



## First Step Towards Interdisciplinary Dual Degree Program

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# PREFACE

Dear Students,

As a vertical of UGAC, we must bring to you the right kind of resources and provide you with information related to policies that help you mold your stay at IITB. IDDDP Information Booklet, a product of the same ideology, shall open doors in the field of academics for you and help you choose your curriculum and program.

This book includes extensive information about the Interdisciplinary Dual Degree Program and has been collated after almost two years of efforts from our side. We believe that since learning is a vital part of our lives as students, you must be aware of all the opportunities available to you to make the whole process of learning more affable.

This booklet, therefore, strives to give you the exposure that you need before deciding on applying for the IDDD Program. It also includes extensive and detailed reviews from seniors, who have been in your shoes once and have successfully enrolled in the program. Personal experiences and individual ideologies behind deciding to choose this program also form a pivotal part of the booklet.

In this second edition of the booklet, information on newer departments, updates in the application process, department-specific eligibility criteria, and additional reviews have been added to provide deeper insight and help the students make an informed decision.

In today's world of cutting-edge competition, where no one's expertise is enough, we believe that this booklet is a complete guide to unearthing the interdisciplinary field and following a passion you couldn't otherwise. To deliver the best content and constantly improve upon the booklet, we are open to suggestions and ideas from your side to improve it.

Hope you have a nice time reading it!

**Prapti Sao**  
**Institute Secretary of Academic Affairs (UG)**  
**Head – Student Support Services (2022-2023)**






# DISCLAIMER

The information written in the booklet is only a guideline to the students to help them with the choices they make and also in the various important features of the Institute academic system.

It may happen that the actual details of courses or rules mentioned in the booklet may face an amendment during the course of time. Please confirm the rules/details from relevant authorities before making any decisions.

The Undergraduate Academic Council members can be contacted for this purpose (details shared on the last page of the booklet).





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# 1. WHAT IS IDDDP?

The **Interdisciplinary Dual Degree Program**, as the name itself implies, is a program that combines your interests in different fields. By allowing a student to continue with a dual degree in another department of his choice provides us with an opportunity to study in a field we are truly interested in after years of deliberation.

It combines interests that allow us to make discoveries and connections rarely possible in the narrower confines of a single-subject major and is fast catching up. The idea of IDDDP is to provide a unique opportunity to the highly motivated students to learn in their field of interest and create a platform for their future pursuits.

This program can prove to be beneficial for many students due to the following reasons :

1. For the students who have found interest in multiple fields over the course of their study and want to indulge deeper into something of an interdisciplinary nature or say, hit two birds with one stone.
2. It's for the students who have found genuine interest in a branch different from their current major through minor courses, projects or external pursuits in that field and wish to shift to that field and work in it in future.
3. While joining the institute after JEE, people who take up a branch based on popular opinion rather than their personal interest and thus, it's an opportunity for them if they now find what they are truly interested in

This program can go a long way in improving the UG research output as more and more students would be enrolling in the dual program out of sheer interest, and at the same time will also be catering to the multi-disciplinary demands of industry.

To know more about the rules, regulation, criteria of this program, keep reading the next sections.

# 2. WHEN DO I APPLY FOR THE PROGRAM?

You can apply for the program at the end of your **6th semester**, before **15th July** of the calendar year



### 3. AM I ELIGIBLE FOR THE PROGRAM?

You, **irrespective of the degree you are currently pursuing** - B.Tech/ B.S/ Dual degree (B.Tech + M.Tech) - **can apply for an IDDDP program for all specialisations of Dual Degree and M.Tech programs** approved by the Academic Senate, provided the following points are kept in mind as they serve as the minimum eligibility criteria you need to pass -

- a. At the end of sixth semester, you must have  $CPI \geq 7.5$  and should not have any FR/DR/DX/W grade in mandatory courses including NSO/NSS/NCC.
- b. If you are admitted to a B.S program through Maths Olympiad, you are not eligible to apply for IDDDP

**Following additional criteria are specified by some departments for IDDDP:**

Department	Eligibility Criteria
Centre for Digital Health	<ol style="list-style-type: none"><li>1. The applicant is required to identify through mutual discussion a faculty member associated with CDH as a supervisor for the <b>dual degree project (DDP)</b>. Prior consent from the concerned faculty member is essential for the IDDD application.</li><li>2. The <b>final decision for selection</b> will be based on CPI, consent from an associated faculty who agrees to serve as the DDP supervisor, statement of purpose, and/or interviews. The centre will make the admission decisions before the start of placements in the seventh semester.</li><li>3. A student, selected for <b>IDDD</b> in CDH for a masters in "Healthcare Informatics", will <b>not be eligible for a minor degree</b> in Healthcare Informatics.</li></ol>
C-MInDS	<ol style="list-style-type: none"><li>1. Students with <b>CPI &gt; 8.0</b> can opt for the program in their sixth and seventh</li></ol>

	<p>semester with the approval of the DUGC of the BTech department and DPGC of the M.Tech. department.</p> <ol style="list-style-type: none"> <li>2. Dual degree students can be admitted via usual rules of a branch change. He/she must have completed at least <b>two AI and Data Science minor courses</b> (including the soft core or equivalent courses. A DDP guide who is a faculty member associated with the Centre for MI &amp; DS must be identified, and give his/her approval as part of the application process. The <b>final decision</b> will be based on CPI, consent from an associated faculty who agrees to serve as advisor, statement of purpose, and/or interviews. The centre will make the admission decisions before the start of placements in the seventh semester.</li> <li>3. A student who chooses to convert to <b>IDDDP</b> in AI and Data Science and thus receives a Masters in AI and Data Science, will <b>not be eligible for a minor</b> in AI and Data Science.</li> </ol>
<b>SJMSOM</b>	<ol style="list-style-type: none"> <li>1. Students with <b>CPI of 7.0</b> at the end of their sixth semester and with <b>no backlog</b> in their UG courses can apply for the programme.</li> <li>2. The <b>CPI criteria</b> would be a benchmark and <b>interviews</b> will be conducted as per specialisation applied for.</li> </ol>
<b>Systems and Control Engineering</b>	<ol style="list-style-type: none"> <li>1. A <b>SysCon core faculty</b> member must agree to <b>guide</b> the candidate.</li> <li>2. In any year, a core faculty member can agree to guide (i.e. recommend) at most one candidate applying for the SysCon IDDDP.</li> </ol>

	<p>3. The candidate must have completed any <b>two courses from our list of minor courses</b> within the first six semesters of the B.Tech program and have an <b>average score of at least 7.5</b> in these two courses. This requirement can be waived if the student has enrolled in some <b>equivalent courses</b> in other departments which in their entirety cover the topics covered in any two SysCon minor courses. The average grade requirement for the equivalent courses is 7.5. The decision about granting the waiver will be taken by the IDPC.</p>
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**Note - Over and above minimum eligibility criteria, a DUGC/ DPGC may enforce additional eligibility and selection criteria. So please confirm any additional criteria with the departments you wish to apply for.**

(Reference - [IDDDP form and rules and regulations](#) present on the iitb website)

## 4. HOW MANY CAN APPLY FOR IDDDP?

At most **2 students** can be accepted in each DD / M.Tech. Specialisation. This means that for departments that have more than one specialisation, they can have more than 2 students pursuing IDDDP in that department.

**Note -**

- **Center for Digital Health (KCDH) being in their first year, last year selected 8 students for an IDDDP in Healthcare Informatics**
- **C-MInDS selected 8 students in 2020-21 (year when program started) and 20 students (8 TA seats are fixed, additional seats have to be supported by faculty projects) in 2021-22**

## 5. WHAT DOES ONE GET TO DO IN IDDDP?

A point to be noted is that IDDDP is only for the movement of students from one academic unit to another and in general a DD specialisation / M.Tech. program usually requires the completion of 8 to 9 courses of 6 credits and a DDP/MTP of 74 - 92 credits. Keeping both these things in mind, you can earn two types of degrees through IDDDP -

1. Dual Degree in **XXX** Specialization **WITHOUT HONORS**
2. Dual Degree in **XXX** Specialization **WITH HONORS**

As the 2 degrees suggest, the number of courses to be done in IDDDP with honors is more than the number of courses to be done in IDDDP without honours (it's counterpart). For earning "Dual Degree in **XXX** Specialization **WITHOUT HONORS**", you need to complete **4 PG level courses** (of the host department) and a **DDP** (in the host department). For earning "Dual Degree in **XXX** Specialization **WITH HONORS**", there are **more courses prescribed** by the DUGC of the host department in addition to the DDP which needs to be done.

**Note - The host academic unit can prescribe additional courses over and above those mentioned above (for both with and without HONORS) which may differ depending on your parent academic unit to facilitate easy transition into the new department**

(Reference - [IDDDP form](#) present on the iitb website)

## 6. WHICH DEPARTMENTS TO APPLY TO?

IDDDP applications are not received only by departments in the institute offering a UG Program. Centres such as **Centre for Digital Health (KCDH)**, **Centre for Policy Studies (CPS)**, **IEOR**, **SYSCON**, **C-MInDS** also allow students to avail of this opportunity. Based on the previous experience of students, we have compiled a list of departments which have offered IDDDP in different specialisations below.

**Please note that the departments not present in the list might not have received applications for IDDDP till now. You can further confirm with the department (by contacting the department office or the HOD) if the department is willing to accept IDDDP applications.**

**Also note that many students have applied to the CSE department for IDDDP but the department has not accepted any applications till now.**

- Chemical Engineering
- Civil Engineering
- Centre for Digital Health (KCDH)
- Center for Policy Studies
- C-MInDS
- Electrical Engineering
- Industrial Engineering and Operations Research (IEOR)
- Mathematics
- Mechanical Engineering
- Physics
- Shailesh J. Mehta School of Management (SJMSOM)
- Systems and Control (SysCon)

While the above departments are host departments, departments including Electrical, Mathematics, Mechanical, MEMS, Chemical, EP, Aerospace, Energy Science and Engineering, Civil, Environmental Science and Engineering have allowed students in the past to convert to IDDDP. **A point to note is that ESED and CESE have recently enforced rules allowing only 2 students from their department to enrol into IDDDP while accepting any number of incoming students**


## 7. WHAT DO THE NON-UG DEPARTMENTS HAVE TO OFFER?

As mentioned in the previous section, IDDDP applications are accepted by **non-UG departments** as well. Centres like **C-MInDS, the Centre for Digital Health (KCDH), the Centre for Policy Studies, and SJMSOM** have a lot to offer in terms of learning and experience. We bring you interesting insights on the IDDD program and career opportunities in non-UG and newer departments to bridge the knowledge gap that UG students face due to less interaction with them

### **C-MInDS:**

Are you looking for **data science** based approaches to topics you're interested in? Are you looking to gain an entry into the fast-paced and lucrative world of **machine learning**? Do you want to challenge yourself by working with experts at the frontlines of research in **artificial intelligence**?

Look no further! The newly formed **Center for Machine Intelligence and Data Science (C-MInDS)** at IIT Bombay brings together faculty from diverse backgrounds ranging from engineering, science, mathematics, management and social sciences to address diverse, timely, challenging and high-impact problems from a data-driven perspective.



CMINDS offers a highly prestigious and competitive **Interdisciplinary Dual Degree Program (IDDDP)** where you will get a chance to work in a synergetic and invigorating environment and learn the state-of-the-art in **ML and AI**. Irrespective of whether you are interested in the traditional aspects of AI/ML or its applications to specific domains, you will get a chance to explore your interests with the diverse faculty pool associated with CMINDS.

If you are completing your third year of B.Tech. or Dual Degree in any discipline at IIT Bombay and are interested in acquiring a **unique Masters degree in interdisciplinary AI/ML** with potential for contributing to ongoing research, consider applying to the IDDD program at CMINDS!  
Explore the **website** for more details: <https://www.minds.iitb.ac.in>

### **Centre for Digital Health (KCDH):**

The applied and interdisciplinary nature of this program is its unique feature. This program provides an opportunity for students to fine tune their **informatics and data analytics** skills as well as gain a firm grounding in the area of **healthcare and its related domains**. It gives students an opportunity to learn about biomedical ethics, to apply domain skills such as AI/ML in the hospital system as well as at the community level for public health informatics and in a broader sense for global health.

Students are taught by faculty members from various departments across the institute – Bioscience and Bioengineering, Computer Science, Mathematics, Electrical Engineering and Humanities. In addition, there is an opportunity to gain exposure to real life problems by **interactions** with **top clinicians and public health specialists** from various hospitals.

**Courses** offered in the **IDDDP program** in the autumn and spring semesters are mainly, Introduction to Public Health Informatics, Basic Epidemiology, Medical Image Physics, Medical Imaging Methods, Health Policy, Economics of Healthcare, Clinical Data Management, Biomechanics, Medical Image Computing and Optimization in Machine Learning. Exposure to various aspects of the healthcare domain through these courses will certainly increase the learning of the students. That will also open significant job opportunities for them in one of the fastest areas of job growth, that is healthcare itself.


Please visit our website:  
<https://www.kcdh.iitb.ac.in/students-corner/interdisciplinary-dual-degree-program.htm>

The students will get to work on **industry sponsored IDDDP projects**. There are a lot of internship opportunities available in the healthcare sector. The centre will help in **connecting students** for the **internship and placement**. Please visit the website **“KCDH Internship”**  
<https://www.kcdh.iitb.ac.in/students-corner/kcdh-internships.htm>

### **Center for Climate Studies:**

The recently published Assessment Report 6 (AR6) by the United Nations (UN) Intergovernmental






Panel of Climate Studies (IPCC) has called for climate urgency and signalled “Red Code for Humanity”. Since the past two decades, **‘Climate’ studies** have been gaining emergent worldwide recognition. Many universities in India and abroad are reorganising their academic curricula at various levels to accommodate the need for education in this discipline. Consistent with the worldwide curriculum in climate studies, the **Interdisciplinary Programme in Climate Studies (IDPCS)** [under the project, DST-Centre of Excellence in Climate Studies (DST-CoECS)] was thus established at IIT Bombay in 2012 as one of the first doctoral programmes in climate studies in India.

A paradigm shift has been observed in every **thematic area of climate studies** in recent times. The global climate change issues cross core climate science boundaries and focus on climate-resilient technology development, ensuring optimal dynamic adaptation and mitigation strategies. In addition, **climate change impact assessment** in a more holistic context as related to sustainability, agriculture and food security, cities and urbanisation, public health and environment, natural resources (particularly water, energy, forest) management, water-energy-food-waste nexus, and climate modelling are some of the research areas that the IDPCS researchers would consider exploring and excelling in forthcoming years. **Climate entrepreneurship** is gaining momentum around the globe as a key role-player in developing sustainable climate technologies and undertaking successful innovation.

An **Interdisciplinary Dual Degree Programme (IDDDP)** in Climate Science and Policy at undergraduate level would allow for this need in **climate education** to be fulfilled and will correspondingly improve **placement opportunities** for IIT Bombay graduates. The success of IITB’s IDDDP model has already been demonstrated in various departments. The undergraduates will **benefit** from excellent job opportunities in national and international laboratories, regulatory agencies and consultancy firms. Other direct and indirect benefits emerging out of this programme comprise a formal structure for interdisciplinary collaborative work in the form of common courses and project work, including sharing laboratory facilities across the Institute and creating a strong national entrepreneurial environment.

## 8. IS THERE A SET OF COURSES I NEED TO DO?

IDDDP is highly department and specialization specific therefore there is no centralised list of courses you need to do while enrolling in the program before or after. But as general points, based on previous student experience, you can note the following -

1. You need to do **4 PG level** courses for getting an M. Tech degree **without Honors**
  2. There would be **additional courses** you need to do for getting a degree **with honors**, but those courses need to be decided in consultation with the needs of the host department
  3. Mostly as observed (based on previous student experience), there are some courses which need to be done **compulsorily as core courses** out of the total courses you need to do while in the
- 

program from the other department and the remaining would be **electives courses**

4. There can be extra courses which need to be done as demanded by the host department, they need to be confirmed with the host department itself
5. There can also be some **prerequisite courses** demanded by the host department in terms of minor courses or any other electives/courses (based on previous student experience). Do get that clarified once before making your decision.

**Following are the prerequisites in some of the departments:**

**C-MInDS:** Requires completion of **at least two AI and Data Science minor courses** (including the softcore or equivalent courses) by 6th semester . The criteria was enforced this year onwards.

**Systems and Controls Engineering:** The candidate must have completed **any two courses from our list of minor courses** within the first six semesters of the B.Tech program and have an average score of at least 7.5 in these two courses (or equivalent courses).

**Please note that the department-specific prerequisites and eligibility criterias are dynamic and subject to change hence it is advised to once confirm it with the host department.**

*(Reference - [IDDDP form and rules and regulations](#) present on the iitb website)*

## 9. DO I NEED TO COMPLETE A MINOR IN THE OTHER DEPARTMENT?

While a minor is not necessary while applying for an IDDDP, it is strongly recommended by students who have enrolled in IDDDP to have one as going straight into Master's level courses without solid foundations can be a challenge. If both you and your supervisor feel that you have the required basics, then you do not need a Minor in the same department.

**Note - Not all minor courses can get transferred to your coursework for IDDDP. This is because IDDDP calls for Master's level courses, and many 2xx, 3xx, and even 4xx courses may not be acceptable for the same.**

*(Credits - Neilabh Banzal)*



## 10. CAN I COMPLETE A MINOR AND IDDDP BOTH IN THE SAME DEPARTMENT?

Some departments like **Center for Digital Health (KCDH)**, **C-MInDS**, Shailesh J. Mehta School of Management (**SJMSOM**) consider the student **ineligible for a minor degree** once **converted to IDDDP**.

**It is logistically possible to complete the minor degree along with being selected for IDDDP, hence it is advised to once confirm with your host department on their eligibility condition on the same.**

*Logistically it may be possible to pursue both, you just need to fulfil the number of credit requirements for both degrees. Not of much use as you'll have many overlaps of courses, and generally not recommended. I would strongly suggest speaking to Faculty Advisors before taking such a decision based on the department.*

*(Credits - Vadladi Amrutha Lakshmi)*

## 11. SO HOW DO I APPLY?

### 11.1. WHAT IS THE TIMELINE OF THE PROCESS?

The general procedure in chronological order is as follows:

1. Students need to fill up the form on AMS, use the SAVE button to store the filled-up form (not to submit), and sign it digitally.
  - A document can be digitally signed by using the "PICK YOUR E-SIGN TO DROP" button. After clicking on it a green rectangle will appear. Please move it using the mouse cursor, place it at the appropriate place, and click to sign the document there.
2. The filled out application form (signed by the student) then has to be sent to the student's faculty advisor for approval and signature.
  - You have to type the mail-id of the faculty-advisor or search the same in "search LDAP"
  - Use the 'REQUEST SIGNATURE' button under the actions frame (appears to the right of the form) to request someone else to sign the document.
  - Use the Personal Message area if you want to add some remarks or some information to the faculty adviser.

3. Once sent to the faculty advisor, the document will adhere to the following chronology of approval:

- Faculty Advisor: Faculty-adviser (home) will examine the form in detail, in particular, the current academic standing and proposed plan of the student to complete the remaining part of the B.Tech. / B.S. curriculum, and forward the same with comments (if any, in the message box) with digital signature to the Convener, DUGC (home)

Faculty Advisor can also discard the request if form is found to be incomplete or deficient and the student receives an e-mail titled denied signature by faculty advisor.

- Convener, DUGC (Parent Department): The application can be rejected (student will be notified) or approved and signed by the Convener, DUGC (Home).
- Convener, DUGC (Host Department): The signed document by Convener, DUGC (Home) is received.

The Convener, DUGC / DPGC (host) will examine the current academic standing and proposed plan of the student to complete the M.Tech curriculum and can reject or approve the application.

- After approval and signature from Convener, DUGC (Host), the application is then sent to AR (Academics-4) ) who will forward the form to the designated staff, who will check / validate the student's CPI and other required academic requirements for eligibility.

4. After the expiry of the last date of application, the designated staff(s) would check the applications and prepare the list of eligible students in the order of their CPI for each host, and make the allotment.

The list of allotments is prepared and sent to A/Dean, AP, for approval.

Final acceptance is conveyed by the academic section via mail to the student. The time of this final acceptance varies across departments.

## 11.2. IDDDP APPLICATION

It can be found on the AMS Portal ([here](#)). This application needs to be submitted as per the timeline we have mentioned above. We have summarised a few points related to the application below

1. First, you need to fill in a few **personal details**.
2. Then you have to fill **specialisations in priority** (if there are multiple) in which you plan to convert into IDDD.
3. Similarly, you have to mention the names of proposed **supervisors** for your DDP project in the host department - which might be changed later. You also need to mention any **co-supervisor** if they are there.
4. Then you have to write your motivation - **Statement Of Purpose (SOP)**
5. There is also a section called **research credentials** in which you can mention if you have done any projects or courses under any professor.

6. You also need to attach **course plans** to finish the B.S. / B.Tech. Program by the end of 8<sup>th</sup> semester and the intended IDDD Specialisation by the end of 10<sup>th</sup> semester.

This plan is tentative and need not be final as courses might change in future semesters. But it should be planned in a way to convince the departments that you can complete all the courses required of you and would only be helpful in future if it's carefully planned so that it can be directly followed by you.

## 11.3. DIFFERENT COMPONENTS OF THE APPLICATION

After extensive reviewing, a few seniors have mentioned in detail and given tips related to the application, which we have summarised below. Do give this a read once before filling out the form!

### 1. Finding a supervisor for IDDDP

*"The first thing to do for the IDDDP Application is to look for a professor who is to be your guide for the Dual Degree Project. If you are already doing a project with a professor, you can discuss your plans for IDDDP, continuing the same project with the same professor.*

*If you are not doing a project, get in touch with a professor whom you have interacted with before, or have done courses with, etc. This is not mandatory, but having previous interactions with the professor helps. Go and discuss with the professor your future plans, including your thoughts of IDDDP. They will give you projects accordingly.*


*Do not wait till the end of the 6th semester to approach a professor regarding a project. Start early on, so that you have some experience with doing a project with the professor. The earlier you start, the better it is for you. Even if you are not sure about the IDDDP, you can continue this project as a B.Tech. Project. So, there is nothing to lose.*

*This way, you have a professor who can be your supervisor for the Dual Degree Project for IDDDP. If you have more than 1 professor in your project, the others can be your co-supervisors. The supervisor and co-supervisor can have an equal role in your project. However, the supervisor helps in all the administrative tasks related to your IDDDP.*

*So, when writing your application, you have your proposed department for M.Tech., and the names of the supervisor and co-supervisor (if any) for the Dual Degree Project with you. "*

- **Neilabh Banzal**

*"The List of available projects is floated for CDH and CMInDS beforehand, which contains details regarding the project and Prof leading it. This list generally has numerous projects and corresponding guides. First, it is recommended to shortlist a few projects (15-20) that you like and start contacting the profs leading it. You can schedule meetings with them to ask them what they*



*expect from the project, and judge if it matches your expertise and interests. You can also contact students (DD, M.Tech, PhD) working under that Prof to get informal feedback regarding the projects, research, etc.”*

**- Atharv Savarkar**

*“The primary or the first step is to find a professor in the target department who agrees to be your project guide for your 5th year. This has to be done at the very start of the 4th year. Since I was interested in research and doing a BTP anyway, I asked my BTP guide who was from SysCon, around the time when I was filling my IDDDP application (mid-September 2019) to be my DDP guide and he happily agreed. I got to do 2 years of research with him (well, the second year is currently in progress) and learnt a lot. It is HIGHLY ADVISABLE to find a professor and stick with him for 2 years (because your interests will also mature as you go along and a longer time period is very important to do GOOD work and build a SOLID foundation) unless of course, there is some compelling reason to change the guide.”*

**- Naman Agrawal**

## **2. Writing your SOP**


*“The most important point to keep in mind about the SOP for conversion to an IDDDP in C-MInDS is to keep it short and succinct. The application form on the AMS portal only provides enough space for around a 300 word typed SOP. (I wasn't aware of this fact earlier, which is why I had originally written roughly a 1000-word SOP, akin to PhD applications, only to prune it drastically later). Within the SOP, only focus on your motivation for conversion to the IDDDP, along with your vision for your DDP research field, related topics and professors you'd like to work under. All other information regarding your courses, projects and PORs, along with your study plan can be submitted as separate documents on the AMS portal, along with the application.*

**- Shreyas Chandgothia**

*“Write a statement of purpose. Nothing fancy, don't overthink this, this is not your PhD application. Just write an essay regarding your previous projects or course experience and the ongoing BTP project you're doing with your guide in the target department and how you'll like to work with the professor for an additional year and that's why you're applying for the IDDDP programme.”*

**- Naman Agrawal**

*“The Statement of Purpose describes your motivations for applying for the IDDDP. It is similar to the SoPs for applying to universities, whether it be for Summer Intern, or for Graduate studies. This*



*should convince the readers that you have concrete achievements behind you that show promise for your success in graduate study.*

*An SoP contains your introduction, your interests and motivations, your undergraduate experience till now, the relevance of your recent and current activities, further elaboration on your academic interests and goals.”*

- **Neilabh Banzal**

### **3. Planning your courses**

*“At the end of the essay, one also has to append a course plan on what courses you'll be doing in what semester (7th, 8th, 9th and 10th) and how you'll complete the course requirements. Note that this is just a proposal and the exact courses you end up taking later can very well change. This is just to convince the department that you can complete the required number of credits without overloading yourself too much.*

*NOTE: This has to be approved by the parent department also (for my case, I sat with my FacAd and showed him my plan and convinced him that I could complete the Aerospace B.Tech requirements including institute and department electives by the end of my 4th year).“*

- **Naman Agrawal**

*“One needs to submit course plans to finish the B.S. / B.Tech. Program by the end of the 8<sup>th</sup> semester and the intended IDDD Specialisation by the end of the 10<sup>th</sup> semester.*

*For this, get the curriculum for the IDDDP from the administrative section of the department you wish to apply to. This, along with the Curriculum for your B.Tech. Program should help you plan out courses for each semester. Note that this plan is tentative as the courses may or may not be offered in the semesters. However, we do need to submit this tentative plan to make sure that we can fulfil the B.Tech. / B.S. and M.Tech. requirements as specified.*

*Get in touch with seniors pursuing the IDDDP and your supervisor & co-supervisor(s) for finalising your course plans.”*

- **Neilabh Banzal**

### **4. Research credentials**

*“Fill the rest of the application. One also has to fill relevant prior coursework (3 or 4 courses) and get signatures from the respective course instructors as a part of the application. Don't waste time in all the back and forth of setting a meeting time over email, just catch them after their lectures and get their signatures.”*

- **Naman Agrawal**

## 12. A FEW GENERAL POINTS TO NOTE


- Your **entry** into the IDDDP Program (even after getting selected) will **remain provisional** till 8th semester, i.e till the point you complete your entire B.S and B.Tech curriculum
- The **payment of your TAsip** (if selected) will be subject to terms and conditions as applicable to usual DD programs time to time
- You will get a **new faculty advisor** after selection from the host department and your **roll number** remains the same
- In general, based on the feedback of students we have received, since the program is new, the processes related to registration of courses, tagging etc, can get a bit complicated and time consuming. But it is a general consensus that this factor should not play a very heavy weight in deciding your decision for this program
- Please note that only two seats allowed for each DD/M.Tech. specialisation of an academic unit and TA (8 seats) and RAP (22 seats) allowed for C-MInDSand KCDH individually.

## 13. WHAT IF I DON'T GET SELECTED?

Most importantly don't lose heart. If you could not get selected for the IDDDP program, there are other ways in which you can pursue fields which are interdisciplinary. Som Phene has nicely summarized it below -

*"Those who are not able to apply for IDDDP successfully could still take a similar route by planning extra courses (electives, minor, additional learning, supervised learning, self-learning as you wish) in advance and then struggling hard at the time of registrations to get all the required approvals from instructors, heads, Deans. I know it's a lot of effort but I've done it almost every semester now and trust me, persistently showing up at the Academic section, Dean's office every day before/after class will eventually get all formal paperwork done within the first two or three weeks of the semester. As for your thesis, you can always approach a faculty member from another department working in your field of interest and ask him for being a co-supervisor. If you have substantial background and the faculty is confident of your work ethic, there shouldn't be any major problem. I am very selective with my supervisors because I believe working with suitable people matters more than anything. Hence, I have always taken a course of the professor, got to know them well before and then asked for supervision.*


*Make use of the Strong Peer Group you have here! In almost all cases, you are likely to find some student or senior working in your area of interest. I follow a rotating Dinner policy in which I go to different hostel's mess for dinner where I will be able to talk to students from different backgrounds. For*




*example, on days when I had a TA training session in the math department last semester, I would often walk to H2 and have dinner with my co-TAs from the math department. For days that ended with physics class, I would discuss doubts and concepts with physics students on the way to dinner. Once every week, I would sit with a random student for dinner and get to know about their subject- be it geology, industrial design, philosophy, law or management (Yes, Hostel 18 had the variety of final year students of all majors!). This is also one of the reasons why I wasn't attracted towards the typical engineering fields like Electrical, Mechanical or Civil as I was prejudiced that the kind of problems I would get to work on would be very restrictive. Thankfully, people have realized the need for interdisciplinary approaches in all fields and have incorporated it to varying degrees. If you want to be around the most diverse group of students, you are bound to find them in Materials Science Engineering, Systems and Control, Engineering Physics and CRNTS. Materials Science Engineering trumps the rest by the sheer number of students (twice or thrice as big as the rest of the departments)"*

## 14. USEFUL RESOURCES


Other than this booklet, you can have a look at the resources mentioned below as well -

- [IDDDP Video Series by Student Support Services](#)
  - [Som Phene's Blog related to IDDDP](#)
  - [Guide on How to use the AMS Portal by UGAC](#)
  - Link to the [UG Information Booklet](#) with a general overview of the program given
  - Link to the [Course Information](#) Booklet for a general overview related to courses
- 



*Our next part of the booklet is dedicated to detailed student reviews we have tried to obtain from different students who have enrolled in the IDDDP Program. Since the rules have changed significantly recently, there might be a few reviews where the timeline of the process and other things might not match with the rules mentioned above. But in any case, the guidelines mentioned above are the latest ones.*

*Use these reviews to understand more about IDDDP, why they chose it, who to talk to before choosing, what courses need to be done for different departments, and a lot more.*





## 1. REVIEW BY SUKANYA KUDVA

**Parent department - Physics, B.Tech / Host department - IEOR**

### **Why did you decide to convert into IDDDP?**

My undergrad was full of projects in physics experimental groups. But somewhere in this process, I realised the difference between interest and passion. I was interested in the projects I had taken up, but I wasn't quite happy. I felt a disconnect between academia and society which was quite bothering. I wanted to get involved in projects that involved real-life problems and move away from blue-sky research. IEOR gave me this opportunity and I grabbed it.

### **How did you find out about the number and choice of courses you have? Could you please mention the exact courses you had to do, along with the tag (compulsory/elective)?**

*I talked to the IEOR HoD directly about the IDDD course requirements.* For an IEOR IDDD, you need to do a minimum of 4 courses in total. 2 of these courses are compulsory (i.e IE 609-Optimisation techniques and IE 621-Probability and stochastic processes). The other 2 courses are electives and you can choose from any of the IEOR courses (all of them are PG level courses anyway).


In my case, however, I am doing IE 609 + 3 electives because IE 621 is a repeat of my undergrad courses. So, in that sense, the IEOR department is very accommodating and you can tune your course work according to your needs. Currently, I have finished IE 616- Decision analysis and game theory, IE 609- Optimisation techniques and IE 643- Deep learning. I had also audited IE 718- Networks, games and algorithms earlier. In my last semester, I plan to take at least 2 more IEOR electives.

### **What was the exact process you followed for converting into IDDDP?**

I converted to IDDD in my 8th semester which is very unusual. I think the rules are more strict now and IDDD conversion has to happen by the 7th semester. So ideally, you should have decided about IDDD by the end of your third year. For any specific inquiries about the process or application, I suggest you reach out to the HoDs directly since they would know best.

### **What was the criterion for getting selected under IDDDP into IEOR?**

I suggest you go through the rules given on the IITB Acad website. That said, each department might have some unwritten requirements too. You might be expected to have done some courses already and possibly a project too. It is better to talk to your IDDD HoD about it.



In my case, there were no such additional requirements. I think they were only expecting a good CPI, a strong mathematical background and a motivation to work, all of which I had demonstrated through my undergrad experiences.

### **Who did you talk to before making the decision?**

Since I am the first student to pursue an IDDD in IEOR, I had no student to talk to. But I talked to the IEOR HoD to understand the program and the application process better. I made my decision based on two main reasons-

1. I was interested in exploring IEOR and I thought the IDDD experience would help me figure out what to do next in future.
2. IDDD was a good deal for me. To do an IEOR masters in India, I would have had to prepare for GATE and go through the entrance exams hassle once again. Or to do a masters abroad, I would have had to either look for scholarships or bear the expenses by myself. To add to all that, masters programs are usually for 2 years. So IDDD was really a good alternative.

### **How did you choose your DDP guide?**


I had taken up a game theory and networks course with Prof Mallikarjuna Rao, which I found very interesting. What followed was a short project with Prof Rao, where we studied coordination games on networks. I really enjoyed the project too. So for my DDP, I read through random papers and made a list of problems I wanted to solve. Prof Rao also suggested a few problems. Then after a brief discussion, we decided to work on consumer behaviour models. So finding a DDP guide was a 2-step process for me. I first looked for interesting problems. Then I talked to Prof Rao and realised he worked on most of those problems.


### **Which all relevant courses did you do before IDDDP?**

I was doing IE 616- Decision analysis and game theory and IE 718- Networks, games and algorithms during my IDDD application process. I had also done PH 543- Advanced statistical mechanics, EP 219- Data analysis and PH 542- Non-linear dynamics from the physics department. CS 213- Data, structures and algorithms and CS 218- Design and analysis of algorithms were also relevant.

### **Any tips you would like to give for form related things, like SoP, etc.?**

There are two main components in the form- the SoP and the course plan. The SoP is an opportunity to self-reflect and think about why you want to do the IDDD. My SoP had a list of reasons explaining why I wanted to do an IDDD in IEOR and why I thought I made a good candidate. The course plan, in my case, was quite flexible. It had a list of compulsory courses and electives that I had to do. And the choice of electives was totally up to me. In general, though, it is





advisable to talk to your DDP guide before choosing the courses.

**Did you face any difficulties in the entire process?**

No, I had no problems. Both my parent department (Physics) and my IDDD department (IEOR) were very supportive.

**Final remarks...**

If you are really interested in a field outside your parent department and have a project/ particular professor's work in mind then IDDD could be a good way to pursue these interests. Personally, I found the one extra year I got after converting to IDDDP from BTech quite helpful. It gave me more time to experiment with my interests and decide on what I wanted to do after graduating. Since I had seen my BTech friends go through placements and university applications, I also felt more prepared for what was coming next.

All that said, good luck to you! Feel free to write to me if needed!



## 2. REVIEW BY LOVEKUSH TAK

***Parent department - Civil, B.Tech / Host department - Mechanical /  
Specialisation - Manufacturing Engineering***

### **Why did you decide to convert into IDDDP?**

In my 5th semester, I started considering converting into IDDD as an excellent option to explore my interests.

I wanted to work on automation-related industrial projects, but I did not get a chance to work on such tasks due to my branch in Civil. I also wanted to explore this field and see if my interests lie here, a chance I won't get a chance to do the same if I sit for placements instead in my 4th year. That's why I thought of doing IDDD, which will give me a dedicated year to work on the project.

### **What was the criterion for getting selected under IDDDP?**

The criteria is mentioned in the form on the IITB website (attached at the bottom of the booklet). For any additional criteria you can mail to the department's HoD regarding this. Other than this, you have to make a plan in advance of how you will complete UG requisite courses to do IDDD in that branch.


### **What was the exact process you followed for converting to IDDDP?**

You should find exactly where your interests are and professors who have similar research interests, then you can ask UG or PG students doing a project under him about what type of project he/she is currently working on. You can also look at their research papers on their interests. Initially, it is not necessary to find a guide as this can be done later too.

The form for converting into IDDD was uploaded on the AMS portal around *1st August*, with a deadline of around 2-3 days. I got the final approval around the 27th of August that I have been converted into IDDD.

I planned my courses in the 6th semester. None of them have a prerequisite course and clashes from my core course, so it was easy for me to complete them in my 4th year.

**For the detailed courses to be taken for mechanical, please have a look at the document [here](#). You can use it as your reference while planning your courses**



### **What, according to you, are the benefits of doing IDDDP?**

At the end of the 3rd year, most of the students are a bit clear about what to do in the future, but it is too late to explore other engineering fields. Even if you're going to do an MS (from abroad) in another area, there is a chance of not getting selected as you do not have background knowledge in that field, especially if you want to go on scholarship. So, IDDD allows you to work in the area you are interested in for one year, and also it builds a profile in that field that might help you get placements, doing MS/Ph.D. from foreign universities.

IDDD also creates the impression that you are interested in this field and increases your chances of getting selected for higher studies. But sometimes (read it carefully I have written sometimes) this theory failed, as in the case of core placements. One of my seniors who did IDDD from Chemical to Mechanical was not allowed to sit in companies which were opened for PG students in core Mechanical as they wanted the student to have their UG also in the same field.

### **Final remarks....**

One thing you should know is that after converting into IDDD, your facad changes, so mail to the HoD of the department in which you are doing IDDD to get a new facad.



### 3. REVIEW BY AVISH NAREDI

***Parent department - MEMS, Dual / Host department - Civil /  
Specialisation - Structural Engineering***

#### **Why did you decide to convert into IDDDP?**

I made my decision in my 6th semester, when I got to hear IDDDP has been given approval and is structured properly. Since I was able to get a branch change, I saw IDDDP as a good opportunity to change into my field of interest.

I had lost interest somewhere in my engineering field (MEMS). Apart from that, I was always interested in structures too. So, I feel that investing some more effort to meet IDDDP requirements is better than spending a whole year doing a project (DDP) you are not interested in.

#### **What was the criterion for getting selected under IDDDP?**

Students should get approval for both departments corresponding to the course mapping done. A rough course mapping works too, which can later be modified according to instructions from the instructor/facade. And other criteria are already in IDDDP guidelines pdf (attached below). Courses required to do Mtech/DD in Structural Engineering are listed on the Civil department website, hence it was also easy to prepare course mapping. There are some prerequisites courses too (around 2-4), which you might also need to complete, and hence total courses becomes as:

Core: 5

Electives: 6


Prerequisites: 2-4

#### **Please mention the exact course you had to do after converting to IDDDP.**

- **Core:** 5, they are already listed on the department website, and a necessity for Mtech/DD students
- **Electives:** 6 courses are to be completed in order to get Mtech with honors. There is a pool of about 15-20 elective courses as a possible set of options.
- **Prerequisites:** 2-4 courses, these are part of UG curriculum, and you may be asked by FacAd to complete them. These are: Structural Mechanics I, Structural Mechanics II, Structural Dynamics I and Structural Dynamics II.

You can find the list of Mtech courses [here](#) under the CE4 section.


#### **How did you choose your guide for IDDDP?**



I have not chosen my guide yet. I will probably choose somewhere around 8th semester. Since I didn't have much idea about projects and research opportunities, I wasn't compelled to choose a guide too early.

**What was the exact process you followed for converting to IDDDP?**

I started the application process in 6th semester, with the help of *Dgsec of the Civil department*. He was helpful enough to help me with most of my course mapping. As soon as I completed my application, I submitted it to my parent department, which was approved in the next DUGC meet. By mistake, they had forwarded the application to the Academic department instead of the civil department, hence I had to pass the papers to the Civil department. Within 1 week from this, the institute was closed due to lockdown. I took follow up directly before 7th semester, and my application was approved.



## 4. REVIEW BY ARUSH GUPTA

*Parent Department-Mechanical, B.Tech / Host Department- Electrical /  
Specialisation-Microelectronics*

### **Why did you decide to convert to IDDDP?**

Simply put, I could not pursue, entirely, my research interests in my former dual degree programme, so I switched to IDDDP in order to be under the guidance of the professor (who is in electrical engineering) whom I wanted to work with.

I wanted to switch around the start of my 6th semester, but the option had not been considered by the institute till quite a lot later, that was at the end of my 7th semester.

### **How did you find out about the number and choice of courses you have? Could you please mention the exact courses you had to do, along with the tag(compulsory/elective)?**

Pool of electives - I just looked up the specialisation elective list for MTech in microelectronics and chose my courses from that list. There is still a lot of haze regarding the minimum number of courses required to get the MTech without honors degree and the pool of electives too .

The total number of PG level courses to be done for fulfilling the requirements of MTech without honors, is officially listed by the institute as 4 - the electrical department has set the minimum number of core courses to be done out of those 4 courses, as any 2 MTech core courses of the specialization.

I was asked by the course-in-charge to do a project course (SRE - Supervised research exposition EE451), which is mandatory for all EE DD students anyway (to be done in either the 7th or 8th semester, just before the 5th year), which is usually to set you up with the prerequisites for your DDP (literature review mostly), and some more courses, to which I added two 8 credit courses.

So my approved course plan consists of -

- Two 6-credit core courses from MTech microelectronics + two 6-credit elective courses [that completes the minimum asked by the institute]
- Two 8-credit elective courses + one 6-credit project course (SRE) [the 2nd part was asked by the course-in-charge]

### **What was the exact process you followed for converting to IDDDP?**

For going from mech to electrical -



- Filled the form, got it signed by my facad
- Submitted it to the mech HoD (who doubled at that point in time as DUGC)
- Mech 'DUGC' processed it within a day and verified my BTech curriculum as valid (i.e., to say that I will be able to complete my BTech curriculum before the beginning of my 5th year)
- I manually took it to the electrical dept (yeah, you have to do that; good too in some senses, because you can keep track), got signatures of microelectronics-course-in-charge to approve MTech course plan
- Submitted the form to electrical office.
- After about 15 days or so, the application finally got approved and signed.

### **What was the criterion for getting selected under IDDDP into EE?**

The way I understand it, it's that either

- You have to have done 18 credits of minor courses in the department that you want to switch to for your IDDDP *and* have a professor who is willing to take you in for a project.
- You have to have a professor who is strongly willing to take you in as her/his student for the IDDDP.

### **How did you choose your DDP guide?**

Had contacted my guide at the end of my 5th semester because I was interested in the kind of work he had been doing, and then I kept in touch with him and kept learning things little by little, but I didn't get to know about IDDDP till the end of my 7th sem.


### **Any tips you would like to give for form related things like SoP, etc.?**

Be true to yourself during the SoP - that'll do. That's what I did. Just write why you wanna do whatever (project with your guide, say) you do wanna do.

### **Final remarks...**

It makes me feel more independent with respect to the kind of work I want to do - for research enthu folk especially, this is great because you get to make a switch, in case your major (which the 17/18/19-year old you chose as a plausibly very uninformed kid) doesn't really interest you anymore.

With the liberty in taking courses (due to the reduced load of a minimum of 4 PG courses to be done), it has definitely helped me be a lot less stressed than I used to be in my former programme; my former programme had loads of core courses that got very repetitive, so I got flattened out a lot because of that and the IDDDP provided me a great means to sway toward the field that I was



interested in, by letting me take courses in which I knew that I'd get to learn something new. So, yeah, go for it if you wanna learn new things.

## 5. REVIEW BY NAMAN AGGARWAL

*Parent Department - Aerospace, B.Tech / Host Department - SysCon*

### **Why did you decide to convert into IDDDP?**

I made up my mind of switching to a dual degree in mid-July before the commencement of my fourth year, but I specifically started considering the Inter-disciplinary Dual Degree programme in August. **Please note that the IDDDP timeline is now significantly different.**

I wanted a broader view of control and related areas rather than restricting myself to just Aerospace applications. For example, there is no professor working on Stochastic Control in the Aerospace Department. No one works at the intersection of game theory, information theory, communications and control. I was interested in these areas and switching to the Systems and Control department was the only way for me to learn and grow as a researcher.

### **How did you find out about the number and choice of courses you have? Could you please mention the exact course you had to do, along with the tag (compulsory/elective)?**

One has to do 8 additional courses (48 credits) apart from the DDP project (total of 72 credits) and a 4 credit seminar to complete IDDDP requirements for the SysCon department. This is fairly high as compared to requirements of other departments where one can get an IDDDP (without honours) by doing just 4 additional courses and the DDP project.


Most people complete their seminar in the 8th semester, before their 5th year, but it is perfectly okay to do it later. I, for example, am doing my seminar in my last semester (10th semester) when I'll be mostly done with everything else and will have more time and mental space.

2 or 3 courses out of the total 8 courses were required to be chosen from the following "core" bucket: {SC 625 Systems Theory, 602 Nonlinear Dynamical Systems, 607 Optimization etc}, rest can be chosen from any of the courses offered by the department.

**Note: One can also take up RELEVANT courses from another department and get it approved from one's IDDDP guide and HoD (for example, I took EE 622 Optimal Control Systems, EE 736 Stochastic Optimization, EE 737 Stochastic Control) to fill the requirements.**

**Note: Department office is THE place to get any of your queries resolved. Mail or talk to them physically.**

### **What was the exact procedure you followed for converting to IDDDP?**



Fill in the application. One also has to fill relevant prior coursework (3 or 4 courses) and get signatures from the respective course instructors as a part of the application.

PRO TIP: Don't waste yours and the professor's time in all the back and forth of setting a meeting time over email, just catch them after their lectures (look up their schedule from ASC) and get their signatures.

Submit your application to the parent department office after getting it signed by your FacAd. The department office will take the HoD's signature themselves or you can take HoD's signature and then submit it to the department office. You don't have to do anything after this other than getting updates from both the department offices. The parent department office will first forward your application to Dean AP's office, after which the application will reach the target department where the final decision on the admission to IDDDP programme will be taken in the Department Senate Meeting.

**FINAL NOTE: I submitted my completed application in the third week of September 2019. note that this rule has now changed since IDDDP applications are now invited in the Summers itself, so be careful on this.**

### **What was the criterion for getting selected under IDDDP for SysCon?**


I think the major criteria besides some relevant experience (coursework, projects etc.) is that some faculty in the Systems and Control department should vouch for you. So deciding early-on on who you'll like to work with in your fourth (BTP) and fifth (DDP) year, and talking to them is crucial.

### **How did you choose your guide for DDP?**

The primary or the first step is to find a professor in the target department who agrees to be your project guide for your 5th year. This has to be done at the very start of the 4th year. Since I was interested in research and doing a BTP anyway, I asked my BTP guide who was from SysCon, around the time when I was filling my IDDDP application (mid-September 2019) to be my DDP guide and he happily agreed. I got to do 2 years of research with him (well, the second year is currently in progress) and learnt a lot.

It is HIGHLY ADVISABLE to find a professor and stick with him for 2 years (because your

interests will also mature as you go along and a longer time period is very important to do GOOD work and build a SOLID foundation) unless of course, there are some compelling reasons to change the guide.





### **Any tips you would like to give for form related things, like SOP, etc?**

Nothing fancy, don't overthink this, this isn't your PhD application and just to express yourself. Just write an essay regarding your previous projects or course experience and the ongoing BTP project you're doing with your guide in the target department and how you'll like to work with the professor for an additional year and that's why you're applying for the IDDD Programme.

At the end of the essay, one also has to append a course plan on what courses you'll be doing in what semester (7th, 8th, 9th and 10th) and how you'll complete the course requirements. Note that this is just a proposal and the exact courses you end up taking later can very well change. This is just to convince the department that you can complete the required number of credits without overloading yourself too much.


**NOTE: This has to be approved by the parent department also (for my case, I sat with my FacAd and showed him my plan and convinced him that I could complete the Aerospace B.Tech requirements including institute and department electives by the end of my 4th year).**

### **Did you face any difficulties in the entire process?**

Not anything in particular. Just be careful in completing the application early and don't procrastinate.

### **Final Remarks...**

Any student who's serious about converting to Systems and Control IDDDP and has any Questions can email me at [naman\\_agg@iitb.ac.in](mailto:naman_agg@iitb.ac.in).



## 6. REVIEW BY ANIRUDH MITTAL

*Parent department - Chemical, B.Tech / Host department - C-MInDS*

### **Why did you decide to convert into IDDDP?**

I started considering DD as an option rather than IDDD specifically back in June 2020. In fact, around that time we were not even informed about C-MInDS as a potential option. It was the time when I had talked to a bunch of people from different domains that I thought might interest me as career options after graduation and I had made a priority list accordingly. At the top of my list was applying for a Master's degree in Computer Science. Staying one more year in the institute seemed very helpful for this option on the priority list and even the backup options. At this point, I was considering converting to IDDD in IEOR, IDDDP in Elec, and Chemical dual in that particular order. All these options, in some way, could have helped me develop a better profile for grad school over the years. C-MInDS aligned the best with my needs and I applied immediately when it was announced.

### **How did you find out about the number and choice of courses you have? Could you please mention the exact course you had to do, along with the tag (compulsory/elective)?**


As part of our Master's degree we're supposed to do about 4 courses from [this](#) list of electives. As this is the first year for C-MInDS, I believe that there are a lot of things yet to become concrete.

### **What was the exact process you followed for converting into IDDDP?**

This year, we were given a short notice of 2 days to complete our application online on the AMS portal. For the application we had to provide basic information like CPI, a list of possible advisors, research experience/courses taken related to the host department, Statement of purpose, and course plan. Then we had to send it to our Faculty Advisor, DUGC parent department, and DUGC host department for signature sequentially in that order. We also had to send the form to the Professors we had mentioned in research experience if any. After getting all three approvals it was sent to the Assistant registrar from the Acad section. AR4 then confirmed the admission after about 45 days.

### **What was the criterion for getting selected under IDDDP into C-MInDS?**

Before this year, and even now for lesser-known departments getting in IDDDP shouldn't be a problem as long as your CPI is 7.5+ and no active backlogs. Every department offers only two seats for each of their specialisations making some specialisations very competitive. You have to



get approval from your Facad, parent dept.'s DUGC, and host dept.'s DUGC. So your application should show genuine interest to convince them. If the number of applications approved by the host department is more than 2, then the Acad section takes the first two people based on CPI.

**Note: As this was the first year of C-MInDS, the number of seats was capped at 8 instead of the usual 2. They also are taking RA students about 17 in number as per a mail that came out in November 2020.**

**How did you choose your DDP guide?**

I had proposed three professors in my application working in the area I felt I would enjoy working in. I also took a course in that area in my 7th semester to get a better idea before fully deciding anything.

**Any tips you would like to give for form related things, like SoP, etc.?**

For specialisations that are competitive, It is important to submit a strong application. SoPs, if properly written, can help your application stand out in front of the committee.

**What was the exact timeline you followed (when did you start thinking, when did you find out about DUGC approval etc.)?**

We were given roughly 2 days to submit our application. It took me about 2 days each to get approval from the three different concerned authorities. It took some people very long to get a reply from their DUGCs so it is important to send regular follow-ups.

**What was your course plan/ how did you plan it out?**


As the requirement for C-MInDS only includes 4 courses, my course plan was fairly simple.

**Did you face any difficulties in the entire process?**

Not so much. Just that the process took about 50 days which created a lot of uncertainty

**Final remarks...**

This definitely is an amazing way to switch majors which a lot of people are on the lookout for. Interdisciplinary knowledge, as I have been told, is generally appreciated by recruiters.



## 7. REVIEW BY PRAVIN RAUT

*Parent department - MEMS, B.Tech / Host department - EE / Specialisation - Microelectronics*

### **Why did you decide to convert into IDDDP?**

It all began with choosing to minor in the EE department. I enjoyed taking the Electronic Devices (EE207) and Digital Electronics (EE221) courses in my second year, which motivated me to dive deep into these related fields and undertake a project under a professor from EE Department.

The exposure to various experimental and computational techniques in the devices field kept me hooked. I was doing semiconductor-related courses and enjoying the research project enough that I found the idea of converting the degree to IDDDP attractive, because I believe the most impactful research occurs at the boundaries of multiple disciplines.

### **How did you find out about the number and choice of courses you have? Could you please mention the exact course you had to do, along with the tag (compulsory/elective)?**

I came across an Insight article on the IDDDP, which gave me a picture of the available choices and requirements for the program. Subsequently, I consulted my prospective DDP guide and the intended department's HoD to build the course plan. It is advisable to contact your intended department for a course-plan as different departments may have different requirements.

With the help of my DDP guide, we proposed the following course plan for my IDDDP:

Courses	Semester
EE620- Physics of Transistors	6
EE728- Growth and Characterization of nanoelectronic materials (Equivalent to EE669 - VLSI Technology)	8
EE671- VLSI Design	9
EE735- Microelectronics Simulation Lab	9



Apart from these 4 PG level courses, I intended to complete the following courses as per my interest:

Courses	Semester
EE451- Supervised Research Exposition	8
EE755- Quantum Transport in Nano-scale Devices	8
EE723-Physics of Nano-electronic Devices-I	9
EE727- Physics of Nano-electronic Devices-II	10

#### **What was the exact process you followed for converting into IDDDP?**

I converted to IDDD in my 8th semester which is very unusual. I think the rules are more strict now and IDDD conversion has to happen by the 7th semester. So ideally, you should have decided about IDDD by the end of your third year. For any specific inquiries about the process or application, I suggest you reach out to the HoDs directly since they would know best.

#### **What was the criterion for getting selected under IDDDP into EE?**


The minimum criteria to apply is, the student must have  $CPI \geq 7.5$  and should not have any FR/DR/DX/W grade in mandatory courses at the end of the sixth semester. Apart from that, there are no hard and fast rules, but DUGC may enforce additional eligibility and selection criteria, including courses/projects taken in the intended department. So, it is recommended to complete some courses or take a project under a professor from the target department.

#### **Who did you talk to before making the decision?**

Since I was doing a research project under Prof. Subhananda Chakrabarti, I had a chat with some of his Ph.D. fellows and the professor himself. The discussion was inclined towards understanding the significance of an interdisciplinary degree in the long run. To get an idea about the course plan and nature of the IDDDP at IITB, I contacted Shrenik Jain, who was pursuing an IDDDP at that time. All of the discussions were fruitful and helped me make the right decisions.

#### **How did you choose your DDP guide?**

From my second year itself, I realized my inclination lay in the field of device physics. I did a project with Prof. Subhananda Chakrabarti on quantum dot-based infrared photodetectors. So I was confident about continuing my research in semiconductors related areas. Apart from that, my



3rd year intern was more of computational work using first-principle calculations. That gave me the confidence to explore relevant computational methodologies. I had always been curious about the working of solar cells and wished to contribute to this field. I found the perfect combination of my interests in Prof. Pradeep Nair's group as he does computational work related to solar cells. In a nutshell, I matched my interests and professors' research areas. So far, the program has worked out for me and it is going great.

### **Which all relevant courses did you do before IDDDP?**

At the time of the application process, I had completed four courses from the EE minor and one PG level course on Physics of Transistors (EE620). The completed minor courses:

- EE207 – Electronic devices and circuits
- EE221 – Digital Electronics
- EE325 – Probability and Random Processes
- EE210 – Signals and Systems

### **Any tips you would like to give for form related things, like SoP, etc.?**


You need to provide your BTech as well as the IDDDP course plan. The BTech curriculum should be completed by the 8th semester. The SoP should be well written and must clearly convey your motivation for applying for the program. While writing SOP, you could narrate a story about your interest build-up in the targeted department and things you explored in that department. Mention your project, if any. Also, mention how the IDDDP will help you in the long run and shape your career.

### **Did you face any difficulties in the entire process?**

Try to be very transparent while choosing your IDDDP course plan. Please discuss it with your DDP guide and make sure that you are taking appropriate courses from the intended specialisation. I needed to change my initial course plan as I had added some courses that weren't from microelectronics specialisation.

### **Final remarks...**

Looking at the current scenario, most of the fruitful research is happening on the boundary of multiple disciplines. Researchers and Industrialists from multiple disciplines are collaborating to solve the unsolved problems of past decades. So, looking ahead, knowledge in multiple domains will always help, and thus IDDDP is a good option if you enjoy exploring different fields. Having said that, be prepared to put in some extra efforts as you will be mastering two different departments.



## 8. REVIEW BY ATRI DUTTA

*Parent department - EE, B.Tech / Host department - Physics / Specialisation - Nanoscience*

### **Why did you decide to convert into IDDDP?**

I had been extremely conflicted as to whether I wanted to pursue a career in Physics or Electrical Engineering, and for various reasons, I missed an opportunity to change my branch in my second year. Over the next two years, I followed the Physics minor curriculum, as well as did some research projects in the field. I seriously started considering IDDDP when I got to do an internship in a related field, and realised the gulf in knowledge between someone pursuing a physics curriculum, and myself. By the end of the internship, I had made up my mind to pursue an IDDDP in physics. I also realised that I would like to do some concrete physics-related research work before I graduate. This made my decision quite easy; an extra year has allowed me to complete all the necessary coursework, and also, allowed me to work in a research problem as a part of my DDP.

### **Could you please mention the exact courses you had to do, along with the tag (compulsory/elective)?**

The easiest way to be eligible is to pursue a minor in your intended department. Apart from that, it helps if you have done additional coursework (5xx/7xx courses) in the department. For example, in my case, apart from the introductory Classical mechanics, Quantum mechanics -1 and the Thermal and statistical Physics course, I had completed courses on Quantum Information and Computing, Theoretical condensed matter physics before applying


### **What was the criterion for getting selected under IDDDP into Physics?**

I had made up my mind to pursue higher studies in Physics, but I did realise that I lacked some basic knowledge that would have been required in my preferred field of study. I also realised that I would like to do some concrete physics-related research work before I graduate. This made my decision quite easy; an extra year has allowed me to complete all the necessary coursework, and also, allowed me to work in a research problem as a part of my DDP.

### **How did you choose your DDP guide?**

For your DDP, you need to have a guide in your host department and can have a co-guide in any other department.. You can contact a prof at the time of filling the form and ask them if they

could be your guide, but it isn't hard and fast, and you can change later in your 5th year.



In my case, I had a good problem to work on under the professor I was working with in the EE department which aligned with my interests, so I asked him to be my guide, and chose a co-guide in the Physics dept.

**What was the exact timeline you followed (when did you start thinking, when did you find out about DUGC approval etc.)?**

By the start of my fourth year, I had made up my mind to convert to a dual degree and I completed the formalities (filling out the forms, getting permission from the EE DUGC etc) in the 7th semester. My conversion was finalised over the winter break. **Now, the institute has a fixed timeline for all IDDDP applicants to fill out their forms. So do watch out for that.**

**What was your course plan and how did you plan it out?**

My main intention was to do as many graduate level courses that I could do in the extra year. Apart from 5 fixed courses in the Physics dept. curriculum, I had to do four extra courses for my credit requirements, in addition to my DDP. There are two options for IDDDP, with and without honors. If you feel that 9 extra courses would be too hectic for you over one extra year, then you should consider IDDDP without honors, where one has to do only 5 extra courses along with your DDP project. In case you choose to do 9 courses, then it is extremely important to pace the coursework right from the 7th semester. I did 2 extra courses in the 7th and 8th semester each, 3 extra courses in the 9th semester, which leaves me with 2 courses in the 10th sem.

**Any tips you would like to give for form related things, like SoP, etc.?**


In addition to choosing a guide and a co-guide, the form asks you to list previous research experiences in the relevant field, a Statement of Purpose about the reasons behind your intention to convert, and a tentative course plan for the extra credits you need to take. Some departments have an unrestricted course structure while others may need you to complete courses from a fixed list.


**Did you face any difficulties in the entire process?**

The IDDDP process has improved a lot from the first times it was carried out. There can be a few problems here and there, like registration, tagging/retagging which will have to be done manually by contacting the acad office representative for your year, but more or less, there haven't been any major problems in the Physics department.

**Final remarks...**

If you want to go for higher studies abroad, many departments prefer students who have a prior degree in the field of study. I would be graduating with a degree in physics, which would be extremely beneficial for me in this regard. In addition, to pursue a PhD in Europe, you need to have





a master's degree in the stream, so spending an additional year doing your Masters ( in place of the usual two) certainly is a good choice. The undergraduate curriculum in IIT is very rigorous and intensive, so you won't be wasting a year if you convert to IDDDP, in any case.

## 9. REVIEW BY KUMAR MISKIN

***Parent department - MEMS, Dual / Host department - C-MINDS***

### **Why did you decide to convert into IDDDP?**

C-MINDS Department was announced just a couple of days before the deadline for IDDDP conversion. I hadn't really thought of changing my department before the announcement as the only other department which was relevant to my interests i.e Computer Science does not participate in IDDDP program.

I was already familiar with coding before joining the institute as a part of my 11th and 12th curriculum. That helped me breeze through CS101 and got me interested further. I had taken up CS419 - Introduction to Machine Learning in my 3rd semester as a CS Minor course and this got me into the field of machine learning. I was always fascinated by interdisciplinary research and wanted to do something which involved both my minor as well as major. Hence I started working on a couple of research projects on simulations under Prof Ajay Panwar in Metallurgy Dept. I could apply my core knowledge as well as improve my programming skills and learned quite a bit while I worked. During my 2nd year summers I went to New York to intern at NYU in a similar field (ML + Simulations). Thus when the program was announced it seemed like a no-brainer to apply because I was already a dual degree student and it was directly in line with my interests.


### **How did you find out about the number and choice of courses you have? Could you please mention the exact course you had to do, along with the tag (compulsory/elective)?**

CMINDS requires one to do 4 PG level courses (*only for the first batch*) whereas it will be 4 PG level courses + 2 AI/DS minor courses (by the 6th sem) for later batches. You can find the course list [here](#).

### **What was the exact process you followed for converting into IDDDP?**

The first step was to create an academic plan as to how you will be able to complete your Btech courses and IDDDP courses. It is different for each department so it is always better to ask seniors or to inquire about it from the host department. This plan can be finalised by discussing with your faculty advisor/DDP guide. I had applied during the covid pandemic so the process was online but the procedure should be the same offline as well.

There is an IDDDP form which we have to fill with details like the courses/projects that we have undertaken, 3 DDP guides in order of preference & a SoP. After attaching your academic plan and transcript and taking your FacAd's signature this should be submitted to the Parent Dept's DUGC.



Once they approve it the next step is to submit it to the Host Dept's DUGC which when approved would be forwarded to the acad section for further processing. During my time this was all done on the AMS portal ([ams.iitb.ac.in](https://ams.iitb.ac.in))

**What was the criterion for getting selected under IDDDP into C-MInDS?**

There are no specific requirements for an IDDDP in C-MInDS- usual IDDDP rules apply.

**Any tips you would like to give for form related things, like SoP, etc.?**

The SoP should focus on your interest in the host department and related projects/courses that you have undertaken. You can also write about how this can help build your career path.



## 10. REVIEW BY MAULIK BHATT

*Parent Department - Aerospace, B.Tech / Host Department - SysCon*

### **Why did you decide to convert into IDDDP?**

After my third-year internship, I had to decide on what to do further. One thing was sure that I was not sitting for placements as I didn't want a non-core job and there are almost zero core jobs for an Aerospace B.Tech student through campus placements. I could have gone for further studies abroad but I was not completely sure about it. I didn't want to go for MS and Ph.D seemed a big commitment for which I was not mentally prepared. A dual degree was a good option as it would give me more time to decide on my plans and strengthen my profile.

Initially, I planned to convert to a dual degree in Aerospace only. The sub-discipline in which I was interested was Dynamics and Control. To keep things in perspective, I was pursuing a minor in the Systems and Control Engineering(SysCon) department and I had already worked on two research projects with a professor in SysCon. My third-year internship was also in control. That's when I thought that if I wanted to keep working in the SysCon department then I should consider converting to the dual degree through IDDDP. My guide in the SysCon department under whom I was doing my BTP also suggested the same. I too wanted to get more exposure in the controls and it was the best possible option for me.

### **Please explain about the courses one can/should do for IDDDP in the department that you chose, in detail.**

In the Systems and Control Engineering Department, you have to complete a total of 8 courses+seminar+DDP. Out of those 8 courses, 2 are core courses and 6 are electives. The pool of core courses is available in the curriculum.

For the electives, you can choose any graduate-level course connected to the field of dynamics and control with the consent of your guide and HOD. Before doing these graduate-level courses it is recommended that the student has completed basic courses in the SysCon department, i.e. a minor is preferred.

### **What was the exact process for converting to IDDDP?**

At my time, there was no specific deadline for converting to IDDDP. By the midterm of 7th sem, my application was ready and I submitted it to my parent department (Aero). Then, it got approved by the Aero department within 10 days and it was sent to the host department. It took a lot of time there and the application was approved by the 8th-semester midterm and was sent to the academic





office, which got finally approved by the Dean in a few days.

**What was the criterion for getting selected under IDDDP?**

It generally varies from department to department but generally your CPI, background in the host department (courses+projects+relation with your proposed guide and other faculty members) will matter.

**How did you choose your guide for DDP?**

During the commencement of the 7th sem, I contacted a prof from the SysCon department with whom I wanted to work and he agreed


**Which all relevant courses did you do before IDDDP?**

I had already completed 3 courses that can be tagged as electives in my IDDDP department by the end of the 7th sem. For the remaining 5 courses, I completed 3 courses in the 8th sem and 2 courses in the 9th sem to complete all 48 credits requirements. I completed the seminar in the 8th sem.

**Final remarks...**

Interdisciplinary expertise is always helpful and the current research in academia and industry is getting more and more interdisciplinary, drawing knowledge from various fields.

Through the IDDDP you can work on research projects that are not limited to your core branch and have applications in other fields also. That will certainly count in your application when you apply for higher studies in fields that are highly interdisciplinary. In the jobs also, you will be able to sit for all the companies that come for your parent department as well as the IDDDP department. That will provide you with a wide variety of companies to apply for.



## 11. REVIEW BY AKSHAT BANSAL

*Parent Department - Chemical, B.Tech / Host Department - IEOR*

### **Why did you decide to convert into IDDDP?**

I started thinking about pursuing my IDDDP in the 6th semester. First of all, I liked the content of the courses that I did as a part of a minor. Secondly, I found the research being pursued in the department to be quite fascinating. Also, a dual degree was a good option as it would provide me with more time to decide on my plans and strengthen my profile. All this ultimately motivated me to pursue masters in the IEOR.

### **How did you find out about the number and choice of courses you have? Could you please mention the exact course you had to do, along with the tag (compulsory/elective)?**

One need to do the following courses towards IDDDP in IEOR:

Without honors, minimum of 4 courses and 1 Lab

- IE 609
- IE 621 (if IE 502 has been done earlier that can be considered instead)
- IE 630 (if IE 603 has been done earlier that can be considered instead)
- Either IE 507 or IE 684 Lab
- 1 IE elective (6 credits)

**To get Honors, one needs to complete additional 3 IE courses.** There is no restriction on IE elective and any IE labelled course count towards elective.


### **What was the exact process you followed for converting into IDDDP?**

The call for applications is made some time around the 2nd week of July. Getting approvals from your Faculty Advisor, Convener DUGC (Parent Department), Convener DUGC/DPGC (Host Department) is done around the first half of August and the results are announced in the last week of August

### **What was the criterion for getting selected under IDDDP into IEOR?**

As per my knowledge, there are no specific criteria and entirely depends upon the quality of the application that mainly consists of academic performance, research credentials and SOP. **If one had completed some course or undertaken a project, it would be an added advantage as it shows your genuine interest in the host department.**

**How did you choose your guide for DDP?**



I referred to the research areas of the faculty available on the department webpage; however, guide allotment is yet to be done.

**Any tips you would like to give for form related things, like SoP, etc.?**

Once you have sufficient knowledge related to the host department either through courses or projects. The application has to be made at the end of the sixth semester and before the beginning of the seventh semester.

## 12. REVIEW BY NEILABH BANZAL

*Parent Department - Mechanical, B.Tech / Host Department - SysCon*

### **Why did you decide to convert into IDDDP?**

Systems and Control Engineering Group was formed in 1977 as a unique interdisciplinary program in the country that offers post-graduate education in the broad area of Systems and Control. There are very few institutes that offer studies in Systems in Control as a theoretical subject rather than its applications from Mechanical, Electrical, Chemical or any other perspective.

As such, an IDDDP in Systems and Control Engineering opens a plethora of opportunities for you as a researcher, whether that be in academia, or in the industry.

### **How did you find out about the number and choice of courses you have? Could you please mention the exact course you had to do, along with the tag (compulsory/elective)?**

For IDDDP in Systems and Control, you have to do a Seminar, Dual Degree Project, and a total of 8 core courses, 2 of which have to be chosen from the 'Core' Basket, and the rest can be from the 'Core' Basket or the 'Elective' Basket.

The Core Basket comprises -


- SC 601 - Modeling and Identification of Dynamical Systems
- SC 620 - Automation and Feedback Control
- SC 625 - Systems Theory
- SC 629 - Introduction to probability and random processes
- SC 602 - Control of Nonlinear Dynamical Systems
- SC 607 – Optimisation

The Elective Basket is all the other courses offered by the department. The list can be found [here](#).

### **When should you start thinking about pursuing IDDDP?**

If you are already pursuing a project under a professor in the SysCon Department, then you may want to discuss the possibilities of IDDDP with the professor as early as possible, but not later than the end of your 6th semester.

If you are not doing or have not done a project under a professor in SysCon Department, then straight away going for an IDDDP is not advisable. As such, you should start working on a project



latest by the beginning of the 6<sup>th</sup> semester so that you have ample time to get used to the kind of research done in the department. This would also help you gauge your interests in research, in Systems and Control in particular.

### **How to make the decision to go for IDDDP in SysCon?**

You should definitely go and talk to seniors who are pursuing IDDDP in Systems and Control. At the same time, also talk to your seniors who have instead gone for higher education abroad, or opted for a Dual Degree in your department. You can achieve the same objectives in very different ways and the choice is based on what suits you and your supervisor(s) the best.

At the same time, discussing the various options with your Faculty Advisor, as they can give you a perspective that is different from the one by students. That can be immensely helpful in making the decision.

Once you are clear on what each option entails, talk to your to-be-supervisor (professor with whom you are doing the project) to chalk out all the details.

### **What was the exact process you followed for converting into IDDDP?**

Before the process even starts, you should get in touch with the professor they want to pursue the IDDDP with. It is recommended that you are already doing a project with them, but if you meet to discuss this with them around early 6<sup>th</sup> semester, then even if you are not doing a project, then you can discuss your IDDDP plans along with the project.


Early mid-June, you should start filling the form after consulting your seniors and your to-be-supervisors. Discuss your course plans and project plans thoroughly with your professors.


The form has to be filled and submitted to your Faculty Advisor before 15<sup>th</sup> July.

Once you have submitted your application to your department through your Faculty Advisor before the 15<sup>th</sup> of July, the application is scrutinised by the DUGC of the parent academic unit, followed by the DUGC/DGC of the Host academic unit. The DUGC/DPGC of the Host academic unit forwards the list of the short-listed candidates to the Dean, AP, and the final approval of the conversion of degree is approved here. If more than 2 students are applying for the same specialisation, then, the department can also release a waitlist based on merit.

### **Any tips you would like to give for form related things, like SoP, etc.?**

A minor is not necessary for applying to IDDDP. However, it is strongly recommended to get sound basics in the field. Jumping straight into Master's level courses without solid foundations can be difficult. However, if you and your supervisor feel that you have the required basics, then you do not





necessarily need a Minor in the same department.

Also keep in mind that not all minor courses can get transferred to your coursework for IDDDP. This is because IDDDP calls for Master's level courses, and 2xx, 3xx, and even 4xx courses may not be acceptable for the same.

## 13. REVIEW BY SAKSHEE PIMPALE

*Parent department - EE, Dual Degree / Host department - C-MInDS*

### **Why did you decide to convert into IDDDP?**

I wished to contribute effectively to IITB research in fields where my aptitude lies. I found a good application oriented project and hence I applied. I found the AI-ML domain pretty interesting, in particular the programming applications. There is tremendous scope for new ideas since this is an emerging field.

Another motivation was that the course requirements were lesser than my Parent Department and I could also use the ALCs that I had done. I could do the courses that I always wished but couldn't do because of course load limits and also increase my CPI with retagging.

### **How did you find out about the number and choice of courses you have? Could you please mention the exact courses you had to do, along with the tag (compulsory/elective)?**

All the information is present in detail [here](#).

### **What was the criterion for getting selected under IDDDP into C-MInDS?**

For applying to CMInDS, it is necessary to have completed at least 2 minor courses in AI and Data Science. This requirement was waived off for the First Year of Admission, though I did have the relevant courses done. Make sure you fit this criteria.

### **How did you choose your DDP guide?**

For the RA application, we were given a list of guides along with their project descriptions. I was clear about the fact that I preferred more application-based projects. I had experience with Image Processing and Deep Learning and looked up projects in that domain. There are also projects on NLP, Computer Networks, Graph-Based models and based on Theoretical Machine Learning aspects for you all to choose from. I analyzed the list thoroughly and then finally mailed all the professors whose projects suited my interests and knowledge and got all the queries answered. Make sure you start this process early on as it takes time to get all queries answered and for reviews. Next, I obtained reviews from students who had previously done projects with those professors and then finalized the preferences.



### **Which all relevant courses did you do before IDDDP?**

I had completed Introduction to Machine Learning and Deep learning courses through GNR 652 and GNR 638 respectively. I also had done Medical Image Computing(CS 736) which I found highly interesting in spite of it being a difficult subject. Regarding Research Projects, I had recently completed a Deep Learning Project on model size reduction and out of class classification and had done an RnD in EE dept in my 4th semester based on simple Markov Chains. My internship was not related to AI-ML but it strengthened my love and expertise in programming.

### **Final remarks...**

I finally was able to match some projects according to my interests. I had the willingness and passion to learn this domain more. I am looking up to placements and I knew that I could benefit from AI ML profiles in research and/or application domains. Also, since the project is decided early on, I can start it early like in January itself, and reduce the burden in the placement time. I could also work on CPI improvement since fewer requirements are left now which can enable me to take extra courses for a better grade. I also had some friends who had already converted in TA category :P

My advice to the readers will be, follow your interests and once you make a decision, do not turn back and make the best out of it. Thank you for reading till the end!





## 14. REVIEW BY ANANT JOSHI

*Parent department - Mechanical, B.Tech / Destination department - SysCon / 4th year*

### **Why did you decide to convert into IDDDP?**

I got interested in the field of robotics and systems and control in my second semester when I participated in the line following competition and learnt the PID algorithm. Subsequently, for ITSP, I participated in a project to build a Stewart platform. Having successfully built one, it pushed me to take up a minor in systems and control to learn this theory formally.

I thoroughly enjoyed the courses in minor, since I am deeply interested in rigorous mathematics and its applications. In my second year summer, I took up a theoretical research project on robotic path planning with Prof. Arpita Sinha, Department of Systems and Control Engineering. Although I realised that this topic wasn't something I would want to pursue in the future, it gave me a flavour of research, and I enjoyed the process. In my fifth and sixth semesters, I took up graduate level courses in state estimation, geometric control and adaptive control, which I really enjoyed, and it pushed me further into this field.

This was when I began thinking of converting to a dual degree. My third year internship was in the University of Texas Arlington, with Prof. Kamesh Subbarao, on the topic of uncertainty quantification. It gave me a flavour of formulating a problem and solving it as well. The experience of being with a problem from inception to conclusion was truly enlightening, and sealed my decision to convert to a dual degree and apply for a PhD after that.

### **Advantages of IDDDP**

1. It would allow me to do many graduate level courses, and it would help me figure out my interests better when I applied for PhD. This would reflect well on my application as well.
2. It would boost my PhD application by providing research experience through master's thesis, and stronger letters of recommendation from my professors since I would get more time to work with them.
3. I didn't want to apply for an MS, then by the time I get into the new environment, begin to think of PhD applications and go through the entire graduate application process again. Moreover, I would have to ask my letter writers to write letters for me again. I was very well set into the IIT Bombay community by my fourth year, hence my fifth year would be academically smooth. My fifth year would also give me free time for my applications and GRE.

### Advantages of an IDDD -

I got to do the courses of my choice as a part of the IDDDP curriculum, while if I had done a conventional DD, I would have to follow the department lists and do those courses.


### Could you please mention the exact courses you had to do?

*This is the list of graduate level courses that I did, but check with your department for the current rules.*

Semester	Course Code	Course name
5	CL 653	State Estimation: Theory and Application
6	SC 624	Differential Geometric Methods in Control
6	SC 617	Adaptive Control Theory
7	SC 629	Introduction to Probability and Random Processes
7	SC 625	Systems Theory
7	SC 694	Seminar
7	ME 782	Design Optimization
8	AE 639	Continuum Mechanics
8	CL 686	Advanced Process Control
8	EE 636	Matrix Computations
8	SC 618	Analytical and Geometric Dynamics
8	SC 633	Geometric and Analytic Aspects of Optimal Control
9	AE 715	Structural Dynamics
9	SC 643	Stochastic and Networked Control
10	SC 638	Quantum Control

### How did you choose your DDP guide?

In my sixth semester, I was doing a project with Prof. Banavar in systems and control engineering.



He said it would be very good to have a long interaction, and he would be happy to take me as a DD student and encouraged my idea.

## 15. REVIEW BY SHREYAS CHANDGOTHIA

*Parent department - Physics, B.Tech / Host department - C-MInDS / 4th year*

### **Why did you decide to convert into IDDDP?**

During my first couple of years at IITB, I explored a lot of fields, both within my home branch i.e. Engineering Physics, as well as outside, through a variety of courses and projects. By the mid of my third year, I was clear that I did not wish to pursue higher studies in Physics. Instead I had developed a keen interest in Computer Science related fields, especially Data Science and Machine Learning. At that time, I wasn't certain whether to go for placements in AI/ML or higher studies in the same, but one thing I was certain about was the fact that coming from a Physics background and not a CS one, I needed more knowledge in the field, both theoretical and practical, to be at par with my counterparts.

An IDDDP in C-MInDS provided me with a perfect opportunity to do so, by allowing me to take 6 additional courses as well as a Dual Degree Project in AI/ML. Moreover, this enhanced my campus placement opportunities in the field too, by allowing me to apply for companies that wouldn't have opened if I were in EP.

### **What was the criterion for getting selected under IDDDP? Was there any criteria to do specific courses to convert to IDDDP, if yes please mention those?**

All the qualification criteria for an IDDDP in C-MInDS has been succinctly explained on the Academics subpage of the C-MInDS website

[C-MInDS Website](#)

There are 8 TA seats (you need to serve as a TA during your fifth year, which will contribute towards your stipend, which is a fixed amount (₹12400 per month for  $CPI > 8$ , ₹6000 per month for  $8 > CPI > 6$  and b/w ₹2000-4000 per month for  $CPI < 6$ )) and upto 22 RA seats (you work under a professor and your stipend is allocated directly from the prof's research fund, also the number of RA seats might vary each year depending on the number of professors willing to take in students) in the program. For the TA seats, the selection is usually in order of CPI, provided all other qualification criteria are met. For the RA seats, selection heavily depends on a recommendation from the prof you wish to work with.

As for the courses, you must have completed at least two courses from the huge C-MInDS basket of courses ([C-MInDS Courses](#)) by the end of your sixth semester. It is preferable that the two courses completed be DS 203: Programming for Data Science, and DS 303: Introduction to Machine Learning (or its equivalent courses)

### **What was the exact process you followed for converting into IDDDP (With the timeline)?**

The deadline for application for IDDDP last year was 30th May 2021, which later got extended to 23rd June 2021, due to some pending grades owing to the online semester. My timeline was roughly as follows:

March: Finalized my decision to apply for an IDDDP in C-MInDS. Clarified any academic qualification queries that I had from the Professor-In-Charge (PIC) of the C-MInDS department, Prof. Sunita Sarawagi.

April: Started contacting seniors to understand the application process via the AMS portal ([ams.iitb.ac.in](http://ams.iitb.ac.in)). Started preparing my SOP.

First half of May: Finished the first draft of my SOP and other supporting documents regarding the Study Plan and my Courses, Projects & PORs Details. Got them reviewed by seniors and made edits.

Second Half of May: Started contacting profs whom I wanted to be my potential DDP guides. (P.S. this step is super important if you're not confident of securing 1 of the 8 seats in the TA category based on your CPI; An RA category seat depends solely (apart from the qualification criteria of course) on the agreement of a professor to serve as your DDP, in which case you must do this step first and foremost, ideally before your 6th semester; On the other hand, a TA category student will necessarily be allotted a DDP prof any time between the end of the sixth semester and the eighth semester, so the prior approval from a prof is not very necessary, although still recommended.)


June: Submitted my application on the AMS portal. Received results by the end of the month.

### **How did you choose your DDP guide?**

I started by exploring the Faculty page on the C-MInDS website, to understand the type of research areas each prof works in. I focused on those professors under whom I had already taken a course, and whose research interests aligned with mine. Finally I ended up with a list of 4 to 5 professors, whom I contacted one by one. Based on my interaction with them, I then filled my preference order on the application. I finally ended up working with Prof. Amit Sethi in the field of Medical Image Computing, under whom I'll be beginning my DDP in the summers before my fifth year.

### **Any tips you would like to share for SoP, etc??**

The most important point to keep in mind about the SOP for conversion to an IDDDP in C-MInDS is to keep it short and succinct. The application form on the AMS portal only provides enough space




for around a 300 word typed SOP. (I wasn't aware of this fact earlier, which is why I had originally written roughly a 1000-word SOP, akin to PhD applications, only to prune it drastically later). Within the SOP, only focus on your motivation for conversion to the IDDDP, along with your vision for your DDP research field, related topics and professors you'd like to work under. All other information regarding your courses, projects and PORs, along with your study plan can be submitted as separate documents on the AMS portal, along with the application.

**Did you face any difficulties in the entire process? If yes, please share how you overcame them?**

I did not face many difficulties in the process, as most of it was clearly explained on the C-MInDS website. There were some points of confusion regarding how and when to approach professors for putting their name down on my preference list for DDP guides. Apart from this, there are some hiccups regarding sending and receiving mails to professors for their approval signatures on the AMS portal and what all documents to submit alongside the application form. Most of these queries were resolved by reaching out to seniors who went through the same process a year ago, mostly on Facebook and sometimes on Teams.

**Final remarks for the students?**

Having first-hand experience regarding this, I know that conversion to an IDDDP is a point of confusion among many students, more so among their parents. The key is to talk to as many seniors as possible before making an informed decision about the same. It always helps to start thinking about IDDDP as early as possible, and preferably no later than the start of your third year.



## 16. REVIEW BY DHARSHAN SAMPATH KUMAR

*Parent department - ESED, Dual / Host department - C-MInDS / 4th year*

### **Why did you decide to convert into IDDDP?**

My interest in Machine learning germinated towards the end of my first year in the institute, wanting to learn more, I pursued a few courses in the same and found them quite interesting. By the second year, I had already had hands-on experiences in the field through my electives and my internship and that is when I realized that my interests and the degree I was currently pursuing don't exactly match. Coincidentally, this is when I heard of a new Center for Machine Intelligence and Data Science (CMINDS) through my mentor. Since IDDDP is the only current mode for students to be accepted in that department, I decided to be true to my interests and apply for IDDDP.

### **What was the criterion for getting selected under IDDDP? Was there any criteria to do specific courses to convert to IDDDP, if yes please mention those?**


The basic requirement for IDDDP is a minimum of 7.5 CPI, and no backlogs in any of the necessary courses. Apart from that, the parent and host departments may choose to enforce additional conditions on candidates, in my case i had to do a minimum of 6 courses by the end of my 6th semester as required by the host department.

Yes, the department I applied for (CMINDS), required the applicants to have completed 2 mandatory courses, specifically DS203 and DS303, and an additional 4 PG level electives of my choice from a predetermined list of different courses offered in various domains by various departments.

### **What was the exact process you followed for converting into IDDDP (With the timeline)?**

As mentioned earlier I had to plan out and complete the prerequisite courses by the 6th semester, 3 courses each in my second and third year as not all courses were offered in alternate semesters only. As a first-generation dual degree candidate from my parent department, I wrote to my guide and HOD for their respective approvals, with a complete plan of how I planned to complete both my base degree and my IDDDP degree (12th April 2021). Once I got a confirmatory answer from my parent department, the rest was simple enough, thanks to the AMS portal all I had to do was to fill out the form on the AMS portal and send it to my faculty advisor for signature; all done through the portal itself (17th June 2021). The rest was handled by the portal and the respective authorities.

### **Any tips you would like to share for SoP, etc??**



Within my SOP, I would say, the two most crucial parts of the text are the display of true understanding of the significance, potential prospects, and applications of the field being applied for and secondly, the justification for why one deserves to pursue the field over all the other applicants. A detailed and achievable course completion plan for both degrees goes a long way. Additionally, keeping the SOP concise, while covering important details helps.

**Did you face any difficulties in the entire process? If yes, please share how you overcame them?**

My difficulties in the entire process are not during the application or its processing but it was after all that. As soon as my degree converted from “Dual-degree” to “IDDDP”, I faced a lot of issues while registering for the upcoming semesters, especially my core courses. Luckily, my accommodating faculty advisor and the ASC administration were able to sort out the problem successfully and timely upon me notifying them of it.

**Final remarks for the students?**

I for once was very indecisive about applying for IDDDP, fearing the tough competition I would have to face to get selected, but it was later that I realised that if I was not able to overcome that pressure, all my efforts till then were for naught. I would say, do not dread applying yourself, after all, you have got nothing to lose





## 17. REVIEW BY VALAY BUNDELE

*Parent department - DESE, Dual / Host department - C-MInDS / 4th year*

### **Why did you decide to convert into IDDDP?**

I had taken a minor course on ML(CS419M) in my fourth semester. That course introduced me to the fascinating world of ML and I started working on projects in the summers which followed to explore the field more. After working on ML projects with a professor for a few months, I was sure of my interest in the field and so was considering a Master's in CS as a potential option after the completion of my dual degree in Energy department. In my sixth semester, I heard about the IDDDP program and the newly opened CMInDS. Since the CS department was not offering an IDDDP, pursuing IDDDP from CMInDS was the best option for me given my interests. This would have given me the chance to work on a DDP in the field of ML and also undertake courses related to ML. So, I was quite excited about pursuing an IDDDP from CMInDS. On the other hand, courses in energy had made me realise that I was not much interested in the research of my parent dept. and so I decided to convert to IDDDP.

### **What was the criterion for getting selected under IDDDP? Was there any criteria to do specific courses to convert to IDDDP, if yes please mention those?**

The necessary condition was having a CPI greater than 7.5. Other than that, we had to write about the courses/projects done previously, possible DDP guides, Statement Of Purpose(SoP), and the course plan for completing the B.Tech requirements of the parent department and the M.Tech requirements of the host department in the next two years in a form on the AMS portal. Also, only two students were allowed to convert to IDDDP from the Energy department. So, previous experience and the topic of DDP played the main role in deciding whether one would get selected for the program or not. We were supposed to mention atleast one potential guide in the form, who has agreed to be the DDP guide.

There were two categories for converting to IDDDP in CMInDS, namely, TA and RA. In the RA category, students had to fill project preferences from the list of projects floated by different professors. They were also expected to talk to the profs before applying into the RA category project. There were 22 seats in this category. In the TA category, students were expected to list potential DDP guides and they had the option of deciding the DDP topic after getting selected. There were 8 seats in this category. Irrespective of the category, it was recommended to list a potential DDP topic in your SoP so that the parent dept approves the application.



### **What was the exact process you followed for converting into IDDDP (With the timeline)?**

Firstly, we were required to identify a DDP guide. I was working with a professor at that time and was quite interested in his research work. So, I asked him to be my DDP guide and he happily agreed for the same. Then we had to fill a form on the AMS portal before 18th June, 2021. The form included details such as potential DDP guides, SoP, previous courses/projects done, and the course plan. After filling the form we were supposed to send it to the FacAd, HoD and the DUGC of the parent department. Once it got approved from the parent dept, we were supposed to send it to the DUGC of the host dept. The host dept DUGC then made the final selections and sent the list of selected candidates to the academic office.

### **How did you choose your DDP guide?**

I started working with a professor in my second year summers on a ML project. I had worked with him for almost a year since then and was quite interested in his research work. So, I decided to approach him to become my DDP guide.

### **Any tips you would like to share for SoP, etc?**

The SoP should mainly highlight your motivation for converting to IDDDP and your previous experience in the field you want to do an M.Tech in. You can also write about a possible dual degree project and attach a document having the abstract for the same with your application.


### **Did you face any difficulties in the entire process? If yes, please share how you overcame them?**


Since IDDDP started 2 years back, the process was initially not very clear to me. I talked to some seniors which helped me a lot in understanding the application process.

### **Final remarks for the students?**

It would be best if you ask a prof you have already worked with to be your DDP guide. But you can also approach profs you haven't worked with if you find their research interesting. Also, make sure to get reviews for the profs you approach from the students who had previously done projects with them.

Specifically for students in the Energy department, you need to write about a dual degree project in your SoP which is not related to the research work of any other prof in the Energy department. The DUGC of Energy department is usually reluctant in letting people convert to IDDDP and so if your DDP topic matches with the research interests of any prof in the department, your application would get rejected and you would be asked to work on a DDP with that prof in the department.





Also, make sure that once the application gets approved from the parent department, you send it to the DUGC of the host department.

## 18. REVIEW BY ATHARV SAVARKAR

*Parent department - Aerospace, B.Tech / Host department - Center for Digital Health / 4th year*

### **Why did you decide to convert into IDDDP?**

CDH – Center for digital health offers projects which use tools like AI/ML in the healthcare domain. I have been working on projects that use deep learning before and found the DDP projects in this department match my interests. Many industries like GE, Phillips, etc. along with Govt organisations have started working in this domain, this makes it lucrative from a placements perspective.

### **What was the criterion for getting selected under IDDDP? Was there any criteria to do specific courses to convert to IDDDP, if yes please mention those?**


According to institute guidelines, a CPI of 7.5+ is required (by the end of the 6th semester) to convert to IDDDP in any department. Multiple projects are offered beforehand, and students have to shortlist them (according to their interests and expertise) before filling out the application. Approval from Prof (guide) leading the project is required to get selected for that project in your new department.

Specifically for CDH, no prior courses are required to convert to IDDDP. It might be beneficial if you have completed any courses similar to the project you plan to take as your DDP. Degree is offered without honours; therefore, students must complete 4 courses in their subsequent 4 semesters (4th and 5th year). DH302 is a mandatory course that needs to be completed (this will also give a brief overview of the department !) but can be completed either in 7th or 9th semester (after conversion to IDDDP)

### **What was the exact process you followed for converting into IDDDP? (With the timeline)**

Once you have decided to convert to IDDDP in a specific department, you have to fill out a form that is floated (usually to be filled on the AMS portal). The course plan for the 4th and 5th year needs to be submitted (this should be exhaustive and include courses from your B.Tech branch and IDDDP branch). Specifically for CDH, this course plan can be changed after conversion according to your convenience 😊. Form needs to be approved from FacAd and HoD of the parent department and convener of DD department (this process should be seamless if you have filled all the information appropriately)

### **How did you choose your DDP guide?**



List of available projects is floated for CDH and CMInDS beforehand, which contains details regarding the project and Prof leading it. This list generally has numerous projects and corresponding guides. First, it is recommended to shortlist a few projects (15-20) that you like and start contacting the profs leading it. You can schedule meetings with them to ask them what they expect from the project, and judge if it matches your expertise and interests. You can also contact students (DD, M.Tech, PhD) working under that Prof to get informal feedback regarding the projects, research, etc.

**Any tips you would like to share for SoP, etc?**

SoP needs to be filled during the IDDDP application process. You can jot down all the points that motivate you to convert to IDDDP, including courses, internships, projects, etc. SoP can be used by departments to allocate you different projects if projects you filled in application form are not available (there are 3 preferences that need to be filled in application form). It will be better if your SoP shows your interests in projects you have filled in preference list (not mandatory)

**Did you face any difficulties in the entire process? If yes, please share how you overcame them?**

I personally didn't face any specific difficulties. Filling form on AMS and getting approvals from FacAd, HoD, Convener (of DD department) might take some time, it is recommended to start early.

**Final remarks for the students?**

It is very important to start shortlisting and contacting profs as soon as possible (as soon as list of projects is published). It is possible that some student might get to work on a project you like just because he contacted Prof early. Some profs might take time to respond and schedule meeting with you, some of them might tell you to read some research papers before meeting (this might be time-consuming). Also filling out form on AMS and getting approval from FacAd, HoD, Convener might take some time; hence it is better to start early.



## 19. REVIEW BY AKSHIT SHRIVASTAVA

*Parent department - MEMS, B.Tech / Host department - Center for Digital Health / 4th year*

### **Why did you decide to convert into IDDDP?**

During my summer internship at Duke University, I explored the emerging field of Healthcare Informatics and the work being done in this domain globally. While I found the discipline enticing, I was confused about whether I want to pursue a PhD, so I decided to meanwhile apply for an IDDDP. IDDDP is a unique and effective programme that has boosted UG research culture while also promoting interdisciplinary research. I personally chose IDDDP because -

- A year-long project would help me decide if research really is for me.
- I could pursue more internships in this field, before settling upon it.
- I was genuinely interested in the novel projects being floated.
- Potential publications during the Dual-Degree Project could make my PhD application stronger.
- I can do more courses and enhance my knowledge.

The newly established Koita Centre for Digital Health allows you to work under professors from any department, which worked best for me because I wanted to work on applications of Machine Learning in Healthcare.

### **What was the criterion for getting selected under IDDDP? Was there any criteria to do specific courses to convert to IDDDP, if yes please mention those?**

I applied for IDDDP at the end of 6th semester. The basic requirements are -

- CPI > 7.5
- No active DX/FR/W grade
- Acceptance into one of the projects you're applying for.

Pursuing a minor in that department would boost your chances. Since it was the first year of KCDH, they didn't have a course requirement for taking up IDDDP.

### **What was the exact process you followed for converting into IDDDP?**

For IDDDP under KCDH, several projects were floated via the student mailing list.

1. If applying for RAship, you are expected to first talk to the profs if they are willing to become your guide in a project they floated.
2. Fill up an IDDDP form on the AMS portal after your sixth semester, floated around June every year.
3. Mention your course plan. You have to choose at least 4 courses out of a list of PG-electives floated by KCDH.
4. Get a signature from your FacAd and DUGC, and you're good to go!



### **How did you choose your DDP guide?**

I went through the list of ~25 projects floated and I chose to apply for the project on "Active Learning in Medical Image Processing " solely because I met the prerequisites and I found the project quite innovative. I also found myself profoundly interested in exploring the research done by Prof. Ganesh Ramakrishnan, who's also the Professor-In-Charge of KCDH.

### **Any tips you would like to share for SoP, etc?**

While contacting profs, I explained my background in the field and my motivation briefly and elaborated upon these in my SoP. Try getting it reviewed by some seniors. If you have a good background in the field and there is a vacancy, selection shouldn't be that difficult. Your selection is mostly at the discretion of your potential guide, so if you have a professor in mind, probably contact and start working with them prematurely.


### **Did you face any difficulties in the entire process? If yes, please share how you overcome them?**

The process is relatively straightforward, all you need is a professor who is ready to guide you, approval from your parent and the new department. This was the first year for our department, so there were some minor doubts, but the SSS team was quite helpful in clearing up any kind of confusion.

### **Final remarks for the students?**

There are many departments offering IDDDP, and each department might have a different criteria so be sure to check that out before-hand.

Working full-time on a year-long project can come a long way in building your skills and making contacts, so you should definitely consider this option if you're interested in a field different from your major, but want to explore it more before going ahead with it. Some PhD programmes also have a Master's Degree' requirement, so that too will be looked after.



## 20. REVIEW BY RAHUL SHANBHAG

*Parent department - MEMS, Dual / Host department - Center for Digital Health / 4th year*

### **Why did you decide to convert into IDDDP?**

I had a slight interest in biotechnology and wanted to explore if it could be a future option.

### **What was the criterion for getting selected under IDDDP? Was there any criteria to do specific courses to convert to IDDDP, if yes please mention those?**

All IDDDP departments have CPI cutoff to apply and it varies with the department. 7.5 was the minimum cutoff to apply across all IDDDP departments.

### **Was there any criteria to do specific courses to convert to IDDDP, if yes please mention those?**

4 courses from different brackets need to be completed within 8 or 9 semesters which weren't an issue and can be completed easily with the curriculum.

### **What was the exact process you followed for converting into IDDDP? (With the timeline)**

- 1) Spoke with professors and discussed possible DDP topics.
- 2) Applied on ams with guide and co-guide names.

In general, these are the two main steps followed.

### **Is any project needed to apply for IDDDP, what are the aspects needed to be taken care of while doing the project?**

For IDDDP the timeline is a bit accelerated and you can choose your project in advance or at least your guides and co-guides. You can discuss interests with the professors and see if they align with yours.

### **Any tips you would like to share for SoP, etc?**

It's just a normal form and if your interests match in the project topic there are no issues.



## 21. REVIEW BY MUSKAN GOUR

*Parent department - Chemical, B.Tech / Host department - SJMSOM / 4th year*

### **Why did you decide to convert into IDDDP?**

I decided to convert into IDDDP since I have always wanted to learn about corporate from a business perspective. It seemed to be a good investment as I will be earning an MBA degree by paying one year of business school fees which was very low for a tier-1 business school in India and also the perk of staying in Insti for one more year;)

Also one can even pursue MBA again by giving GMAT later, the work experience that you gain after MBA chosen by you from many domains that come to SOM for placements will further help you showcase your skills and interest.

### **What was the criterion for getting selected under IDDDP? Was there any criteria to do specific courses to convert to IDDDP, if yes please mention those?**

There was a minimum CPI criteria and we have to fill in our SOPs and course map on AMS portal. Using these information as the judging criteria an interview is scheduled which is just like CAT interviews with SOM professors, HOD, and one professor from your parent department. On the basis of your knowledge as exhibited in interviews and motivation you are selected for this program.

### **Was there any criteria to do specific courses to convert to IDDDP, if yes please mention those?**

No there wasn't. Assuming one must have done some courses already which are compulsory as part of UG curriculum like Macroeconomics, statistics which are later taught in SOM but IDDDP students are exempted since they have already completed these courses.

### **Is any project needed to apply for IDDDP, what are the aspects needed to be taken care of while doing the project?**

No. One does a project in the last term of SOM curriculum once admitted.

### **Any tips you would like to share for SoP, etc?**

Be genuine that's all. That will help you and the selection committee too.

## **22. REVIEW BY SHASHANK A. DESHPANDE**

***Parent department - Physics, B.Tech / Host department - Systems and Controls / 4th year***

My entry into the Systems and Control IDDDP program has been perceived as unconventional given my Engineering Physics background. This perception emerges out of the legacy of this program, with interested entrants primarily being from Mechanical and Aerospace engineering. I thus hope to convey a fresh perspective, intending to aid prospective students like me to opt for this program.

### **Why did you decide to convert into IDDDP?**

It became increasingly clear to me that my intuition and interest catch certain mathematical structures better than others. I had the luxury of having looked at enough applied mathematics given the nature of a physics degree, and associated research projects. I was looking to branch off to modern areas in science and technology that apply principles and methods of statistical physics and probability theory. I carefully analysed the course bulletin offered by SysCon and found a scheme to generate some momentum towards such fields. Moreover, I found a very well fitting advisor and thus my decision cemented.

### **What was the criterion for getting selected under IDDDP?**

For SysCon, it was required that one has done two courses in the department before seventh semester. Quite fortunately, they let this requirement go then, and I was able to get in. There are some basic requirements like not having core backlogs after which the admission is offered to two highest eligible CPIs

### **Was there any criteria to do specific courses to convert to IDDDP, if yes please mention those?**

As mentioned above, one must take two graduate level (6xx, 7xx SC courses) SysCon courses before the seventh semester.

### **What was the exact process you followed for converting into IDDDP?**

1. Email prospective advisors from the department and get one of them on board for thesis supervision (May, last week)
2. Apply with all requirement documentation on the designated portal typically released by the academic council around May end. (June, second week)
3. Wait for results(July, second week)



### **How did you choose your DDP guide?**

I first looked at the course bulletin of SysCon from academic interests and immediately saw a large amount of coursework that maps to my general aspirations (Stochastic Control, Information and Game Theory, Networks, Probability and Analytics, Decision Theory). I found an ideal guide (Prof Ankur Kulkarni) whose work was diverse enough for me to get in with some momentum and more importantly spanned across these very areas.

### **Any tips you would like to share for SoP, etc?**

If I am to be pragmatic here, the statement of purpose should just be why you want to get into the program. The selection procedure was at least at my time, and expectantly will be again, objective (purely eligibility and CPI based).

### **Did you face any difficulties in the entire process? If yes, please share how you overcame them?**

SysCon has only two seats and about the same number of applicants every year. Following the deadline, the department approves a subset of applicants quite immediately. The academic office then chooses to offer the admission to two people based purely on CPI. The latter step takes up a month, and the uncertainty is rather disturbing for two reasons:


- You might want to take decisions in case you fail to get in (GRE and PhD applications, Placement preparation etc)
- You might want to start working with your guide sooner.

In my opinion, the academic council must speed up the process as the logistics are obviously manageable within a very small time frame (small number of applicants and seats, objective selection procedure based on CPI).

### **Final remarks for the students?**

Systems and Control IDDDP program is an excellent scheme for students looking to enter subfields of applied mathematics spanning Operations Research, Complex Systems Theory, Network Sciences and some newer approaches in Data Science. Several of the offered courses (among which you are completely free to choose from) have surprisingly general applicability.

This program may thus in particular be viewed as an alternative to IEOR ID DDP. It is sometimes important to caution and thus I mention for completeness that the generality of Systems and Control engineering coursework comes from its rigorous mathematical approach, which of course may as well be what gets you interested in the first place.



# CONTACT INFORMATION

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