benefits for Researchers

(i) Review the handling of project with international funding

(j) observe and advise on Institutional repository maintained during Research and outcomes.

9.SEMINAR HELD AT IIITB

(a) Samvaad Lecture series:

Samvaad, as an initiative, was started in January 2018 to provide a platform and enable a dialogue among the different research initiatives going on at IIIT Bangalore. The initiative features a public talk by one faculty member every week, introducing the ideas and questions that they are pursuing as part of their research. The objective of Samvaad is to enable cross-fertilization of ideas, and develop strategic research collaborations between members of the faculty, as well as with interested external partners.

(b) Research, Innovation, Society and Entrepreneurship (RISE) Symposium:

RISE is an annual 3-day event held by the institution that is aimed at promoting our research and increasing its social impact. RISE inaugural symposium was held in the year 2017. It comprises of a PhD colloquium, an open day for research centers and labs, as well as an “open innovation” day to interface our research personnel with the startup and innovation ecosystem.

In addition to the above, several more structural initiatives to promote research, are on the anvil. These include: creation of an institutional repository for pre-prints and technical reports, and facilitation with book publishers to empower our faculty to author textbooks and popular science books.

(c) Inclusive STEM Hackathon (ISTEM):

There are over 1.3 billion people with disabilities around the world and 20 million youth with disabilities. Despite legislative measures and assistive technologies, there continues to be a big gap in education and employment opportunities for students with disabilities, especially in fields such as STEM. These challenges arise due to such factors as inaccessibility of study material, attitudinal barriers and lack of awareness. Recent advances in technology, however, makes it possible for students with disabilities to pursue several careers on an equal basis as others.

At I-Stem, our vision is to empower students and professionals with disabilities to realize their potential with a special focus on the STEM fields. We do this through hands-on activities and initiatives, training, mentorship, technical research, and a

strong community. We also work closely with universities and corporates to help them realize the potential of people with disabilities and include them in their organizations, thereby creating an inclusive ecosystem.

2018 and 2019 saw a group of passionate coders, students and industry professionals (both sighted and persons with blindness/low vision) come together in January at Bangalore for the Inclusive Stem Hackathon. The hackathon was where blind and visually impaired developers, industry professionals and CS students came together to work on exciting and challenging problems. The aim of the hackathon was to sensitize the engineers from potential IT companies and change the wider company mindset on the functioning and efficiency of persons with blindness and low vision by working together on the project, while also allowing the participants with disabilities an opportunity to learn from experienced professionals.

The two Inclusive Stem hackathons saw nearly 60 blind participants, sighted students from seven universities and corporate professionals from eleven tech companies participate. Participants worked on a variety of projects using varied skills including machine learning, blockchain technology, core accessibility skills, among others. We received very positive feedback from the participants, and the hackathon also led to positive employment opportunities for some.

(d) Ramanujan Math and IT conference (RMIT):

RMIT is the tenth in the series on Ramanujan, Math and IT held annually. The conferences celebrate the genius of our nation's great mathematician Srinivasa Ramanujan, and attempts to bring together pure and applied mathematicians, and information theory professionals together. Advances in mathematics ranging from convex analysis, number theory to algebraic geometry, are foundational for many advanced information technology applications today. Conversely, computational methods are becoming mainstream in many branches of mathematic today.

10. Policy for Institute Travel Fellowships

An annual budget is allocated by the Institute for supporting conference travels by faculty members, research scholars and students. Details of the allocated budget are as follows:

Ser	Staff Particulars	Authorized amount	Eligibility
1	Faculty Travel Support	Rs1.5 Lakhs	Faculty members are eligible for Rs 1.5 lakhs every year
2	PhD Students Travel Support	Rs1.5 Lakhs	PhD Scholars are eligible for Rs 1.5 lakhs during their entire course of study
3	MS (Research) Travel Support	Rs0.75 Lakhs	MS Scholars are eligible for Rs 0.75 lakhs during their entire course of study
4	i.MTech./MTech./MSc (Digital Society) students Travel Support)	Rs0.50 Lakhs	iMTech/MTech/MSc(digital society) students are eligible for Rs 0.5 lakhs during their entire course of study

Eligibility:

Eligibility for application requires an accepted peer-reviewed publication (full paper, short/poster paper, demo) in the Conference or Symposium.

Expense covered under Travel Fellowship:

The following costs are **covered** by the fellowship:

a. Registration,
b. Travel tickets & insurance,
c. Stay & Boarding,
d. Commuting, and
e. Visa charges (in case of travel abroad).

Any other cost incurred by the applicant will not be covered under this fellowship. In case the costs incurred by the applicant exceed the eligible limit, only the eligible limit will be covered. The applicant is encouraged to also look for other sources of travel support.

Expense not covered under Travel Fellowship:

The following are **not** covered by the fellowship:

a. Journal publication charges and extra page charges,
b. Participation in a conference without a peer-reviewed paper, or participation based on invitation.

This travel fellowship is provided by the Institution and not expensed to any sponsored project. Applicants are encouraged to utilize funds from sponsored projects or consultancy funds that they are eligible to use, to augment, or in place of, the Institutional travel fellowship.

In **exceptional cases**, the **Director** is empowered to override the policy and approve fellowships for meritorious applications that do not strictly fall into the above criteria.

Limits on expenditure:

Ser	Expense	Authorised expenditure
1	Registration for Conference/Seminar	On Actuals spent
2	Travel ticket and insurance	(a) Travel by Rail/bus – II AC (b) Travel by air – Economy fare
3	Stay and boarding	(a) Within Country - Rs 6000 (b) Overseas - Rs 8000
4	Food	(a) Within country - Rs 1000 (b) Overseas – Rs 3000
5	Local transport expense	(a) within country – Rs 1000 (b) Overseas – Rs 2500
6	Visa Charges	On Actuals spent

Application Process:

1. Applicant needs to send the following data via the application form enclosing the following documents:
   a. Copy of the acceptance letter
   b. Budget showing projected or incurred total costs and costs breakup
   c. Details of the accepted paper
   d. Approval note from the faculty supervisor in case of student applications

2. Travel fellowships committee decides on the approved amount based on eligibility and prior claims if any.

3. Unless an advance is specifically requested, fellowship will be provided on a reimbursement basis, based on actual costs incurred up to a maximum of the

approved amount. This is subject to applicant providing requisite details like boarding passes, receipts, etc. For expenses where there are no receipts (like commuting using public transport), applicant may submit a declaration about the actual expense incurred up to a maximum of INR 1000. Where an advance payment is done by the Institute, the applicant is expected to settle the fellowship by reimbursing excess amount or requesting for any additional amount within the prescribed limit, by submitting travel documents like boarding passes, receipts, etc. The settlement is expected to be done within 15 days of the finish of the travel.

Any dispute concerning claims may be addressed to the Director, with a copy to the travel-fellowships committee. The decision of the Director in this regard will be considered final, and binding.

INSTITUTIONAL POLICY FOR MANAGING INTELLECTUAL PROPERTY OWNERSHIP

Preamble

The spirit in which the policy for regulating Intellectual Property Ownership is captured by the following context:

1. The International Institute of Information Technology (IIIT-B) represents a new-age institution of higher education that is based on a public-private partnership model.

2. Attracting and retaining people who can generate intellectual property having significant positive impact on society and the state of the art, is critical for establishing and retaining academic leadership by IIIT-B.

3. Given the nature of participation by private industry in the activities of IIIT-B, the institute has an obligation to protect the interests of all parties involved, concerning intellectual property.

4. As an Institution of higher education, IIIT-B also has an obligation towards society to create, manage and disseminate knowledge that is critical for the society at large. The IP ownership policy should facilitate, rather than place unnecessary controls and restrictions on such dissemination.

5. The remuneration policies for IIIT-B faculty are based on academic duties and there are no direct remunerative benefits for a faculty member's research activities. Given this, the IP ownership policy should not create a disincentive for faculty members to pursue research over and above their academic duties. A healthy research culture is crucial to achieve and retain academic leadership in higher education

Definitions

a) The term IIIT-B shall refer to the International Institute of Information Technology –

Bangalore.

b) The term FACULTY MEMBER shall refer to any academic personnel employed or under contract within IIIT-B and receives remuneration for his/her academic services rendered.

c) The term STUDENT refers to any registered student or research scholar pursuing academic activities under IIIT-B, usually with the guidance of a FACULTY MEMBER. A STUDENT is typically charged a tuition fee and infrastructure fee for his/her use of the IIIT-B infrastructure.

d) The term COLLABORATOR refers to an Institutional third-party who is involved in a joint academic or research project with one or more FACULTY MEMBERS at IIIT-B under a COLLABORATION AGREEMENT.

e) The term VISITOR refers to any person working in the capacity of trainees, visiting scholars, interns or any other form, from a COLLABORATOR Institution.

f) The term CURRICULUM refers to all intellectual output created for teaching, training and dissemination of already existing knowledge.

g) The term RESEARCH refers to all activities of an exploratory nature that extends the boundaries of knowledge undertaken by any FACULTY or STUDENT that is not part of the CURRICULUM, but nevertheless is an important contribution to the intellectual content in the Institute. All activities leading to theses and dissertations are also clubbed under the topic called RESEARCH.

h) The term RESEARCH OUTPUT refers to intellectual material that represents new or in some way novel knowledge that is not known well enough to be part of the CURRICULUM of any university.

i) The term COPYRIGHT represents rights to use, store and disseminate a given representation of intellectual property (in the form of lecture notes, technical papers, videos, etc.)

j) The term OWNERSHIP represents rights to use, store, disseminate and license underlying ideas and methods representing intellectual property.

2. Policy Details

2.1. Copyright on Curriculum Material

a) COPYRIGHT on all CURRICULUM Material, including but not limited to, course notes, presentations, hand-outs, software, videos, etc. created as part of the CURRICULUM of IIIT-B shall be held by IIIT-B in a non-exclusive fashion detailed below.

b) Any FACULTY or STUDENT creating the CURRICULUM Material holds a non-exclusive right to own, store, disseminate and use any such IP developed by them for research and teaching activities.

c) COPYRIGHT for all CURRICULUM material created by any COLLABORATOR or VISITOR to IIIT-B shall be defined by the collaboration agreement. However, notwithstanding the terms of the agreement, IIIT-B shall hold the right to own, store, disseminate and use in any way, such material developed as part of its CURRLCULUM for its teaching and research activities.

d) OWNERSHIP of CURRICULUM material that provides commercial rights for the use of the material is decided by the Ownership Stake holding Pattern defined in Section 2.3.

2.2. Copyright on Research Output

a) COPYRIGHT on all such RESEARCH OUTPUT shall rest jointly with the creators and IIIT-B. They shall have a right over such RESEARCH OUTPUT developed in the Institute, to use, store and disseminate such material for research and teaching activities, consistent with any applicable confidentiality clauses.

b) In case any RESEARCH OUTPUT is sought to be commercially exploited, the rights and privileges for such commercial exploitation is determined by “Ownership” of RESEARCH OUTPUT.

c) “Ownership” of RESEARCH OUTPUT entitles a holder to the following privileges:

(i) Obtain a share of any royalty payments received for such RESEARCH OUTPUT based on the ownership stake holding pattern, defined below.

(ii) Enter into commercial licensing agreements for exploiting the RESEARCH OUTPUT, with the caveat that any such commercial agreement shall have a clause specifying a license fee for the RESEARCH OUTPUT, which shall be then shared among the stakeholders according to the ownership stake holding pattern.

d) When an owner of a RESEARCH OUTPUT enters into a commercial agreement, while the owner is obliged to share royalty received on such RESEARCH OUTPUT with other owners, any liability as part of this agreement shall **not** be shared with the other owners, unless there is an explicit agreement to the contrary among the owners to share liabilities as well.

e) Ownership of RESEARCH OUTPUT is typically decided on a case to case basis, depending on the contribution of the different stake holders, either monetarily or intellectually, towards creation of the RESEARCH OUTPUT. However, a general framework called the ownership stake holding pattern, defining the boundaries of any such case to case agreement is defined in this document.

2.3. Ownership Stake Holding Pattern

To reiterate, OWNERSHIP of CURRICULUM or RESEARCH OUTPUT entitles a holder to the following privileges and obligations:

a) Obtain a share of any royalty payments received for licensing of the Intellectual Property based on the ownership stake holding pattern, defined below.

b) Enter into commercial agreements or licensing for exploiting the Intellectual Property, with the caveat that any such commercial agreement shall have a clause specifying a license fee for the Intellectual Property, which shall be then shared among the stake holders according to the ownership stake holding pattern.

c) Indemnify other stake holders from liabilities of the licensing agreement if their explicit consent to the contrary was not taken at the time of licensing.

Ownership stake holding pattern for Intellectual Property is defined as follows:

a) IIIT-B shall have an ownership stake of not less than 20% on all Intellectual Property created by FACULTY, STUDENTS OR VISITORS participating in IIIT-B programs or using IIIT-B funds or facilities.

b) Any Creator of Intellectual property (RESEARCH GROUP in the case of RESEARCH OUTPUT and Faculty Member in the case of CURRICULUM material) shall have an ownership stake of not less than 20% on all Intellectual Property created by them as affiliated members of IIIT-B. Stake holding of individuals within a group are decided among the group members.

c) In case of collaborative projects involving external COLLABORATORS, ownership of Intellectual Property is defined by the terms of the COLLABORATION AGREEMENT. Notwithstanding the exact terms of such an agreement, ownership of RESEARCH OUTPUT by IIIT-B shall not be less than 20% for any such activity and that of the research group within IIIT-B participating in the collaboration, no less than 20%.

d) For all RESEARCH OUTPUT, IIIT-B shall retain a non-exclusive, free, irrevocable license to copy/use RESEARCH MATERIAL for teaching and research activities, consistent with confidentiality agreements where ever applicable.

e) The cost of filing patents or registering copyrights on RESEARCH OUTPUT may be decided based on one of the different legal costing options available, as listed in Annexure I. Each option may have its own conditions that are applied over and above the ownership stake holding pattern.

f) Any ownership claim by a FACULTY or STUDENT should be accompanied with a signed copy of the statement in Annexure II, staking formal claim to ownership.

g) Any STUDENT wishing to stake ownership of RESEARCH OUTPUT that was generated in IIIT-B should have the express consent of a FACULTY member that endorses the claims made by the STUDENT. If the RESEARCH OUTPUT is from

the activities of a research group within the Institute, then a STUDENT may not unilaterally apply for IP ownership on any or part of the group output.

h) For RESEARCH OUTPUT having no external ownership, IIIT-B shall not place restrictions on disseminating the RESEARCH OUTPUT into the public domain using one of the many public licenses, if so desired by the creators.

2.3.1. Institute IP Committee

a) Institute IP committee is a committee comprising of not less than 3 faculty members that is constituted to resolve issues pertaining to IP ownership.

b) The Institute IP committee shall be appointed by the Director and shall have the powers to arbitrate and decide on ownership stake holding patterns, among other issues.

c) The Institute IP committee shall also have the powers to approve alternative plans for IP ownership, not mentioned in this document, with the understanding that any such approved plan shall not invalidate any already approved plans and any such approved plans shall be made available to all FACULTY without bias or restrictions.

d) The Institute IP committee shall not unilaterally invalidate any IP policy that has been previously approved. Invalidation of any approved plans including the plan proposed in this document, shall involve a due diligence and debate involving all FACULTY members and shall be approved by the Institute Board.

2.3.2. Conflict of Interest

The following conditions constitute conflict of interest, that requires the explicit intervention of the Institute IP Committee.

a) Placing restrictions on any owner of a shared IP against licensing of IP to any third party.

b) Changes to ownership stake holding pattern involving the Institute, from what has been previously agreed upon. In case, there is a change in an ownership stake holding pattern that does not affect the Institute, the Institute IP committee shall

be notified of the same.

c) Sharing of liabilities by a stakeholder, involving the Institute, for an Intellectual Property in any contractual agreement that one of the stakeholders wishes to enter.

2.3.3 Alternate IP Policies

The policy presented in this document represents the scheme that is applicable by default. Faculty members wishing variations, or a completely different set up may pursue the same with prior approval of the Institute IP Committee. All such approved schemes shall be uniformly and transparently available to all personnel of IIIT-B without bias or restrictions.

Modalities of industry interaction by IIITB and its faculty members

Preamble

This document specifies the overall framework to guide gainful interaction with industry by IIIT-B faculty members. This document has to be read along with the IIIT-B IP policy document, which details how intellectual property is managed within the Institute.

The spirit behind the collaboration framework may be specified as follows:

1. Interaction between faculty members and industry is a healthy process that would add value to both parties and enrich the ecosystem. The spirit of the collaboration model is to encourage, rather than restrict such collaborations, without compromising on IIIT-B's commitment to academic and research excellence.
2. Interaction with industry can take place in several different forms, each of which has its own rationale and constraints. The collaboration model defines a basic set of modalities and keeps the model open for addition of more collaboration modalities in the future.
3. While interaction with industry is a healthy practice, IIIT-B has to also ensure that its representatives accord the highest priority to upholding IIIT-B's commitment to academic and research excellence. In order to ensure this, certain reasonable restrictions are placed on the time and effort that faculty members may spend in industry interaction. In cases where such restrictions cannot be met, the Institute Outreach Committee is expected to make exceptions keeping in mind the above mentioned spirit behind the regulations.

1. Collaboration Models

The following collaboration models are recognized as valid modes of gainful interaction between IIIT-B faculty and the industry. Alternate models of interaction may be proposed by the Institute Outreach Committee after sufficient due diligence involving feedback from the faculty and the Board. Any such alternate models are available to all faculty members without prejudice or bias once it is institutionalized.

1.1. Consultancy (work for hire)

Faculty member interacts with industry on specific project(s) that are of immediate interest to the industry. This is termed as “consultancy” or “work for hire” model of interaction. Consultancy is usually carried out at the premises of the industry and there is no other involvement of IIITB or its students. Faculty member is paid a consultancy fee, of which up to 40% may be charged by IIITB as its overheads. Faculty member has a limit (52 working days per year) on the amount of time that can be spent on consultancy. Out of pocket expenditure incurred by the faculty member has to be either reimbursed by the industry or met by the faculty member.

In case the consultancy assignment involves use of institute infrastructure, research scholars (M.Tech, MS or Ph.D students) or staff (Research engineers or teaching assistants) compensation towards this support must be obtained from the Industry. The students and staff involved may be paid remuneration from this compensation. An overhead of up to 40% may be charged by the Institute over the total amount billed to the Industry.

Publication that may arise out of consultancy, generally must be pre-approved by the industry. Similarly, any intellectual property that may arise out of the consultancy will also be the property of the industry. If the industry requires the work and other related matters to be kept confidential and not disclosed, faculty and staff engaged in the consultancy will enter in to a Non-Disclosure agreement. The faculty may use knowledge gained in the consultancy, in future teaching or research after removing any proprietary information and after obtaining permission from Industry.

1.2 Sponsored Research

Sponsored research represents collaborative activities between Institute faculty members and industry that represent research activities of an applied nature.

The value-add provided by the Institute and its faculty are generally of a kind involving architectural and/or design problems, and not subcontracts of implementation or maintenance activities. In contrast to consultancy, faculty member takes up an additional responsibility of implementing a prototype by managing a project group of students or hired staff at IIITB. Industry agrees to support stipends of students, salary of staff, equipment and other expenditure that may be incurred in the project for the duration of this project.

Intellectual property developed from Sponsored Research projects is shared between the Institute and the Industry according to the norms of the IP Stake holding pattern defined in the Institute IP policy.

If the Faculty member involved is not monetarily compensated as part of the project, then the Faculty member is entitled to a stake in the ownership of the Intellectual Property developed as part of this project subject to the norms of the IP Stake holding pattern defined in the Institute IP policy.

Alternatively, the Industry is entitled to buy complete rights to the Intellectual property based on a pre-negotiated price. Buying rights on the intellectual property by the Industry retains the right by the Institute and its Faculty to use the intellectual property for teaching and research activities after removing all proprietary information.

Institute is entitled to charge an administration and processing overhead of up to 30% over the total cost of the project billed to the Industry. Publications arising out of such projects typically of a joint nature, involving people from both the Institute and the Industry. A pre-negotiated policy for publication may be implemented on a case to case basis, depending on what the industry plans to do with the intellectual property.

1.3 Collaborative Research

These are collaborative endeavors of an exploratory nature (rather than the applied nature of sponsored research) jointly taken up by IIITB Faculty members in collaboration with an Industry. Outcomes of these projects are generally unlikely to be of immediate commercial relevance to the industry, but serve to extend the boundaries of knowledge in specific areas.

Collaborative research need not involve monetary commitment by either parties and may be carried out with just time and infrastructure commitments. The collaborators (Institute and Industry) may also write joint proposals for research funding from a third source as part of collaborative research.

Intellectual property generated as part of such activities are generally in the public domain. Alternatively, such intellectual property may be shared between the Institute, Industry and the participating personnel subject to the norms for IP Stake holding pattern defined in the Institute IP policy.

In case funding is received from any third party, Intellectual Property rights shall be negotiated in advance with the third party before the commencement of the

collaboration. Any such negotiated agreement shall not breach the norms laid out in the Institute IP policy, failing which, such arrangements will need the explicit approval of the Institute IP committee.

The Institute is entitled to charge up to 30% administrative and processing overhead on any funding received from third parties as part of collaborative research.

1.4 Research Fellowships (Grants)

Research Fellowships or Research Grants are donations by the industry to specific research scholars (M.S. or PhD students) to encourage their research. Such donations serve to pay the stipends of research scholars. The Institute is entitled to withhold a fee element from the stipend paid to the research scholar.

The research scholar shall acknowledge this grant and promote the industry as part of his/her outreach activities like publications, talks, etc.

While the grant making industry is entitled to ask for periodic progress reports from the research scholar, typically they are not expected to influence or control the research process of the research scholars supported by such grants. In specific cases, the industry may appoint a secondary supervisor for the research scholar(s) supported by such grants as part of a pre-negotiated arrangement with an Institute Faculty member. However, the primary research supervisor for such research scholars will be among the Institute faculty who will have the final say in the say in the research agenda of the research scholar.

Intellectual property arising from such activities are typically in the public domain. If the grant-making industry is interested in commercially exploiting such intellectual property, it will enter into a joint ownership agreement with the Institute and involving the Faculty member and research scholar in question; and in compliance with the norms specified for IP Stake holding pattern in the Institute IP policy.

In any case, the industry shall ensure that its commercial interests on the intellectual property shall not unduly inconvenience the processes of thesis defence, publication and any such academic requirements for completion of a research degree.

1.5 Pro bono Interactions

These are outreach activities by the faculty members of the Institute, where the main element of gain is intellectual and experiential, and there is no net financial gain to the faculty member. Some examples of such interactions include the following:

serving on the board of companies, serving on the technical committees of conferences, personnel selection committees, etc. Pro bono interactions also include longer term interactions like projects carried out for free towards an NGO or for charitable purposes, with no net financial gain.

In the interests of building the ecosystem and intellectually enrichment, the Institute encourages pro bono interactions and shall not charge any financial overheads over such interactions.

However, in specific cases the Institute Outreach Committee may place reasonable restrictions if it can ascertain that any pro bono interaction carried out by a member of the Institute is undermining or not upholding the paramountcy of the Institute's commitment to academic and research excellence.

Such restrictions shall be decided and reviewed on a case by case basis and shall not be deemed to automatically apply to all pro bono activities of the same kind.

2. Institute Outreach Committee

Collaborative activities of the Institute are overseen by the Institute Outreach Committee, comprising of at least 3 faculty members, appointed by the Director, and having a tenure of no more than 3 years.

The Institute Outreach Committee is entitled to the following privileges and duties:

a. Approve alternate collaboration models over and above the models specified in this document with the restriction that any such approved models shall be made available to all faculty members without bias.
b. Negotiate and approve the IP stake holding pattern for any collaboration.
c. Arbitrate in matters of conflict of interest or requests for change in a collaboration model or IP stake holding pattern.

3. Conflict of Interest

The following represent situations of conflict of interest, where approval of the Institute Outreach Committee is mandatory.

a. Collaboration with industry under a model not specified in this document or among a set of approved collaboration models.
b. Changes to the overheads charged by the Institute.
c. Changes to the IP stake holding pattern approved as part of a collaborative

project.

4. Jurisdiction

Disputes arising from any collaborative activity between IIIT-B and Industry are subject to the jurisdiction of the courts of Karnataka, India.

Annexure I

Legal Costing Options

The following facilities are available to alleviate legal costs for protection of Intellectual Property. This list is subject to changes and amendments over time as new options become available, or existing options are no longer feasible.

1. **Support by IIIT-B:**

   Subject to availability, IIIT-B may provide monetary support for registration of copyrights and filing of patents, with the following provisions and conditions:

   a. Monetary support is provided for filing patents and registering copyrights in India
   b. IIIT-B shall retain a stake of not less than 50% on all RESEARCH OUTPUT that it has funded for patenting or registration of copyright
   c. IIIT-B will not bear any costs for filing or fighting legal suits resulting from the filing of such patents and copyrights
   d. IIIT-B shall be indemnified by the creators of any liabilities arising due to the filing of such patents or copyrights

2. Intellectual Ventures:

IIIT-B has partnered with Intellectual Ventures Pvt. Ltd for filing of international patents. Salient points of the arrangement with Intellectual Ventures is summarized below. FACULTY and STUDENTS wishing to avail of this facility are urged to refer to the complete agreement before taking a decision:

a. FACULTY and STUDENTS can propose solutions and innovations to Intellectual Ventures.

b. Intellectual Ventures will notify acceptance or rejection within 90 days.

c. Intellectual Ventures may also invite solutions, innovations for addressing a specific need. FACULTY or STUDENTS can propose solutions, innovations in response to such requests to Intellectual Ventures. Intellectual Ventures will notify acceptance or rejection within 90 days.

d. On acceptance, IIIT-B will grant exclusive license to use the solutions to Intellectual Ventures. IIIT-B will have an agreement with the creators that authorizes IIIT-B to grant this license to Intellectual Ventures.

e. The stake holding of the creators on such RESEARCH OUTPUT will be no less than 20% as specified by Clause 2.3.

f. Intellectual Ventures makes payments based on its agreement with IIIT-B in the following instances: on acceptance of the solution proposal, first patent application and whenever royalties are received.

g. All such royalties received shall be shared by IIIT-B among the stakeholders according to the agreed-upon ownership stake holding pattern.

2. Patent Facilitation by the Government of India: For details see below

a. http://www.dst.gov.in/

b. http://www.dst.gov.in/scientific-programme/t-d-pfc.htm

c. http://www.indiapatents.org.in/

d. TIFAC: http://www.tifac.org.in/

ANNEXURE II

DECLARATION

This document has to be signed by any faculty member or student of IIIT-B wishing to file for a patent or registration of copyright staking claim on research output developed at IIIT-B.

"I/We hereby declare that the research output mentioned in this claim has been developed with the support of IIIT Bangalore. No other entity has legitimate claim to ownership of the said research output.

I/We also declare that all and only those personnel, whose intellectual contributions contributed directly to the creation of this research output have been stated as co-inventors of this research output.

I/We agree to hold ownership of this research output according to the ownership stake holding pattern applicable to this research output. I/We agree to share any royalties received on this research output among the stake holders according to the ownership stake holding pattern.

I/We also declare that filing of this patent or copyright registration does not violate any laws or willfully infringe on existing rights to the best of my/our knowledge.

I/We hereby indemnify other stakeholders of this Intellectual Properties from any liabilities if we enter into a contractual agreement concerning the Intellectual Property, and without explicit consent to the contrary, from the other stakeholders."

Signature of all the owners:

(In case of student-only applications)

Endorsed by: (Faculty member signature and name)