

**Information Brochure**  
**for**  
**PhD Admissions**



**INDIAN INSTITUTE OF TECHNOLOGY PATNA**  
**BIHTA, PATNA, BIHAR 801106**

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## **A-GENERAL**

### **Message to Candidate**

Indian Institute of Technology Patna is an Institution of National Importance and a new addition to the hallowed IIT System that has proven its worth in last 50+ years. The alumni of IIT are internationally known for their caliber and contribution. Since its inception in 2008, IIT Patna- like its young as well as established peers- has pursued excellence with steadfast determination.

IITP has 6 Engineering Disciplines: Civil and Environmental Engineering, Chemical and Biochemical Engineering, Computer Science and Engineering, Electrical Engineering, Mechanical Engineering and Material Science and Engineering; 2 Science Disciplines: Physics and Chemistry; Humanities and Social Sciences; Mathematics. Its faculty members are experts in their respective fields. The thriving PhD, M.Tech and B.Tech programs of IITP see the students and faculty publish prolifically, win competitions, come up with innovations and build societal awareness.

For impact, technology has to understand its vital links with (i) Humanities and Social Sciences, (ii) Mathematics and (iii) Natural Sciences. Technology can change life if it can acquire "Perspective" from Humanities and Social Sciences, "Technique" from Mathematics and "Foundations" from Sciences. In IITP, we will strive to achieve this 4-way harmony of Technology, Humanities and Social Sciences, Basic Sciences and Mathematics. The original charter of new IITs, viz., interdisciplinary research and teaching will thereby be addressed.

IITP is strategically placed, geographically speaking. The stretch from Gujarat to Manipur has 11 IITs (Gandhinagr, Jodhpur, Mandi, Ropar, Roorkee, Delhi, Kanpur, Patna, Kharagpur, Bhubaneswar and Guahati) and a large number of NITs and renowned universities. This sets up a tremendous powerhouse of knowledge and high quality human resource. Additionally, the state of Bihar is rich with tradition and resources, emphasizes education, is blessed with the fertile Gangetic plain and abundant sunlight. This paves way for immense societal impact through agriculture and energy technology, amongst many other possibilities.

IITP has moved to its brand new campus at Bihta, a place with history, about 35 KM from main city Patna. The sprawling 501 acre campus houses four academic complexes for the departments, a Class Rooms Complex, Student, Faculty and Staff Residential quarters, Hospital and School and an impressive Administrative building. The 2015 autumn session in IITP started from the new campus in Bihta.

At this juncture of history, IIT Patna is poised for great things.

**Director, IIT Patna**

## The Institute

Indian Institute of Technology Patna is one of the new IITs established by an Act of the Indian Parliament on August 06, 2008. Patna which was known as Patliputra has been a center of knowledge since long has been attracting visitors and scholars from many parts of the world such as China, Indonesia, Japan, Korea, Sri Lanka, among others. This has been a land of visionaries. Some of the legends from this region include Lord Gautam Buddha, Lord Mahavir, Guru Gobind Singh, the famous astronomer Aryabhata and the first President of India, Dr. Rajendra Prasad.

IIT Patna has ten departments: These are Computer Science & Engineering, Electrical Engineering, Mechanical Engineering, Chemical and Biochemical Engineering, Civil & Environmental Engineering, Materials Science & Engineering, Chemistry, Physics, Mathematics and Humanities & Social Science departments.

IIT Patna campus is located at Bihta which is approximately 40 kms from Patna. For driving directions and contact details, please point your browser to the following link: <http://www.iitp.ac.in/index.php/contact.html>

The Institute has developed modern facilities that are fully equipped with the state-of-the-art facilities (equipment software and machines) that are routinely used to train and educate students in the following programs:

B.Tech in five disciplines: Computer Science and Engineering, Electrical Engineering, Mechanical Engineering, Civil Engineering and Chemical Engineering. M.Tech in multi-disciplinary streams with eight specializations:

Mechatronics jointly offered by Departments of Mechanical and Electrical Engineering, Mathematics & Computing jointly offered by Departments of Mathematics and Computer Science & Engineering, Nano Science & Technology jointly offered by Departments of Physics and Chemistry, Computer Science and Engineering offered by Department of Computer Science & Engineering, Communication System Engineering offered by Department of Electrical Engineering, Mechanical Engineering offered by Department of Mechanical Engineering, Civil and Infrastructure Engineering offered by Department of Civil & Environmental Engineering and Materials Science and Engineering offered by Department of Materials Science and Engineering.

Budding research scholars are admitted in the PhD program of this Institute in all ten (10) departments.

As of April 2016, IIT Patna has six hundred seventy students enrolled in its B Tech programs, one hundred sixty one M.Tech students and two hundred fifty nine Ph.D students. Since inception in 2008 and till April 2016, more than four hundred students have been awarded B.Tech. degree, more than seventy five students have been awarded M.Tech. degree and more than 20 research scholars have been awarded PhD degree. As of April 2016, faculty strength of IIT Patna is one hundred one (which includes one DST Ramanujan Faculty Fellow, one Adjunct Faculty, one DST INSPIRE Faculty and one Visiting Professor). Faculty members are supported by more than seventy efficient staff (non-teaching) members. These numbers are anticipated to increase as the Institute is growing at a steady pace. The faculty members of IIT Patna have a wide range of academic and research experience. They have been trained in the top ranked Institutes within the country and abroad.

Research activity in IIT Patna has been published in high quality and peer-reviewed national and international journals. Faculty members of IIT Patna have been also participating in national and international conferences of repute.

**Academic Calendar** – please follow the given link

**[http://www.iitp.ac.in/acad/academic\\_calendar.php](http://www.iitp.ac.in/acad/academic_calendar.php)**

#### 4. Research Facilities

The institute has state of the art research facilities. Incubation centres are functioning very well.

#### 5. Student Amenities + Hostel Accommodation

##### Students' Gymkhana

The students' gymkhana of IIT Patna (established in 2008) is the Students' Governing Council consisting of the elected student representatives working for the over-all well being and holistic development of students in the institute.

The elected representatives of the students from each hostel strive to foster growth and leadership among the students by coordinating various events helping to extract the maximum of one's talent. To promote the co-curricular activities and interests, the gymkhana has many clubs and groups dedicated to the interests of the students.



Sports at IIT Patna bring together relaxation and competition getting the best of every player. It organizes various inter-hostel and inter-department competitions.

The blending of different cultures has lent uniqueness to the cultural activities which are organized throughout the year. The organization of various workshops, seminars and various technical activities at IIT P makes learning an enjoyable experience.

IIT Patna currently has one boys' hostel and one temporary girls' hostel in the campus. It also has necessary arrangements for married research scholars. More boys and girls hostels are in the process of construction. The boys' hostel is at a distance of about 1KM from the academic complex and the girls' hostel is situated near the faculty quarters, about 3 KMs from academic complex. Presently over 1200 students are residing in the hostels. Regular bus services have been provided from the hostels to and the academic buildings. Students have access to Wi-Fi connectivity throughout the buildings. In addition to the adequate health care facilities, all the students are covered under Vidyarthi Mediciclaim Insurance Policy. The hostel is equipped with gymnasium, TV room and table tennis facilities. Campus has a basketball court, a volleyball court, and badminton court. A football-cum-cricket ground will also be available very soon. There are two students' mess in boys' hostel and one mess in the girls' hostel, along with various

food joints and canteen in the Food court. The students elect a student body once every year in the month of April.

## **Building**

The boys' hostel building is a 8-storey structure divided into 4 blocks viz. A,B,C,D. It's spread onto an area of 28849 Sqm. It has 912 rooms, all with a balcony, window, cupboard, and enough niches. The hostel has two common rooms used for recreational and co-curricular activities and a gymnasium. There are total of 6 lifts in the building. Watercoolers are installed on each floor. Fire extinguishers and other safety measures are taken care of. The building can resist high magnitude earthquakes. There are seven more such boys hostels and 2 girls hostels are proposed in the plan.



## **Gymnasium**

Boys hostel has a gymnasium on the first floor along side the common room. It has all the basic exercise equipments like dumbbells, barbells, bench press, etc. It also has other major equipments like treadmills, exercise bike, squat station, hammer strength machine, cables and pulleys, lat pull down machine, leg extension machine and few more.

## Mess

Boys' Hostel has two mess halls on the ground floor and girls' hostel has one. They provide breakfast, lunch, snacks and dinner. Messes follow a specific menu for the week. Every month, the mess menu gets changed. Coffee/tea is provided in the breakfast and snacks time. Students elect a mess secretary from all the years to look after mess related issues. Messes are kept clean and work in hygienic conditions.



### 6. Ph.D. Programme

The Ph.D. program in IIT Patna has started in Engineering, Science and Humanities & Social Sciences departments since July 2009. Faculty members at IIT Patna have diverse areas of research. Students enrolled in PhD program in IIT Patna are guided to do high quality research. Relevant departments are equipped with state-of-art research equipment and have access to peer reviewed journals. Ph.D. Supervisors in IIT Patna are committed to mentor research scholars and groom them for successful careers.

IIT Patna also promotes and encourages interdisciplinary research, in which case two or more departments and centers contribute to innovative and cross-boundary research. Faculty members from various departments, centers and schools across the campus are exploring research areas that must involve extensive interaction of different traditional disciplines.

IIT Patna publishes PhD program advertisement twice a year (in the months of March-April and September-October) in internet as well as newspaper. Admission in PhD program of IIT Patna to all categories of students is granted on the basis of interview/admission test held tentatively in the month of December and May - July every year.



## 7. Eligibility Criteria for Admission & General Guidelines

In all the disciplines, the upper **age limit is 28 years (B.Tech./B.E./M.Sc./MA/MCA/MBA) and 32 years (M.Tech./M.E./M.S./M.Phil.)** to be calculated from the last date for receiving the application form and is applicable only for candidates applying in Regular and Full time category (Institute Fellows). Upper age is relaxed up to 05 years in case of candidate belonging to Schedule Castes/Schedule Tribes, Women, Physically Handicapped and OBC applicants For admission to the PhD Programme in Engineering Department, a candidate must satisfy one of the following criteria:

**A.1.1** Candidates having M.Tech./M.E. degree in a Engineering/Technology, with a minimum CPI of 6.5 or 60% of marks.

**A.1.2** Bachelor's degree in Engineering/Technology in a relevant area with a minimum CPI of 6.5 or 60% of marks.

**A.1.3.** Master's degree in Science in a relevant area with a minimum CPI of 6.5 or 60% of marks.

### **A.2 PhD in Science**

For admission to the PhD Programme in Science departments, a candidate must satisfy one of the following criteria:

**A.2.1** M. Phil. or Master's degree in Science in a relevant area with a minimum CPI of 6.5 or 60% of marks.

**A.2.2** Master's degree in Engineering/Technology in a relevant area with a minimum CPI of 6.5 or 60% of marks.

**A.2.3** Bachelor's degree in Engineering/Technology in a relevant area with a minimum CPI of 6.5 or 60% of marks.

### **A.3 PhD in Humanities and Social Sciences**

For admission to the PhD Programme in the department of Humanities and Social Sciences (HSS), a candidate must satisfy one of the following criteria:

**A.3.1** M. Phil. or Master's degree in Arts/Commerce/Science/Management in a relevant area with a minimum of 55% marks or equivalent.

**A.3.2** Master's degree in Engineering/Technology/Design in a relevant area with a minimum CPI of 6.5 or 60% marks.

**A.3.3** Bachelor's degree in Engineering/Technology in a relevant area with a minimum CPI of 6.5 or 60% of marks.

### **Direct Admission (Waiver of Written Test):**

Sciences, Engineering & Technology:

The Institute may admit exceptionally bright students and Full-time (Institute Fellows) directly (i.e., without written test) into the Ph.D. program.

Eligible candidates meeting one of the following criteria may be considered for a waiver of the written test:

1. B.Tech. from the IITs who have graduated with a degree in the respective discipline within the last five years with a CPI/CGPA of 8/10 and above.
2. Masters from the IITs/IISc who have graduated with a degree in the respective discipline within the last five years with a CPI/CGPA of 8.5/10 and above.

Further relaxation criteria and requirements if any would be decided by the Department and applied after approval by the Chairman, Senate.

Such a candidate has to apply online. Additionally, an application must be sent with supporting documents to the Deputy Registrar, Academics.

There would be no admission in direct admission category in Department of Humanities and Social Sciences.

## 8. Application Categories and Financial Support

### CATEGORIES OF PhD STUDENTS

The Institute admits PhD students under the following categories:

#### 1 REGULAR and FULL-TIME

A student in this category works full-time for her/his PhD degree. They can be classified as

**1.1 Institute Fellows** She/he receives assistantship from the Institute. The qualifying Degree for Financial Support is:

**1.2** BE/ BTech/ MSc/ MA/ MBA/ MCA /equivalent degree with valid GATE score above the prescribed cut off level/ NET qualification.

**1.3** ME/ MTech/ MPhil /equivalent degree.

Age Limit: Please refer Appendix-I.

For Institute Fellows admitted as “Direct Admission”, refer A.5 under Appendix I.

#### 1.4 JRF/SRF Fellows

She/he receives fellowship from any government recognized funding agencies, such as CSIR, UGC, DBT, DST etc.

#### 2. SPONSORED (FULL-TIME)

A student in this category is sponsored by a recognized R&D organization, academic institution, government organization or industry for doing research in the Institute on a full-time basis. The Institute does not provide any assistantship/fellowship to such a student.

#### 3. SELF-FINANCED

A student in this category may work full-time towards the PhD Programme. The Institute does not provide any assistantship/fellowship to such a student. The applicant should have qualified a national level exam (NET/GATE/etc).

#### 4. PROJECT STAFF

This category refers to a student who is working on a sponsored project in the Institute and is admitted to the PhD Programme to work on a full-time or part-time basis. The remaining duration of the project at the time of admission should be at least two years. If the project gets completed before the student completes her/his PhD Programme, her/his category will be converted to that of **SELF-FINANCED** unless she/he is granted an assistantship/fellowship from the Institute or any other agency.

#### 5 EMPLOYED AND PART-TIME

A student in this category is a professionally employed person (including the staff of IIT Patna), who pursues the PhD Programme while continuing the duties of her/his service. The Institute does not provide any assistantship/fellowship to such a student. The Institute assistantships will be available to eligible (Indian) students as per prevailing (MHRD, GoI) norms, as applicable from time to time.

### **I. JUNIOR RESEARCH FELLOW (JRF):**

Post Graduate Degree in Basic Science with NET/GATE Qualification or Graduate Degree in Professional Course

with NET/GATE Qualification or Post Graduate Degree in Professional Courses. Rs. 25,000/-

### **II. SENIOR RESEARCH FELLOW (SRF):**

JRF Qualification with two years of research experience. Rs. 28,000/-

Note: Institute Assistantship will be available upto 5<sup>th</sup> year for this category of students.

Assistantships from external funding organizations will be available as per terms and conditions of the concerned funding organizations. Students receiving assistantships from the Institute or fellowships from any other funding agencies are required to perform academic duties as per prevailing norms. The continuation of the assistantship/fellowship is subject to satisfactory performance of the assigned duties and satisfactory progress of the student in the Ph.D. Programme.

**Applicants appearing in the Ph.D. interview under Regular and Full-time (Institute Fellows only) category, to-and-fro Sleeper Class Railway Fare or equivalent will be paid by the shortest route from the place of contact address (as filled in the application form) to IIT Patna, Permanent Campus, Bihta on producing the original tickets**

## **9. Admission Procedure (As per Ordinance)**

1. A PhD scholar, in the categories JRF/SRF Fellows [1.1 b], SPONSORED (FULL-TIME) [1.2] and PROJECT STAFF [1.4], can be admitted to the Institute throughout the year. Registration to the PhD Programme of the Institute normally takes place in January and July every year. Advertisements are issued in September/October for the even semester (January – April) and February/March for the odd semester (July/August – November).

2. Admission to all categories of students is granted on the basis of interview/admission test held tentatively in the month of December and May - July every year.

3. Foreign nationals can only register as regular full time scholars. Foreign nationals with degree from Indian Universities will be treated on par with Indian nationals for admission purposes. Foreign nationals with foreign degrees must meet the minimum educational requirements as given in **Appendix- I** equivalent to an Indian Master's degree in the relevant disciplines. In addition, they should have a valid GRE/GMAT/ GATE /JMET/CAT/XAT/MAT/ATMA/UGC or CSIR /NET /JRF or an equivalent examination and should have cleared TOEFL score in the relevant discipline. The applications of foreign nationals may be considered based on a web-interface personal interview/presentation.

4. The following documents are to be furnished along with the application by candidates falling under Sponsored, Project Staff, and Part-time categories:

**Form I:** Sponsorship letter for Sponsored category.

**Form II:** No objection certificate from Coordinator, Sponsored Research and Industrial Relation Unit (SRIRU), IIT Patna, for Project Staff category.

**Form III:** No objection certificate from the employer for Part-time category

## 10. Payment of Fees and Deposits + Fee Structure + Mess Fee

### Detailed First Semester Fee Structure of Ph.D. Students ((From JULY 2017)

Sl. No.	Items	Periodicity	Amount (in Rs)
01.	Admission fee	One Time	150
02.	Grade Card Fee	One Time	150
03.	Thesis Fee	One Time	1000
04.	Provisional Certificate Fee	One Time	100
05.	Medical Examination Fee	One Time	100
06.	Student Welfare Fund	One Time	200
07.	Identity Card Fee	One Time	50
08.	Tuition Fee *	Per Semester	2,500
09.	Examination Fee	Per Semester	350
10.	Registration / Enrolment Fee	Per Semester	200
11.	Gymkhana Fee	Per Semester	500
12.	Medical Fee	Per Semester	100
13.	Institute Caution Money	One Time (Refundable)	2,000
14.	Library Caution Money	One Time (Refundable)	2,000
15.	Alumni Subscription	One Time	500
16.	Training and Placement Fee	One Time	500
17.	Festival Fee	Per Semester	250
18.	Publication Fee	Per Semester	100
19.	Lab and Computational charges	Per Semester	500
20.	Establishment charges	Per Semester	500
21.	Student Benevolence Fund	Per Semester	100
22.	Hostel Admission Fee **	One Time	400
23.	Hostel Rent **	Per Semester	500
24.	Hostel Development Fund **	Per Semester	500
25.	Fan, Electricity/Water Charges **	Per Semester	1,500
26.	Hall Caution Money **	One Time (Refundable)	1,000
27.	Student Brotherhood Fund	Per Semester	50
<b>Total for General/OBC Category (1 to 27) (without mess related fee)</b>		<b>Hosteller</b>	<b>15,800</b>
<b>Non- Hosteller</b>			<b>11,900</b>
<b>Total for SC/ST Category (1 to 27) (without mess related fee)</b>		<b>Hosteller</b>	<b>13,300</b>
<b>Non- Hosteller</b>			<b>9,400</b>
<b>Mess Related Collections for all hosteller students:</b>			
28.	Mess Deposit	One Time (Refundable)	1,500
29.	Hall Mess Establishment Charges	One Time	1,000
30.	Mess Charges (On advance basis)	Per Semester	12,000
Total (28 to 30)		14,500	
<b>Grand Total for General/OBC Category (1 to 30) with mess</b>		<b>Hosteller</b>	<b>30,300</b>

**related fee/deposit**

<b>Non- Hosteller</b>	<b>11,900</b>	
<b>Grand Total for SC/ST Category Hosteller (1 to 30) with mess related fee/deposit</b>		<b>27,800</b>

**Non- Hosteller** **9,400**

\*SC/ST students are not required to pay Tuition Fees

\*\* Fees paid by only Hostellers

**Note: Transportation charges Rs 600/- per semester and Medical Insurance charges Rs 603/- per year extra.**

## 11. Registration for the Ph.D.

Every Semester on the assigned date

### ENROLMENT

1. Students of all categories will have to enroll in person every semester on the stipulated date till the submission of their theses.
2. They are required to pay the prescribed fees till the submission of their theses within stipulated dates.
3. A student may be exempted from the prescribed fees for the last semester if he submits thesis within 30 days from beginning of the semester.
4. Semester drop: Up to two semesters may be dropped in the entire duration of the PhD Programme, on bonafide grounds. Except on medical grounds, semester drop is not permissible before successful completion of Comprehensive Examination by a student. On recommendation of the Supervisor(s), Chairperson, DC and Chairperson, IAPC/Senate approves a semester drop. Cases of semester drop are reported to the IAPC/Senate. No assistantship is provided during the period of a semester drop. The period of semester drop is not counted in the prescribed time limit for completion of the PhD Programme.

## 12. Confirmation of Registration

There is no any provision to confirmation of the registration process as student submits the course registration form duly signed by him and Dept. PhD coordinator. After registration we issue the Memo regarding the enrolment.

Sample copy of Memo

**MEMO**

Date:

**Subject: Enrolment (Provisional) for the Ph.D. Degree**

On the recommendations of the PhD Coordinator of the Department, the Research Scholar named below has been provisionally enrolled for the degree of Doctor of Philosophy (Ph.D.) of the Institute with the particulars mentioned hereinafter:

- a) Name of the Scholar :
- b) Dept./ Center :
- c) Roll No. :
- d) Category :
- e) Supervisor(s) :
- f) Fellowship Funding :
- g) Qualification :

Courses enrolled in first semester

Sl. No.	Course No.	Credit	Sl. No.	Course No.	Credit

- h) Requirement of subjects offered by --- Department to be completed : TECHNICAL COMMUNICATION HS 514
- i) (In case of Institute scholars only) the assistantship to be paid per month, until further communication, at the rate of Rs ---w.e.f. for one year.
- j) The award of the assistantship is subject to all conditions prescribed by the rules and regulations.
- k) This provisional enrollment is made in order to allow the candidate to start attending classes/doing research work. However, this is subject to approval of the Institute Academic Program Committee/Senate and can be cancelled or modified at any state in the event of any discrepancy being found out.

ASSISTANT REGISTRAR

## 13. Submission of Thesis and Award of Degree + Credit System

### SUBMISSION OF THESIS

Within two months of the acceptance of the synopsis by the DC, the student submits four (or five, if there are two Supervisors) copies of her/his thesis in prescribed format (soft binding) to the Academic Section along with no dues certificate.

### THESIS REPORTS

1. Examiners are expected to send reports on the thesis within two months from the date of receipt of the thesis.
2. If both the thesis examiners recommend the thesis for award of the PhD degree, the Chairperson, IAPC/Senate approves the conduct of a Viva Voce. Corrections in the thesis, responses to comments of examiners are incorporated by the research scholar in consultation with the DC.
3. If an examiner suggests resubmission of the thesis, the student is allowed to resubmit the thesis after due revision within the time stipulated.
4. If one examiner recommends the thesis, and the other rejects, the report of the first examiner is sent to the second examiner and vice-versa. The examiners are requested to review their recommendations. If after this, there is one acceptance and one rejection, the matter is placed before the IAPC/Senate for their consideration.
5. If both the examiners do not recommend the thesis for the award, the reports are sent to the DC which can decide on one of the following based on their assessment.
6. If the DC is satisfied with the work already done and the contents of the thesis already submitted, it may request the Chairperson, IAPC/Senate that the thesis may be sent to another set of examiners. Such a request has to be recommended by the DC.
7. The DC may advise the student to augment the research and submit the synopsis again. If both the examiners do not recommend the thesis for the award for second time, the student is not awarded the degree and the registration is cancelled.

### AWARD OF PhD DEGREE

If the Viva Voce Board recommends award of the degree, a student will be awarded the PhD degree on the recommendation of the IAPC/Senate with the approval of the Board of Governors of the Institute.

### COURSE WORK

1. The DC of a student prescribes the courses that a student has to register.
2. A student of a discipline registers for a minimum number of courses as mentioned below, depending on her/his highest degree obtained:

Highest degree obtained	Minimum No. of courses to be registered	Credits
M.Tech./ M.E./M.Phil /equivalent degree	2	12
M.Sc/M.A./M.B.A./M.C.A	4	24
. /M.Com./equivalent degreeB.Tech./B.E.	6	36

In all the above cases, atleast 50% course must be relevant to the research scholar's research area.

In addition to the above courses, all research scholars must register a credit course in Essential English offered by the HSS department (HS712).

In each course, a student must obtain at least CC grade, otherwise she/he will have to repeat the course and has to obtain a CPI of at least 6.5. If a student obtains CC grade in all the subjects and hence fails to obtain minimum CPI 6.5 then she/he will have to register in additional courses which will be decided by DC of the student.

3. For students having M.Tech. degree from IITs/ IISc, coursework is not mandatory. For students having degree from reputed International Universities, the Chairperson DC may recommend relaxation in her/his course work. Such a request must be approved by the Chairperson, IAPC/ Senate. The DC may recommend such students to do some course work after due assessment. These research scholars must register in the essential English course offered by the HSS department – HS712.

4. Under normal circumstances, a student is required to complete all course work within one/two semesters, and registering for at least two courses in the first semester. The maximum possible time for completing the course is 3 semesters.

#### 14. Reservation of Seats

As per Gol Rules

## B - DEPARTMENT AND DISCIPLINES

### Computer Science & Engineering

A journey to the global academic summit that touches every aspect of national life in its wake is the primary goal of the department. The department came into existence in 2008 with miniscule faculty strength and minute undergraduate student body. This inadequacy was no deterrent to its bold decision to start the doctoral program right away.

The department has not looked back since then. It has witnessed a manifold raise in the size of the vibrant student body. Presently, all efforts are geared towards making this the first choice of aspiring undergraduates. This is being groomed to be the favored destination for research scholars brimming with ideas. Faculty strength is all set to multiply many times over with the planned addition of young and dynamic persons flashing enviable academic and research records.

The department boasts of generously equipped teaching and research laboratories. Doctoral candidates are liberally supported either by scholarships or by sponsored fellowships.

Sponsored research and developmental activities add muscle to the buzzing academics.



## **Electrical Engineering**

The Department of Electrical Engineering (EE) has been evolving since the inception of IIT Patna in the year 2008. The major objective of the department is to impart high quality education and to encourage the students, comprising B.Tech, M.Tech and PhD, in pursuing research. The department offers B. Tech in Electrical Engineering, M. Tech (Communication System Engineering) and Ph.D. program in various specialized areas of Electrical Engineering. The major research areas of the department include Communications, Optoelectronics, Signal Processing, Image and Video Processing, VLSI and Embedded System, RF and Microwave, Electric Drives, Power Systems and Power Electronics, Control Systems and Instrumentation. EE Department is executing research projects sponsored by external funding agencies.

## **Mechanical Engineering**

Since its inception in 2008, the department has grown leaps and bounds with around 190 undergraduate and 90 graduate students, currently being supported by a team of 16 highly enthusiastic faculty members and 7 trained technical staff members. The department at present offers Bachelor of Technology degree in Mechanical Engineering and Master of Technology degree in Thermal and Fluids, Manufacturing, and Mechatronics streams of Mechanical Engineering. In addition, the Department has a successful Ph.D. program with over fifty scholars performing research in various contemporary fields of Mechanical Engineering. A total of nine students have graduated with Doctoral Degree and have embarked on promising career path including jobs at leading industrial firms in addition to faculty and post-doctoral positions at national and international universities of repute.

The personnel in the Department venture in diverse multidisciplinary fields including surface engineering, soft-tissue mechanics, non-traditional manufacturing, laser material processing, condition monitoring, biomedical robotics, biomedical bone drilling, computational mechanics, fracture, finite element modelling, composites, fire, micro- and nano-scale heat transfer, boiling, condensation, two-phase flows, refrigeration and air-conditioning, computational fluid dynamics, colloids and interfacial science, soft computing, and microgravity, among others. Such activities are aptly supported by 16 state-of-the-art research cum teaching laboratories. Significant numbers of patents and publications in various top multidisciplinary journals is an evidence of the flourishing research environment in the department. Department has received more than 5.0 crores of funding support in terms of sponsored projects and consultancy works from various Government and Industry agencies including Aeronautics Research Development Board (ARDB), Board of Research in Nuclear Science (BRNS), Defence Research Development Organization (DRDO), Department of Electronics and Information Technology (DeITY), Department of Science and Technology (DST), and Indian Space Research Organization (ISRO), among others.

## **Material Science & Engineering**

Materials have played a key role in the development of mankind. Materials Science and Engineering (MSE) is an interdisciplinary field of science and engineering which investigates how changes in the structure of a material influence its properties. This field encompasses mechanical, chemical, biomedical, civil, electrical, and aerospace engineering; physics; and chemistry. It is a discipline that enables both the creation and application of materials in society. Materials scientists and engineers develop materials for new applications, improve existing materials to enhance performance and evaluate ways in which different materials can be used together.

## **Chemical & Biochemical Engineering**

The vision of Chemical and Biochemical Engineering department at IIT Patna is to achieve national and international recognition through the educational and research achievements and the professional service of our faculty, staff and students. Our mission is to provide students with an overall educational experience that prepares our students to become successful professional chemical engineers capable of undertaking both life-long learning and further advanced studies.

The Chemical and Biochemical Engineering department plans to provide opportunities for both course-based and research-based Masters Degrees and Doctorates in addition to undergraduate B. Tech program. These undergraduate and graduate programs aim to develop highly-qualified graduates who are self-motivated, independent and clearthinking individuals capable of undertaking an independent work in industry and research and development programs and government and public sectors undertakings.

The department is trying to achieve fully developed infrastructure and well equipped laboratories in chemical and biochemical and Food process Engineering. Apart from this, department envisions to regularly organizing seminars and workshop on its own or with collaboration with other elite institutions. Department will be equipped with CAD lab and others for research in chemical reaction engineering, plant and process design, quality control and transport phenomenon would be developed in due course of time. Chemical and Biochemical Engineering department will focus on relevant curriculum and research and development in the areas of chemical products processing, biological systems engineering, food processing technology, bio-fuel, industrial biotechnology, bioreactor design and electrochemical energy conversion.

## **Civil & Environmental Engineering**

The Civil and Environmental Engineering (DCEE) at Indian Institute of Technology Patna (IIT Patna) that constitutes of five independent disciplines; Structural Engineering, Geotechnical Engineering, Transportation Engineering, Water Resources Engineering, and Environmental Engineering. DCEE is one of the new departments established in 2013 that provides doctoral programmes on emerging research areas (viz., Structural Engineering, Geotechnical Engineering, Railway Engineering, Water Resources Engineering, and

Environmental Engineering). The DCEE is an innovative and vibrant place of learning, where students pursue their educational and research interests in order to lead the next generation in transforming the disciplines of civil and environmental engineering. Department is actively involved in basic as well as advanced research and provides high quality technical advisory support through various R&D projects and consultancy to various organizations.

Goal of the DCEE is to reach the level of excellence in latest technical front as well as advanced research; to provide a high quality teaching and learning environment in the field of Civil and Environmental Engineering to make students capable of innovative thinking. Instead of compartmentalizing, DCEE at IIT Patna is adopting an integrate approach to forge all these areas into a multi-disciplinary and application oriented course. This interdisciplinary nature will lead to development of creative and analytical ability of the students to handle the novel challenges of the society; further improving the lifestyle of the society by creating various innovative works and transferring technological knowledge from classroom to the real life.

## **Physics**

The department of Physics at IIT Patna was established and started its activity in August 2008 to train undergraduate engineering students. In July 2009, the department initiated Ph. D. program in various frontier fields of Physics. M. Tech program in Nanoscience and Nanotechnology has been started since July 2012.

The department is committed to engage in high quality research and pursuit of excellence in teaching. The faculty members of the department are actively involved in research and development in challenging areas of both theory and experiment. Currently, the main research emphasis of the department comprises of Condensed Matter Physics, Optics, Biophysics, and Atomic & Molecular Physics.

## **Chemistry**

The Department of Chemistry in IIT Patna has been established since the setting up of the Institute in 2008. The department started the PhD program in Chemistry from July 2009. A vibrant multidisciplinary research program in the Department of Chemistry at IIT Patna is supported by energetic faculty members and state-of-the-art research facilities. The faculty members of the department are committed to quality teaching and research. With a strong foundation in the conventional areas and quest for emerging areas of Chemistry, faculty and students are engaged in a range of dynamic research programs that include Supramolecular Chemistry, Target and Diversity oriented Organic synthesis, Nanochemistry, Catalysis, high resolution and Bio-Spectroscopy, Polymer and Biochemistry.

## **Mathematics**

Welcome to the Department of Mathematics at IIT Patna established in August, 2008. The Department of Mathematics is committed to impart high quality education in Mathematics at Undergraduate and Postgraduate levels.

The young and dynamic faculty members of the department have versatile experience both in teaching and research in various areas of Mathematics and Statistics. Currently the faculty members of the department are actively engaged in research areas such as Bayesian Statistics, Data Mining, Fuzzy Optimization, Geometric Topology and Topological Graph Theory, Mathematical Control theory, Multi-objective Programming, Non-linear Optimization, Number Theory, Optimal control, Statistical Decision Theory, Statistical Inference, Stochastic Differential Equation, Support Vector Machines, Fuzzy logic and its application, Rings & Modules, Associated Prime Rings, Mathematical Modeling in Ecology and Epidemiology, Applications of Differential Equations in Biology, Stability and Bifurcation, Mathematical Modeling of HIV dynamics :in vivo, Wireless communications and signal processing, estimation and detection, time and frequency domain signal analysis, blind signal parameters estimation, blind signal classification, blind wireless receiver design, estimation includes carrier frequency, symbol rate, symbol timing offset, carrier frequency offset, blind OFDM signal parameter estimation and synchronization, cooperative communications, MIMO, OFDM , cognitive radio and UWB systems, implementation of a universal blind receiver estimation algorithm on National Instrument (NI) hardware, experiment and measurement.

The department is currently running the M. Tech (Mathematics and Computing) and PhD programmes. Our M. Tech students are collaborating with several industrial and research agencies. The department has developed a computational research lab to encourage research areas which require high computing facilities.

## **Humanities & Social Sciences**

The Humanities and Social Sciences Department incessantly tries to provide a humane perspective to the various technical branches at IIT Patna. It strives consistently to excel in its efforts day by day. Innovative and pertinent research is one such tool through which excellence can be aspired. The department envisions establishing itself as one of the best research platforms to young minds who have the undying thirst for knowledge. Past and ongoing researches in Economics, English language and literature, Linguistics, Management, Psychology, Public Health and Sociology not only try to answer useful inquiries but also try to use learning and imaginative actions as powerful tools to add to the enrichment and progress of human society. The uniqueness of the department will be realized by its successful and innovative researches along with the various interdisciplinary and multi disciplinary collaborations both within and beyond the institute.

## C – CENTRE OF EXCELLENCE

### 1. SAIF

The institute has Sophisticated Analytical Instrument Facility.

## D – APPENDICES

1. **Fees and Deposits:** Please refer to the fee structure

2. **Refund of Fee:** As per the institute rules.

### 3. Financial Assistance

Institute fellow and CSIR-NET(JRF)/UGC-NET(JRF)/DST-INSPIRE /DBT/ fellow for 05 Years.

### 4. Sponsorship letter for full-time candidates

This Certificate must be furnished by a sponsored candidate at the time of Joining a programme

### SPONSORSHIP CERTIFICATE

Certificate that Mr./Ms. \_\_\_\_\_ an applicant selected for admission to the Post-graduate / Research (Ph.D.) programme in the department / Centre / School \_\_\_\_\_ of the Indian Institute of Technology Patna – 800013 in the Autumn (July) / Spring (December) Semester of the session 20\_\_ - 20\_\_ is employed with our organization named \_\_\_\_\_ and that he / she has been sponsored by us for undergoing the programme : following are the relevant particulars, concerning him / her:

(1) Date of joining with the organization \_\_\_\_\_

(2) Nature of appointment : (a) permanent (b) Temporary for \_\_\_\_\_ years,

Or Contract, valid upto \_\_\_\_\_

- (3) Present Designation \_\_\_\_\_ Nature of duty  
\_\_\_\_\_
- (4) Present place of posting  
\_\_\_\_\_
- (5) Period of sponsorship granted, from \_\_\_\_\_ to  
\_\_\_\_\_
- (6) Date of being relieved of duties to join the programme in the Institute  
\_\_\_\_\_
- (7) Total period of leave granted by the organization \_\_\_\_\_ Year \_\_\_\_\_ Months \_\_\_\_\_  
Days for undergoing the programme (Residential requirement)
- (8) Kind of leave granted :
- (a) with full pay, from \_\_\_\_\_ to  
\_\_\_\_\_
- (b) with half-pay, from \_\_\_\_\_ to  
\_\_\_\_\_
- (c) without pay, from \_\_\_\_\_ to  
\_\_\_\_\_
- (9) In the case of candidates who intend to apply, after enrolment in the Institute, for permission to work externally at the place of employment whether :-
- (a) Necessary research facilities are available in the organization \_\_\_\_\_
- (b) The organization agrees to provide him / her those facilities \_\_\_\_\_
- (c) Name & Designation of the expert in the organization  
can guide partly research work in the case if necessary  
\_\_\_\_\_
- (with a brief bio-data)
- \_\_\_\_\_

Certified further that her/his services with the Organization will be retained during the period she/he carries out the studies / research work at IIT Patna and on completion thereof she/he will be accepted for joining back. It has been noted for the sponsored students / scholars the Institute does not have any financial commitment whatsoever and all necessary expenses for his / her stay and study / work there be borne by (a) himself / herself, (b) the Organization, (c) partly himself / herself and partly the Organization.

In the event of there being any outstanding dues in the Institute on his / her account we agree to arrange for the recovery thereof.

Date \_\_\_\_\_

Signature of Competent Authority

Full Name : \_\_\_\_\_

Designation : \_\_\_\_\_

Official Stamp : \_\_\_\_\_

N.B.: Please strike out the items not applicable. All the columns must be filled in otherwise the Sponsorship Certificate will not be acceptable

**5. Employer’s Letter in case of candidates joining Ph.D. programme on Study leave**

Please see point D-4

**6. Sponsorship Certificate for External**

**Registration** Please see point D-4

**7. No Objection Certificate for college**

**Teacher** Please see point D-

**8. Co-Guide particulars of External Registration**

A student may have a second Supervisor from the same or another Department/ Centre as Co-Supervisor. The Co-Supervisor may be affiliated to a reputed National/International University/Institute/Center/Organization. The Co-Supervisor preferably should have PhD degree

**CHANGE/ADDITION OF SUPERVISOR(S)**

If a student has only one Supervisor and the Supervisor goes on leave for more than 6 months, then a Co-Supervisor is appointed by her/his Supervisor for official/administrative reason(s) during the period of the leave. Mutual consent of both the student and Supervisor is taken for such cases. The Chairperson, IAPC/Senate, has to approve such a change of Supervisor. The Chairperson, IAPC/Senate may permit a student to change her/his Supervisor(s) for valid reasons. Mutual consent of the student and Supervisor(s) and recommendations of the respective DC are required. Such cases are reported to the IAPC/Senate members.

## **E – HOW TO REACH INSTITUTE**

### **Where is IIT Patna located?**

IIT Patna has shifted in his own permanent campus which is spread in 500 Acres. It is situated at N25°32' 0.18" (Latitude) E 084°51' 16.08" (Longitude) at Globe i.e. at Bihta (Satellite Town of Patna) which is 35 KM west of Patna. The Nearest Railway station is Bihta distance from the campus is 3KM as well as the Nearest airport is at Patna which is 35 KM from the campus. The Climate of campus is Humid subtropical.

### **How to reach IIT Patna, Bihta from Patna airport or Patna Junction railway station?**

The Govt. of Bihar - BSRTC, bus services has been started round-a-clock to IIT Patna, Bihta campus from Patna Junction. Local train facility is also available from Patna Junction to Bihta railway station. Taxi is available from the Patna airport to reach the campus.

## **F – INTERNATIONAL STUDENT ADMISSION:**

Foreign nationals can only register as regular full time scholars. Foreign nationals with degree from Indian universities will be treated on par with Indian nationals for admission purposes. They should have cleared TOEFL score in the relevant discipline.



## **G– IMPORTANT CONTACT NUMBERS:**

Director	:	0612302	8001
PS to Directorate	:	0612302	8071
Attendant Directorate	:	0612302	8051
Associate Dean, Academic	:	0612302	8101
Associate Dean, Academic, Assistant	:	0612302	8102
Associate Dean, R&D	:	0612302	8291
Associate Dean, Students	:	0612302	8549
Professor Incharge - UG	:	0612302	8197
Professor Incharge - PG	:	0612302	8033
Registrar	:	0612302	8002
PS to Registrar	:	0612302	8084
Deputy Registrar (Academic)	:	0612302	8067
Assistant Registrar (Academic)	:	0612302	8697
Senior Superintendent; Student Affairs	:	0612302	8707
Academic Section	:	0612302	8685