From:	Smith, Randy
To:	Krishna, Sanjay; Shanker, Balasubramaniam
Cc:	Sutherland, Sue; Reed, Katie; Smith, Randy; Miriti, Maria; Stromberger, Mary; Duffy, Lisa; Hunt, Ryan; Quinzon-Bonello, Rosario; Tomasko, David; Howard, Ayanna; Sahin, Kaya
Subject:	Proposal to establish a Dual PhD Degree with the Indian Institute of Technology Bombay
Date:	Wednesday, September 18, 2024 4:32:41 PM
Attachments:	image001.png

Sanjay and Shanker:

The proposal from the College of Engineering to establish a Dual PhD Degree with the Indian Institute of Technology Bombay was approved by the Council on Academic Affairs at its meeting on September 4, 2024. Thank you for attending the meeting to respond to questions/comments.

No additional level of internal review/approval is necessary. This action will be included in the Council's next Annual Activities Report to the University Senate (July 2025).

The Office of the University Registrar will work you with any implementation issues.

Please keep a copy of this message for your file on the proposal and I will do the same for the file in the Office of Academic Affairs.

If you have any questions please contact the Chair of the Council, Professor Sue Sutherland (.43), or me.

I wish you success with this important program development.

Apologies for the delay in sending this message.

Randy

THE OHIO STATE UNIVERSITY

W. Randy Smith, Ph.D.
Vice Provost for Academic Programs
Office of Academic Affairs
University Square South, 15 E. 15th Avenue, Columbus, OH 43201
614-292-5881 Office
smith.70@osu.edu
Assisted by:
Katie Reed
Executive Assistant
(614) 292-5672
reed.901@osu.edu

From: Miriti, Maria
To: Reed, Katie; Quinzon-Bonello, Rosario
Cc: Kowalsky, Lisa
Subject: RE: Dual Ph.D. Degree Proposal between ECE and IITB
Date: Thursday, May 16, 2024 10:04:22 AM
Attachments: image001.png

Hi Rosie and Katie,

I reviewed the proposal and am comfortable forwarding it to CAA for review.

Thanks,
Maria

From: Reed, Katie <reed.901@osu.edu>
Sent: Thursday, May 16, 2024 9:21 AM
To: Quinzon-Bonello, Rosario <quinzon-bonello.1@osu.edu>; Miriti, Maria <miriti.1@osu.edu>
Cc: Kowalsky, Lisa <kowalsky.10@osu.edu>
Subject: RE: Dual Ph.D. Degree Proposal between ECE and IITB

Thanks, Rosie.

Maria—Is this proposal ready to come to CAA, or do you want the Grad School to re-review with the College's approval?

Katie

From: Quinzon-Bonello, Rosario <quinzon-bonello.1@osu.edu>
Sent: Wednesday, May 15, 2024 4:23 PM
To: Miriti, Maria <miriti.1@osu.edu>
Cc: Reed, Katie <reed.901@osu.edu>
Subject: Dual Ph.D. Degree Proposal between ECE and IITB

Hello Maria,

The College of Engineering met this week to discuss the proposal to establish a dual PhD. Proposal between OSU and the Indian Institute of Technology Bombay. (IITB).
The proposal took a circuitous approval route, and as a result the College of Engineering was only able to review it earlier this week.
Attached is a document that includes the memo providing COE support, the updated proposal, and international agreement.
Please let me know if you need anything else.

Thank you,
Rosie

THE OHIO STATE UNIVERSITY

Rosario (Rosie) Quinzon-Bonello, M.Ed.
Assistant Dean for Curriculum and Assessment
College of Engineering
122 Hitchcock Hall, 2070 Neil Ave.
Columbus, OH 43210
quinzon-bonello.1@osu.edu
engineering.osu.edu

THE OHIO STATE UNIVERSITY

College of Engineering

Undergraduate Education & Student Services

122 Hitchcock Hall
2070 Neil Avenue
Columbus, OH 43210-1278

614-292-2651 Phone
614-292-9379 Fax

engineering.osu.edu

Memo

To: Dean Maria Miriti, Associate Dean Graduate School
From: Rosie Quinzon-Bonello, Assistant Dean for Curriculum and Assessment
Date: May 15, 2024
Re: Dual / Co-Tutelle Ph.D. Degree in Electrical Engineering between IIT Bombay and The Ohio State University

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On May 15, 2024, the College of Engineering Committee for Academic Affairs (CCAA) approved the proposal to establish a Dual Ph.D. Degree in Electrical Engineering between IIT Bombay and The Ohio State University.

Attached is the proposal as well as the International Cooperative Graduate Degree Agreement (ICGA). The college curriculum committee met with

The proposal is attached. Please let me know if there is any additional information you need.

Yours sincerely,

Rosie Quinzon-Bonello

Proposal for Dual or Co-Tutelle Ph.D. Degree between IIT Bombay and The Ohio State University

Rationale

This document describes a cooperative Dual PhD degree agreement designed to deepen the research and academic relationship as part of the growing partnership between The Ohio State University (Ohio State) and the Indian Institute of Technology (IIT Bombay). In IIT-B parlance, this is also known as **co-tutelle**. The goal of this cooperative dual degree program is; (i) to provide a framework for exceptional graduate students from IIT Bombay and at The Ohio State University to seek a global educational and professional experience by enrolling as a graduate student at each other's institutions, (ii) to produce skilled and diverse graduates from Ohio State and IIT Bombay by recruiting and nurturing excellent domestic as well as international students to our graduate programs who embody an awareness and engagement to influence the world, and (iii) to mutually benefit from the academic excellence, advanced technology and innovation of each institution . The opportunity to gain an international experience in graduate education provides a means of access to new information and perspectives, innovative concepts and methods, emerging research technologies, and unique populations and environments not typically available at a single institution and country.

The Ohio State University and the Indian Institute of Technology-Bombay (IIT-B) have had a long standing relationship through the Frontier Research Center. This center seeds collaboration between OSU and IIT-B researchers particularly in the area of semiconductor research. It is supported by the scaffolding of companies that enables mutual exchange of researchers, both faculty and students, in both directions. This collaboration provides a strong foundation to this relationship. At this point, we digress a little to introduce the partner institution.

IIT-B is one of the original six **national flagship** technical institutes/Universities in India. Admission to the Undergraduate program has a success rate of < 1%. It is predominantly an engineering school, with a robust research program in a number of engineering and science disciplines. Of **initial** interest to us is collaboration in microelectronics and artificial intelligence. In both these disciplines, there is a robust research program at IIT-B, institutional investment in research infrastructure as well as funding by a number of US-based companies and funding agencies. The admission to the Ph.D program is through two stages, a nationally administered examination and a personal interview. As a result, the students in both the undergraduate and graduate program are highly capable of being excellent researchers and potential participants in the program.

Thus, the rationale for this collaboration is three-fold; (a) we would cement an existing relationship with a credentialing component at the Ph.D. level; (b) we anticipate growing the existing relationship in terms of both industrial partners and areas of interest, and (c) this relationship could provide a valuable instrument to groom talent in both schools and aid in global workforce development.

General Information

Narrative and Definitions

The rubric developed herein proposes a new International cooperative dual degree program between IIT-B and OSU. In order to facilitate the discussion below, we define the following:

- **Home Institution**: means the institution that is Party to this Agreement and is the institution where the student is originally enrolled
- **Host Institution**: means the institution that is Party to this Agreement but is not the Home Institution
- **Program Student**: indicates a student who is a participant in the program
- **Advisor**: is the student's principal advisor in the home institution
- **Co-advisor**: is the student's advisor in the host institution

Uniqueness

The principal driver of the program is the mutual research interest of the principal investigators in **both** institutions. In that, there is significant mutual research interest in developing research projects at both places such that it drives collaboration. Over the past five years, such projects have been seeded by the Frontier Center and have involved participants at both institutions. We expect this to continue (via the center) and grow due to increase of research interest in microelectronics/semiconductor and artificial intelligence related activities. Students are admitted to this program provided:

- The PIs at the home and host institution have a collaborative project
- The PI at the home institution has a student who is beginning work on the collaborative project
- Have passed their qualifying examination at the home institution
- They must have completed one year at their home institution in the Ph.D. program
- Student must follow established protocols for admission at the host institution

It is expected that the program demand will be varied, and be a fraction of students who are currently admitted to the Ph.D. program in the College of Engineering as admission depends on funded projects. Nominally, this would be <20/year.

Details on courses, duration and advising

The hallmark of the program is reciprocity. The structure to be followed is almost identical irrespective of which institution the student enters the program. The structure will rely on the following expectations:

- The average duration of the Ph.D. program will be five years starting from admission.
- The student admitted into the **home** institution will be considered admissible into the **host** institution provided (a) the student follows guidelines for application to

the **host** institutions, (b) is deemed admissible by the **host** and (c) a willing co-advisor has been found at the **host** institution.
- In general, we expect the rules in place at the **home** institution to take precedence over those at the **host** institution. We will make every effort to satisfy both as seen below.

Additionally, we expect the following in terms of courses, duration and advising.

- Upon entering the dual degree program, to the student will have an advisor at the **home** and **host** institutions. The advisor at the **host** institution will be referred to henceforth as the *co-advisor.*
- The student is expected to spend at least one at the **host** institution.
- During the time that they are at the host institution, they will be financially supported by the co-advisor (through available venues of support). At OSU, this would mean via a Graduate Research Assistantship.
- The student will satisfy course requirements at both institutions via course transfer, taking required courses, and research credits. All courses must be at the graduate level.
- Courses accepted for transfer shall be determined by the program and must meet the requirements of the Graduate School of both the **home** and **host** institutions.
- The student will have one jointly administered candidacy and thesis examination.
- The committee for candidacy and thesis will comprise two faculty from **home** and two from the **host** institutions respectively. Depending on the rules of the **home** institution, it is possible to add another faculty member from the **home** institution to the committee.
  - Faculty from IIT-B who serve on committees at OSU will be granted P status.

Recruitment, retention, and matriculation

This is a targeted program, in that it will recruit students provided advisors at the **home** and **host** institutions have an (a) existing or anticipated research collaboration and (b) are willing to co-mentor students. The number of students recruited to this program will rely on the number of collaborative activities between PIs at the **home** and **host** institutions. Overall, it will not affect resource allocation at either institution in terms of faculty time and courses. More importantly, it will help alleviate some of the workforce constraints at both Universities as there is a paucity of research personnel.

Degree Requirements

The typical Ph.D. degree comprises of four components. These are (a) course requirements, (b) qualifying examination, (c) candidacy examination and (d) dissertation defense. The general philosophy espoused in crafting this program is that the requirements of **home** will take precedence when there is a conflict, and every effort will be made to comply with the **host** institution's requirement. Briefly

- Qualifying examination: The students will be deemed qualified to pursue the degree at the **host** institution if they have already qualified to do so at the **home** institution

- Course requirements: The credits requirements at OSU are 80 and those at IIT-B are 56. As a **host** institution, OSU requirements will be met via course transfer, 3 graded credits and research credits taken while in residence in Columbus. We will follow a similar procedure if IIT-B is the host.
  - IIT-B issues credits identical to the U.S. credit system. Their grading systems is on a 10-point scale, with the maximum at 10 and minimum 0. The number grade 4 corresponds to a D and 10 corresponds to an A.
- Candidacy Examination: Will be held with a jointly appointed examination committee.
- Thesis Examination: Will be held jointly. In addition, for IIT-B students we will follow their prescription for external evaluations. For OSU students, we will follow OSU's guidelines for thesis evaluation.

Details on each institutions' respective requirements can be found here;

- IIT-Bombay: https://www.iitb.ac.in/newacadhome/Ph.D.Brochure2023-24.pdf
- Ohio State: https://ece.osu.edu/graduate-program/doctor-philosophy-program
- Note: We are using the ECE graduate program as an example. As written, the agreement is highly flexible and can adapted with no change to any other program within the college of engineering.

Budget Proposal

We anticipate a total of up to twenty students from IIT-B and OSU to participate in this program each year. There is no special budget allocations as student accepted to this program at OSU will be supported via Graduate Research Assistantships. Likewise, students going to IIT-B will be supported for the duration of stay in India through their equivalent of Graduate Research Assistantships.

The participation of IIT-Bombay PhD candidates at Ohio State will diversify the student population and increase intercultural awareness through engagement of varied perspectives on research and academic content. IIT-Bombay students are the highest achieving in India, as IIT-B is recognized as a worldwide leader in the field of engineering education and research and reputed for the outstanding caliber of student graduates. Their contribution and participation in the PhD program will add to the already well renowned research conducted at Ohio State.

Both IIT-B students, and OSU students will be working with both their home and host institution advisors on collaborative research interests and receive feedback in advance of their time at the host university. These will not be in competition with any students who are funding their own education, or have outside scholarships.

IIT-Bombay students living expenses will be covered by the assistantship funds awarded by OSU. Ohio State students at IIT-B will be supported through IIT-Bombay funding for Graduate Assistantships, reciprocally.

Courses

No new courses are envisioned. We will use existing courses as outlined for the academic track of the PhD program.

The Ohio State University ECE PhD Curriculum

The credits requirements at OSU are 80 and those at IIT-B are 56. As a **host** institution, OSU requirements will be met via course transfer, 3 graded credits and research credits taken while in residence in Columbus. We will follow a similar procedure if IIT-B is the host.

For PhD following BS degree:

1. **OSU Course requirements include:**

- At least 30 graduate course credits beyond the bachelor's degree are required. Of the 30 graduate credits of coursework, at least 28 must be letter-graded courses. At least 21 credits must be letter graded ECE courses and up to 9 credits can be graduate courses in a related field.
- Of the 21 ECE letter-graded graduate course credits, 6 must be associated with an area of concentration outside the student's primary area of study.
- Two (2) of the letters graded ECE courses must be Ohio State ECE 6000+ **for students beginning the PhD program in autumn 2019 and after.**
- Of the required 30 graduate credits of coursework, in addition to 28 letter-graded courses, 1 credit must be ECE 7080 or PHILOS 7080, and 1 credit can be ECE 8193, individual studies. ECE 7080 or PHILOS 7080 is waived for Ohio State University graduates who completed ECE 3080 or PHILOS 1332.

2. **Transfer credit:**

- Up to 24 graduate course credits and up to 24 dissertation credits (for a maximum of 48 credits) can be transferred from another institution into the direct PhD program subject to the approval of the ECE Graduate Studies committee.

3. **Dissertation research requirements:**

- A minimum of 50 research credits (ECE 8999) leading to a dissertation embodying a significant original research contribution.

For PhD following MS degree:

1. **Course Requirements:**
   MS degree counts for 30 credits

- In addition to the MS degree, 14 credits of graduate coursework of which 12 must be letter-graded courses.
- The student must have taken at least 21 semester credits of letter-graded ECE courses. These 21 credits can come from either the master's or PhD program. The ECE courses from a non-Ohio State master's must be approved by the Graduate Studies Committee as being equivalent to ECE courses at OSU.
- Two (2) letter-graded ECE courses (6 credits) must be OSU ECE 6000+ **for students beginning the PhD program in autumn 2019 and after.**
- Six (6) of the 21 ECE credits must be associated with an area of concentration outside the student's primary area of study.

- One (1) credit must be ECE 7080 or PHILOS 7080, and 1 credit can be ECE 8193, individual studies. ECE 7080 or PHILOS 7080 is waived for OSU graduates who completed ECE 3080 or PHILOS 1332.

2. Transfer credit

- Up to 9 PhD graduate coursework credits and up to 10 dissertation credits (for a maximum total of 19 credits) past the master's degree from another institution can be transferred to Ohio State subject to the approval of the ECE Graduate Studies committee.

3. Dissertation research requirements

- A minimum of 36 research credits (ECE 8999) leading to a dissertation embodying a significant original research contribution.

Appendix: 1

Indian Institute of Technology - Bombay

PhD Learning Goals & Objectives

Various PhD programs articulate their goals [iv] [v],[vi] . Based on many such documents and discussions, a general set of rules may be as follows.

Overall a successful PhD candidate will **independently** be able to

- conceive/identify a critical and significant scientific / technological problem,
- demonstrate a solution based on sound scientific principle able to withstand peer-review and
- critically evaluate its impact compared to state-of-the-art and its implications on technology and society
- communicate it to the academic community in peer-reviewed publications and technical presentations independently and finally
- demonstrate leadership among peers in the area of research.

Goal 1: Our graduates will possess excellent communication skills to present and communicate knowledge and research methodologies to various parties.

- PhD student demonstrates high proficiency of oral communication in technical context.
- PhD student demonstrates high proficiency of written communication in technical context.

Goal 2: Our graduates will be able to master research tools and methodologies to conduct original research <u>independently</u>.

- PhD student is able to apply appropriate analytical tools (quantitative and qualitative) to answer research questions.
- PhD student is able to apply effective methodologies and tools while doing research.

Goal 3: Our graduates will be knowledgeable of leading-edge theories and practices in science, and technology disciplines and able to produce high quality research outputs contributing to the science and technology.

- PhD student is knowledgeable of leading-edge theories and practices in his/her disciplines.
- PhD student is engaged in applied and basic research in order to understand the technical challenges.

Goal 4: Our graduates will be able to critically review research work.

- PhD student is able to read thoroughly a research paper and understand the research objectives and findings, the research study and experiments, data used, assumptions made and the limitations in the research findings.
- PhD student is able to critically analyze and review research papers.
- PhD student has the ability to evaluate the broader implications of applying knowledge to particular contexts.

The PhD Thesis

Most world universities use a multiple chapter format : a) an introduction, which introduces the research topic, the methodology, as well as its scope and significance; b) a literature review, reviewing relevant literature and showing how this has informed the research issue; c) a methodology chapter, explaining how the research has been designed and why the research methods/population/data collection and analysis being used have been chosen; d) a findings chapter, outlining the findings of the research itself; e) an analysis and discussion chapter, analyzing the findings and discussing them in the context of the literature review (this chapter is often divided into two—analysis and discussion); f) a conclusion."

In the development of the thesis, the actual writing of the thesis is preceded by various developmental stages that are described in the PhD process below.

The IITB PhD Process

1. **Stage 1:: Preparation to begin Thesis**
   - Completion of minimum course work.
   - PhD Qualifiers: Tests comprehension and critical thinking based on course work and research paper review.

2. **Stage 2: Thesis Development**

   1. Gradually defining a thesis.

   Four skills need to be essentially developed during a PhD process:

   a. **Analysis Capability:** This is the ability to formulate theoretical estimations based on applications of principles learnt in courses etc to research problems.

   b. **Lab work/ Tools Capability:** This is the ability and skills to learn tools (hardware/ software) and methodology to conduct research.

   c. **Context Development:** This is related to critical literature review of specific and broad topics to identify gaps in state-of-the-art, the viability of potential solution and the impact of such a solution vis a vis the state-of-the-art baseline.

   d. **Technical Communication:** This is related to the effective presentation (both written and oral) of a well-structured argument - respectful to adversaries and precise, which would convince or clarify the i) nature of the problem, ii) the hypothesis, iii) the proof and its critical evaluation including the assumptions and their validity iv) the extent of completion of the proof vis a vis the burden of proof necessary iv) gaps or inconsistencies if any both internal (within the experiment) or external (observations of others) to the arguments and v) broader implication of the result.

   This will enable gradual problem definition by critical literature review, evaluation of its significance & challenges, identification of unique approach (based on skills developed in analysis and lab-work) with significant improvement over the state of the art and effective communication of results for peer review.

2. APS: Annual Progress Seminar- Updates on progress in

- identification of technical challenge .
- capability development to demonstrate an original solution which is a significant improvement over the state-of-the-art.
- publications list if any may be presented but not necessary.
- Three skills are essentially developed during a PhD process.

1. Analysis Capability:
2. Lab work/ Tools Capability:
3. Context Development: A self-assessment of annual progress in terms of achievements and gaps and future plan with timeline for each of the above sections is very helpful for self evaluation of progress.

3. Pre-Synopsys Exam: Test for completion of research

- Demonstrate that research is communicated and accepted/published.
- Significant contribution has been made in the field commensurate to warrant the beginnings of thesis completion.
- Ability to identify a graduation date within the next 6 months.

3. **Stage 3: Thesis Defense**
    - Begin job search:
        - Though this is based on approval of the advisor, a rough estimate is that the person should have advisor approval to start wrapping up the thesis- which typically coincides with a successful pre-synopsis. A premature job search may imply two scenarios of concern in equal measure. On the one hand, if unsuccessful in the interview process, you will not be considered by the same companies in the near future. On the other hand, if successful, the completion of thesis if delayed may again cause the offer to be reneged. Even if the student employment is commenced, the long term career growth may be affected if the student (without the advisor) has to compete with mature PhDs in the workplace. Finally, prematurely appearing for a PhD job may also produce a negative perception for the institution at large in the minds of prospective employers.
    - Complete thesis and submit.
    - Defend thesis to demonstrate.

Source: https://www.ee.iitb.ac.in/web/policies/policies/

INTERNATIONAL COOPERATIVE GRADUATE DEGREE AGREEMENT

(ICGDA)

FOR DUAL PHD DEGREE

between

Indian Institute of Technology Bombay; Bombay, India

and

The Ohio State University, Columbus, Ohio, U.S.A.

This document describes a cooperative Dual PhD degree agreement designed to deepen the research and academic relationship as part of the growing partnership between The Ohio State University (Ohio State) and the Indian Institute of Technology (IIT Bombay). The goal of this cooperative dual degree program is twofold; (i) to provide a framework for exceptional graduate students from IIT Bombay and at The Ohio State University to seek a global educational and professional experience by enrolling as a graduate student at each other's institutions and (ii) to produce skilled and diverse graduates from Ohio State and IIT Bombay by recruiting and nurturing excellent domestic as well as international students to our graduate programs who embody an awareness and engagement to influence the world. The opportunity to gain an international experience in graduate education provides a means of access to new information and perspectives, innovative concepts and methods, emerging research technologies, and unique populations and environments not typically available at a single institution and country.

The Ohio State University (OSU) and the IIT Bombay (the Parties) enter into this formal agreement for the purpose of Dual graduate degree. The Dual PhD degree is defined as the same degree (i.e. PhD) from the two institutions and is distinct from the combined programs which combines two different degrees. The program will enable graduate students an opportunity to pursue a part of their PhD graduate course requirements and/or research work at both the IIT Bombay and at Ohio State, by satisfying the degree requirements for both institutions within the time-period typically required for a single PhD degree from either institution.

THE AGREEMENT

1. **Definitions**

We define the following:

(a) Home Institution is where the student is first admitted

(b) Host Institution is the partner institution

2. Period of Agreement

This Agreement becomes effective for 5 years on the date of the last signature. Upon written consent by both parties and may be renewed after a program report is submitted and evaluated by the Graduate School.

a) The criteria used for evaluation may include (i) number of students participating in the cooperative PhD program, (ii) their academic metrics of success, and (iii) impact of the cooperative PhD program on the existing Ohio-State graduate program.

3. Program Overview

(a) After ICGDA execution, Colleges/Departments within IIT Bombay and The Ohio State establish arrangements with specific PhD programs to address details such as course transfer, duration of the program, funding and advising.

(b) These arrangements follow the rubric outlined in the proposal accompanying this ICGDA.

(c) The principle underlying this engagement is reciprocal parity. Any student receiving an Ohio State PhD degree must fulfill all Ohio State PhD degree requirements. The same is true for students pursuing a PhD degree at IIT-B. Courses accepted for transfer shall be determined by the program and must meet the requirements of the Graduate School of both the Host and Home institutions. When exception arise, the rules of the home institution take precedence.

4. Enrollment Conditions

(a) For all students enrolled in this program, they must

a. Be in good standing and admitted to the Ph.D program (at their respective universities)

b. Must have demonstrated fluency in English as determined by the host institution

c. Have passed their qualifying examination or equivalent

d. Have a co-advisor identified at the host institute

5. Responsibilities of Parties

a) Responsibilities of The Ohio State University:

1. Ohio State Graduate Programs will evaluate students pre-selected by IIT

Bombay who have submitted an application for admission into their program**.** This evaluation will be performed in accordance with the guidelines and timelines of the Graduate Program at Ohio-State**.**

2. To inform IIT Bombay of admission results of pre-selected students as soon as possible;
3. To advise admitted IIT Bombay students about Ohio state rules and regulations (The OSU Graduate School Handbook) as well as academic and cultural expectation at Ohio State (OSU Office of International Affairs);
4. To register admitted IIT Bombay students at Ohio State starting anytime after admission into the PhD program
5. Ohio State Graduate Programs will advise IIT Bombay students on courses they need to take for their PhD degree and create a course plan. Each IIT Bombay student will be assigned an advisor to facilitate this process;
6. To inform the incoming students of all student benefits, including health insurance requirements and availability.
7. To provide the IIT Bombay one official final transcript to show the student's academic performance (grades).
8. All IIT Bombay students enrolled at OSU will be reviewed by the Graduate School in the same manner as all OSU Graduate Students and will be subject to remediation or probation for insufficient progress toward the degree as per our Graduate School handbook. These responsibilities will be overseen by the Graduate Studies Committee of the PhD program at OSU.
9. To collaborate with the IIT Bombay in procurement of international fellowships and other funding opportunities to support students at the IIT Bombay in pursuing graduate education at Ohio State.
10. OSU, as a host University, will provide financial support via a Graduate assistantship during their stay in US.
11. OSU as a home university to continue to provide regular OSU stipend to its scholars during their stay at IITB.

b) Responsibilities of IIT Bombay:

1. The IIT Bombay shall recruit and nominate at least the agreed upon number of students at the beginning of their 2nd year, i.e. 3rd semester of graduate program at IIT Bombay for participation in the Dual PhD program during the following academic year;
2. Forward to the OSU Program the names of pre-selected students for potential

admission to the cooperative Dual Degree program OSU. Students must apply on-line before the deadline date in a given year for initial enrollment in the following autumn semester;

3. Recognize the two to four-year commitment for a student to complete the OSU degree;
4. To administer pre-program orientation of student participants;
5. To ensure that students admitted to the program take courses designated as essential;
6. To advise Ohio State of any circumstances that may affect the students year abroad (e.g. known public health issues); and
7. To advise its students about academic and cultural expectations at Ohio State.
8. To collaborate with OSU in procurement of international fellowships and other funding opportunities to support students at the IIT Bombay in pursuing graduate education at Ohio State.
9. IITB, as a host university, will provide graduate stipend during their stay in India
10. IITB as a home university to continue to provide regular IITB stipend to its scholars during their stay at Ohio State.

c) Responsibilities of the IIT Bombay students:

1. Complete on-line application to the OSU program at Graduate and Professional Admissions http://gpadmissions.osu.edu/ and submit all required application materials by the deadlines specified by the Ohio State graduate program;
2. If admitted, accept the offer of admission on-line by April 15th and submit financial documentation required to receive an I-20. Students must show proof of ability to cover tuition and living expenses or provide documentation for fellowship or other funding opportunities:
    a. To pay graduate tuition and fees when studying at Ohio State;
    b. To pay room and board costs;
    c. To secure and pay for necessary health insurance and to pay medical costs;
    d. To pay for books, living expenses and any other costs;
    e. To pay the cost of transportation to and from Ohio State and IIT Bombay;
3. To obtain an appropriate student visa for degree status at Ohio State (F-1);
4. To submit a transcript showing completion of graduate courses at the IIT Bombay as well as all applicable academic test scores and enrollment documentation to Ohio State; and

To follow the academic rules and guidelines of Ohio State and IIT Bombay as outlined in this agreement. All students are subject to the rules of the institution they are attending.

6. Fundamental Research and Export Control

It is recognized and understood that this agreement is in accordance with the laws and regulations of the respective countries.

IIT-Bombay acknowledges that the transfer of certain technical information or items may require a license from the U.S. Government.

It is recognized and understood that Ohio State will not engage IIT Bombay students coming to Ohio State pursuant to this agreement in any proprietary research or research that is not "fundamental research" as defined in the U.S. Export Administration Regulations (EAR) and International Traffic in Arms Regulations (ITAR).

OSU acknowledges that the transfer of certain technical information or items may require a license from Indian Government.

It is recognized and understood that IITB will not engage OSU students coming to IITB pursuant to this agreement in any proprietary research or research that is controlled by the regulations of Indian Government.

7. Intellectual Property and Publication Rights

Each party reserves the right to publish the results of the collaborative research deriving from this program. Before submission for publication, however, each party shall notify the other of its intention to publish, and shall submit the manuscript to the other party for review and comment. The reviewing party shall have thirty (30) days from receipt of the manuscript to present any written comments to the other party. The reviewing party's comments shall be given due consideration by the other party. The publication of the results may be delayed at the reviewing party's written request for a period not to exceed ninety (90) days if it contains disclosure of an invention(s) on which either party desires to file a United States or foreign patent. It is understood that in no case can this provision for delay of publication cause a delay in the normal academic progress of a graduate student of either party with respect to preparation and submission of a graduate thesis or dissertation. Any ownership of inventions will be determined pursuant to applicable patent laws. The sequence of institutions listed on papers published by the students shall be determined by mutual agreement of advisors and relevant faculties/schools/departments of both parties. Normally, the home institution shall be listed first. Details shall be further worked out between the advisors and/or the relevant departments.

It is recognized and understood that research, inventions, and technologies owned by OSU and existing at the date when this Agreement becomes effective are the separate property of OSU, and are not affected by this Agreement, and the IIT Bombay shall have no claims or rights in such separate inventions and technologies. IIT BOMBAY further agrees that any research, inventions, discoveries, or improvements ("Inventions") developed by OSU arising out of services under this Agreement, or

related project agreements with IIT Bombay shall be owned by OSU ("OSU Inventions"). Similarly, it is recognized and understood that research, inventions, and technologies owned by IIT Bombay and existing at the date when this Agreement becomes effective are the separate property of IIT Bombay, and are not affected by this Agreement, and OSU shall have no claims or rights in such separate inventions and technologies. OSU further agrees that any Inventions developed by IIT Bombay arising out of services under this Agreement, or related project agreements with OSU shall be owned by IIT Bombay ("IIT Bombay Inventions"). All inventions developed jointly by OSU and IIT Bombay arising out of services under this Agreement or related joint project agreements with IIT Bombay shall be owned jointly by OSU and IIT Bombay ("Joint Inventions").

Each Party (i.e. the IIT Bombay and Ohio State) recognizes that during the term of this Agreement it may have access to and become familiar with confidential, proprietary, and/or trade secret information owned by the other party. The Parties agree that during the term of this Agreement and any extensions, except as required to provide services under this Agreement, a Party shall not directly or indirectly possess, use, convert, copy, duplicate, or misappropriate confidential, proprietary and/or trade secret information provided to it by the other Party and shall not directly or indirectly disclose, communicate, transmit, or transfer any confidential, proprietary, and/or trade secret information provided to it by the other Party to any person or entity. The obligation of non-disclosure shall not apply to: (i) information that is or becomes publicly available through no fault of a Party; (ii) information that is already independently known to a Party as shown by its prior written records; (iii) information that is disclosed to a Party on a non-confidential basis by a third party with the legal right to do so; (iv) information subject to release or disclosure as required by law; or (v) information independently developed by personnel of a Party. All such confidential, proprietary, and/or trade secret information disclosed to one Party by the other Party during the term of this Agreement shall remain the property of the disclosing Party and, upon the termination of this Agreement, shall be returned to the disclosing Party. The requirements of this Paragraph shall survive the termination of this Agreement and any extensions by 3 years.

8. Termination

Either party may terminate this Agreement by providing the IIT Bombay with written notice of its intent to terminate. The terminating party will give advance notice prior to the effective date of the termination. Termination will not affect the program in effect prior to the effective date of the termination, and will be finalized after the completion of the program by current students.

(a) Termination for Convenience

Either Party to this Agreement may terminate the Agreement, without cause, with

ninety (90) days written notice to the other party. Upon receipt, the party receiving written notice shall take all action necessary to minimize or eliminate any further costs, fees, or expenditures by the party providing notice. Every effort will be made to allow any student whose agreed upon program extends beyond the Termination Date to complete his or her program of study.

(b) Termination for Cause

Either Party to this Agreement may terminate this Agreement, for cause, with sixty (60) days written notice to the other party. The party receiving notice shall have sixty (60) days from receipt of the notice to cure any material breach to the satisfaction of the other party. Either party may terminate this Agreement immediately upon notice if there is an imminent threat to the security of its personnel, materials, supplies, or standing in the educational community. Upon receipt, the party receiving written notice shall take all action necessary to minimize or eliminate any further costs, fees, or expenditures by the party providing the notice.

Termination for cause shall include, but is not limited to, either party's:

a. Insolvency, bankruptcy, or assignment of creditors;

b. Sale, assignment, or liquidation of the material assets, or dissolution;

c. Material breach of any of the terms or conditions of this Agreement; or

d. Abandonment of the services necessary under this Agreement.

(c) Orderly Departure

In the event that this Agreement is terminated pursuant to any of the provisions noted herein, the parties agree to make all good faith efforts to work cooperatively toward the completion of the Program for all students admitted to and enrolled in the Program, promptly communicate and exchange information, and take other actions necessary to ensure an orderly and professional departure from this Agreement.

9. Non-discrimination

The parties agree that no person is excluded from participation under the terms of this Agreement on the grounds of age, ancestry, color, disability, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, race, religion, sex, sexual orientation, or veteran status.

10. Modification

The parties may change or modify the terms of this Agreement only by written amendment signed by the parties.

Signatures

The Ohio State University	**IIT Bombay**
_____	_____
Mary E. Stromberger Date	Prof. Subhasis Chaudhuri Date
Vice Provost for Graduate Education	Director
Dean of the Graduate School	IIT Bombay
The Ohio State University	
_____	
Michael Papadakis Date	
Senior Vice President for Business	
And Finance & Chief Financial Officer	
The Ohio State University	

Commented [o1]: Updated signing authority details