# AGENDA NOTES

# FOR

# THE 70th MEETING OF

# THE SENATE

NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

WEST BENGAL, INDIA

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# INDEX

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# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

## 70TH MEETING OF THE SENATE

*TO BE HELD ON*
***WEDNESDAY, AUGUST 2, 2023***
***FROM 05.00 P.M. ONWARD***
*AT THE SENATE ROOM, S.N. RAY MEMORIAL BUILDING*
*NIT DURGAPUR*

## AGENDA NOTES

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**Agenda Notes:** 70th Meeting of the Senate, National Institute of Technology Durgapur
Wednesday, August 2, 2023

## Item No. 70.1 Confirmation of the Minutes of the 69th Meeting of the Senate.

The 69th Meeting of the Senate was held on Monday, January 23, 2023, from 4.30 p.m. onward in the Senate Room, S.N. Ray Memorial Building. The minutes of the said meeting were mailed to all Senate members for their comments (for details, refer to **Annexure 70.1,** brief is presented below).

| Item No. | Agenda in brief | Minutes in brief |
|---|---|---|
| 69.1 | Confirmation of the minutes of the 68th Senate Meeting | Confirmed |
| 69.2 | Action Taken Report on the Minutes of 68th Senate Meeting | The Senate of the Institute noted the action taken report with satisfaction. |
| 69.3 | To consider the resolutions taken at UGAC meetings | The Senate approved/ratified the resolutions of UGAC meetings held on 17.11.2022, 15.12.2022, 27.12.2022 and 19.01.2023 with some riders in some of the points. |
| 69.4 | To consider the resolutions taken at PGAC meetings | The Senate approved/ratified the resolutions of PGAC meetings held on 17.11.2022, 15.12.2022, 27.12.2022 and 19.01.2023 with some riders in some of the points. |
| 69.5 | To consider the resolutions of RAC meetings | The Senate approved/ratified the resolutions of RAC meetings held on 23.11.2022, 16.12.2022, 27.12.2022 and 18.01.2023 including the registration of 47 candidates for the PhD program, and recommended the award of PhD degrees to 6 candidates. |
| 69.6 | To consider signing MoUs with universities in India and abroad. | The Senate recommended signing of MoU with ISI Kolkata and not recommended for signing MoU with IIIT Hyderabad, UEM Kolkata and Brainware University. Further, the Senate suggested further deliberation for the MoU with IIT Madras. |
| 69.7 | To discuss the scope of participation of NIT Durgapur in the PM GatiShakti Master Plan | The department of Management studies is requested to explore the possibilities in this regard. |
| 69.8 | To consider the norms for instituting new endowment gold medals | The Senate approved the matter in principle. However, the selection norms for awarding new endowment gold medals shall be discussed further in the next Senate meeting. |
| 69.9 | Any other matter with the permission of the Chair. | An Institute Flag, proposed by the Director (Officiating), was endorsed by the Senate. |

No comments were received from the members.

Submitted to the Senate for confirmation of the Minutes.

| **Item No. 70.2** | **Actions Taken Report on the Resolutions Taken in the 69th Meeting of the Senate.** | |
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| **Reference No.** | **Agenda Item** | **Action Taken on the Resolution** |
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| 69.3 | To consider the resolutions of UGAC meetings | Resolutions duly implemented. |
| 69.4 | To consider the resolutions of PGAC meetings | Resolutions duly implemented. |
| 69.5 | To consider the resolutions of RAC meetings | Resolutions duly implemented. |
| 69.6 | To consider signing MoUs with universities in India and abroad | Implementation in progress. |
| 69.7 | To discuss the scope of participation of NIT Durgapur in the PM GatiShakti Master Plan. | Being worked upon. |
| 69.8 | To consider the norms for instituting new endowment gold medals | Being worked upon. |
| 69.9 | Any other matter with the permission of the chair – Institute Flag | Being worked upon. |

**PART A: MATTERS RELATED TO UG STUDIES**

**Item No. 70.3 To consider the resolutions of UGAC meetings.**

The Senate may consider the resolutions of the UGAC meetings held on 31.01.2023, 28.03.2023, 17.05.2023, 30.05.2023 and 27.06.2023. Brief of the matters are presented below and detailed minutes of the meetings are presented in **Annexures 70.3.1, 70.3.2, 70.3.3, 70.3.4, and 70.3.5,** respectively.

| Date of UGAC Meeting | Item No. | Matter | UGAC Decisions | Decision of the Senate Required |
|---|---|---|---|---|
| 31-01-2023 | 2 | Publication of supplementary results (other than 1st year UG) | Recommended as per regulations | Requires Approval |
| 31-01-2023 | 5 | Matter regarding Dande Harshini (permission to complete 1st semester backlog sessional subjects) | Not Recommended following regulations | Requires Approval |
| 31-01-2023 | 6 | Modalities to be followed for the Mid-term examinations of UG-final semester students, AY 2022-23 | Conduct of examination in on-line mode is recommended | Requires Approval |
| 28-03-2023 | 2 | Publication of First semester UG Results | Recommended as per regulations | Requires Approval |
| 28-03-2023 | 3 | Minutes of Examination Disciplinary Committee | Recommended as per regulations | Requires Approval |

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| 28-03-2023 | 4 | Cancellation of admission | Recommended | Requires Approval |
| 28-03-2023 | 5 | Absence in examination due to medical grounds, representing NIT in different sports events | Recommended | Requires Approval |
| 28-03-2023 | 6 | Matter related to recommendation of DAC, Sports Activity Centre | Recommended to Senate for further discussions | Requires Approval |
| 28-03-2023 | 7 | Defaulter student (non-payment of mess fees) | Dean (SW) is requested to contact with the parents of the said student | Requires Approval |
| 28-03-2023 | 9 | Seeking permission on Academic Break on medical ground | Recommended | Requires Approval |
| 28-03-2023 | 10 | Minimization of overlapped subjects | HODs are requested to relook at those subjects so that similar subjects can be grouped together | Requires Approval |
| 17-05-2023 | 2 | Evaluation of scripts for some of the UG students mistakenly appeared in Supplementary examinations | Examination papers are cancelled | Requires Approval |
| 17-05-2023 | 3 | To consider the request of change / correction of grades in few subjects in odd semester regular examinations 2022 – 2023 (UG First Year). | Recommended as per regulations | Requires Approval |
| 17-05-2023 | 4 | To consider the matter of students who could not appear in the odd semester regular examinations 2022 - 2023 due to medical reasons | Recommended as per regulations | Requires Approval |
| 17-05-2023 | 5 | To consider the academic calendar of 2023 – 2024 for UG programme and PG programme. | Deliberated and recommended for approval | Requires Approval |
| 17-05-2023 | 6 | To consider the appeal on cancellation of admission | Recommended | Requires Approval |
| 17-05-2023 | 8 | To consider the matter of Dept. of Chemical Engg regarding interchange of laboratory subjects in semesters – for CHS 351 and CHS 451 | Matter is kept in abeyance for one year | -- |
| 17-05-2023 | 9 | To consider the matter of the Dept of Chemical Engineering regarding academic audit and curricula revision | Matter is kept in abeyance for one year | -- |

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| 17-05-2023 | 10 | To consider the matter of inclusion of new disciplines in XXS51 and XXS52. | Matter is kept in abeyance for one year | -- |
| 17-05-2023 | 11 | To consider the matter of change of names / surname of some of the students from Telengana | Recommended | Requires Approval |
| 30-05-2023 | 2 | To consider the request of change / correction of grades in few subjects in odd semester regular examinations 2022 – 2023 (UG First Year) | Examination papers are cancelled | Requires Approval |
| 30-05-2023 | 3 | Publication of provisional results even semester (other than first year UG), AY2022-23 | Recommended for publication | Requires Approval |
| 30-05-2023 | 4 | To consider the matter regarding the best project awards of programs 2022 – 2023 | Mr. Sagnik Dutta (Roll No. 19CE8012) is selected for best project award UG | Requires Approval |
| 30-05-2023 | 5 | To consider the matter of students who could not appear in the odd semester regular examinations 2022 - 2023 due to medical reasons | Recommended as per regulations | Requires Approval |
| 30-05-2023 | 6 | To consider the matter regarding re-admission of Rahul Tamang (Roll no. 19ME8080 Regn no. 19U10349) | Recommended as per regulations | Requires Approval |
| 30-05-2023 | 7 | To consider the matter of modifying some of the clauses of UG Regulations | Some modifications are recommended against UG Clauses 11.2, 12.2, 12.5, Appendix III and VI | Deliberations is required |
| 30-05-2023 | 8 | Matter regarding NEP 2020 - policy making | in principle decision is taken to adopt measures recommended by NEP2020 | It is deferred. |
| 27-06-2023 | 2 | Publication of provisional results for 8th semester UG students | Recommended | Requires Approval |
| 27-06-2023 | 3 | Publication of second semester UG provisional results | Recommended | Requires Approval |
| 27-06-2023 | 4 | To consider minutes of the examination disciplinary committee meeting | Recommended | Requires Approval |

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| 27-06-2023 | 5 | To consider the matter of absentees due to medical ground | Recommended as per regulations | Requires Approval |
| 27-06-2023 | 6 | To consider the matter regarding re-admission of two UG students | Recommended as per regulations | Requires Approval |
| 27-06-2023 | 7 | To consider the matter – class-timings and class routine | Finalized and recommend for approval from Senate | Requires Approval |
| 27-06-2023 | 8 | To consider the matter regarding number of first year sections / sub-sections. | There will be 8 sections (A to H) with 2 subsections in each section. | Requires Approval |
| 27-06-2023 | 9 | To consider the revision in academic calendar 2023-24 (due to delay in first year admission). | Recommended | Chairman Senate already approved, needs to be ratified. |
| 27-06-2023 | 11 | To consider the matter regarding introduction of few elective subjects from academic session 2023-2024 | Recommended | Requires Approval |

**PART B: MATTERS RELATED TO PG STUDIES**

**Item No. 70.4 To consider the resolutions of PGAC meetings.**

The Senate may consider the resolutions of the PGAC meetings held on 31.01.2023, 28.03.2023, 17.05.2023, 30.05.2023 and 27.06.2023. Brief of the matters are presented below and detailed minutes of the meetings are presented in **Annexures 70.3.1, 70.3.2, 70.3.3, 70.3.4, and 70.3.5,** respectively.

| Date of PGAC Meeting | Item No. | Matter | PGAC Decisions | Senate Recommendations |
|---|---|---|---|---|
| 31-01-2023 | 3 | Cancellation of admission (Suraj Gaikwad, Roll No. 22BT4511) | Recommended as per regulations | Requires Approval |
| 31-01-2023 | 4 | Corrigendum Results of one PG students | Recommended as per regulations | Chairman Senate already approved, needs to be ratified. |
| 28-03-2023 | 4 | Cancellation of admission – one PG student | Recommended | Requires Approval |
| 28-03-2023 | 8 | Absence in exams (PG) on medical ground, corrigendum results | Recommended as per regulations | Requires Approval |
| 28-03-2023 | 9 | Seeking permission on Academic Break on medical ground | Recommended | Requires Approval |
| 17-05-2023 | 5 | To consider the academic calendar of 2023 – 2024 for UG programme and PG programme. | Deliberated and recommended for approval | Requires Approval |

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| 17-05-2023 | 7 | To consider the matter of DBT sponsorship of MSc in Life Science Program. | Recommended for introduction from AY2024-25 | Shall be discussed against the Agenda 70.8 |
| 17-05-2023 | 12 | To consider the matter of advance advertisement in Self-sponsored MTECH programs | Deliberated and recommended for approval | Requires Approval |
| 30-05-2023 | 3 | Publication of provisional results even semester, AY2022-23 | Recommended for publication | Requires Approval |
| 30-05-2023 | 4 | To consider the matter regarding the best project awards of programs 2022 – 2023 | Mr. Sumitro Dey (Roll No. 21PH4105) is selected for best project award PG | Requires Approval |
| 30-05-2023 | 7 | To consider the matter of modifying some of the clauses of PG Regulations | Some modifications are recommended against PG Clauses 11.2; 12.2, 12.5, Appendix III and VI | The Senate may deliberate |
| 30-05-2023 | 8 | Matter regarding NEP 2020 - policy making | in principle decision is taken to adopt measures recommended by NEP2020 | It is deferred. |
| 27-06-2023 | 7 | To consider the matter – class-timings and class routine | Finalized and recommend for approval from Senate | Requires Approval |
| 27-06-2023 | 9 | To consider the revision in academic calendar 2023-24 (due to delay in first year admission). | Recommended | Chairman Senate already approved, needs to be ratified |
| 27-06-2023 | 10 | To consider the matter on finalization of advertisement for the Self-sponsored M. Tech. Program and modalities to be followed | Recommended for advertisement | Already advertised with the approval of Chairman, Senate, needs to be ratified |
| 27-06-2023 | 11 | To consider the matter regarding introduction of few elective subjects from academic session 2023-2024 | Recommended | Requires Approval |

**Item No. 70.5 To consider the rationalization of the Post Graduate Seat Matrix.**

With reference to resolution # 69.4 of the 69th Senate meeting and resolution # 63.06 of the 63rd BoG meeting, the Senate may consider the rationalization of the Post Graduate Seat Matrix and deliberate on the norms for the increase/reduction in seats. **(Annexure 70.5)**.

Observing the not so satisfactory pattern in some of the post graduate (PG) programmes, PGAC in its meeting held on 19/01/2023 with due deliberations, recommended a norms for modifying the seat matrix considering the average admission over a period of five academic years (FAAP).

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|---|---|
| Increase in Seat by 10% from the previous academic year for a program | If FAAP > = 90% |
| Decrease in Seat by 10% from the previous academic year for a program | If 50% <=FAAP < 70% |
| Decrease in Seat by 20% from the previous academic year for a program | If FAAP <= 50% |
| Closure / re-modeling of the program | If FAAP <= 50% or Sanctioned intake goes below 10 for two successive academic years |

**The Senate may deliberate and take decision on this matter.**

**PART C: MATTERS RELATED TO PhD STUDIES**

**Item No. 70.6 To consider the resolutions of RAC meetings.**

The Senate may consider the resolutions of the RAC meeting held on 17.04.2023, 19.05.2023, 13.06.2023 and 11.07.2023 **(Annexures 70.6.1, 70.6.2, 70.6.3 and 70.6.4).**

Most of the points are of routine matter and RAC recommended following the PhD regulations leaving the following:

| Sl. No. | RAC dated 17.04.2023 Agenda Points | Decision of RAC dated 17.04.2023 | Decision of the Senate date 02.08.2023 |
|---|---|---|---|
| 1 | **Item # 4**<br>To consider the appeal for an extension of period of registration of the following scholars:<br>Sl. No. 5<br>Name: Oliva Roy<br>Roll No. 15HSS1106<br>Reg. No. NITD/PhD/HS/2016/00724<br>Date of Reg. 10.02.2016<br>Extension recommended for: 1 yr.<br>Valid from: 10.02.2023<br>No. of Times: 3rd | The matter of relaxation in connection to the period of registration will be considered for two Semesters/ One Yr. in the Academic Session 2023-2024 due to CoVID situation and post CoVID complications in addition to that is admissible as per prevalent PhD regulations subject to approval of the Senate. | |
| 2 | **Item # 4**<br>To consider the appeal for an extension of period of | The matter of relaxation in connection to the period of registration will | |

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| | registration of the following scholars:<br>Sl. No. 12<br>Name: Arpan Dasgupta<br>Roll No. 15BT1110<br>Reg. No. NITD/PHD/BT/2016/00740<br>Date of Reg. 29.03.2016<br>Extension recommended for: 1 yr.<br>Valid from: 29.03.2023<br>No. of Times: 3rd | be considered for two Semesters/ One Yr. in the Academic Session 2023-2024 due to CoVID situation and post CoVID complications in addition to that is admissible as per prevalent PhD regulations subject to approval of the Senate. | |
| 3 | **Item # 8**<br>To consider an appeal from Dept. of Mathematics regarding reallocation of supervisor for the PhD scholars of Late Prof. K. Basu and request for a special consideration in counting number of scholars per capita. | Resolved that the allocation of scholars beyond the limit may be considered favourably as one-time measure subject to approval of the Senate. | |

List of PhD students to be awarded PhD degree (33 nos.) and completed formalities for PhD registration (45 nos.) are presented in Annexure 70.6.5.

**PART D: OTHER MATTERS**

**Item No. 70.7** **Reporting of the NBA visit to NIT Durgapur for accreditation in respect of the Department of Electrical Engineering, Department of Mechanical Engineering, Department of Chemical Engineering, Department of Civil Engineering and the Department of Metallurgical & Materials Engineering.**

All five UG programs under consideration are accredited for three academic years. The Senate may take note on the recommendations made by the NBA experts during visit.

| **A. Name of the experts** | | |
|---|---|---|
| Chairman | Prof. O. G. Kakde, Director, IIIT – Nagpur | |
| **Program Name** | **Expert 1** | **Expert 2** |
| UG-CE | Dr. Radhakrishna,<br>Professor & Head,<br>Department of Civil Engineering,<br>R V College of Engineering,<br>Bengaluru | Dr. Suresh G. Patil,<br>Professor,<br>Department of Civil Engineering,<br>Sharnbasva University, Kalaburgi,<br>Karnataka |
| UG-CH | Prof. Kirti Chandra Sahu,<br>Professor, IIT Hyderabad | Prof. Manoj Kumar Mondal,<br>Professor, IIT BHU |
| UG-EE | Prof. Ravishanker Deekshit<br>Former Vice Principal, BMS<br>College of Engineering, | Prof. Ibraheem, Professor,<br>Jamia Milia Islamia Engineering,<br>New Delhi |

| | | |
|---|---|---|
| | Bangalore | |
| UG-ME | Dr. G.S. Yadava, Former Professor, IIT Delhi | Dr. (Mrs.) Arati Vinayak Mulay College of Engineering, Pune |
| UG-MM | Prof. Priyavrat Thareja Former Professor & Head, PEC Chandigarh | Prof. S.T. Vagge, College of Engineering, Pune |

**B. Strengths**

| | |
|---|---|
| Chairman | High Enrolment Ratio, High Placement, Well Qualified Faculty, Good Sports Facility, Hostel and Infrastructures, Good administration and finance handling |
| UG-CE | Well qualified faculty, Good enrolment ratio, good R& D Activities and consultancy |
| UG-CH | Well qualified faculty, high publications |
| UG-EE | Well qualified faculty, high publications, laboratory equipment |
| UG-ME | Qualified faculty, Good retention rate, Placement record is good, Student strength and quality is good |
| UG-MM | Qualified faculty, Publications of faculty members are good, Laboratory equipment's are good, Student strength and enrolment ratio is good |

**C. Concerns / weaknesses.**

| Expert | Salient points |
|---|---|
| Chairman | • Understanding of OBE (outcome-based education)<br>• Vision and Mission Statements of the Institute and departments<br>• CO and PO attainment calculations following OBE<br>• Measures taken against the weaknesses identified in the NBA visits<br>• Relative grading<br>• Collaboration with Industries<br>• Improvement of UG laboratories<br>• Introduction of more elective subjects in the field of recent trends |
| UG-CE | • Understanding and Awareness of OBE (Cos, POs) among stakeholders<br>• Measurement of COs<br>• Safety instructions in the laboratories and ambience of the laboratories<br>• FDPs/STTPs by the faculty members as participant, organizer<br>• Increase in the student activities in the department<br>• Frequent industry visits by the students<br>• Framing of rubrics for the evaluation of the projects<br>• Compliance of the observations made in the Last NBA |
| UG-CH | • Academic Audit and Curriculum Revision to meet the present day need<br>• Recruitment of supporting staffs<br>• Increase in Industry interaction, consultancy projects<br>• Continuous evaluation of laboratory papers of the students |
| UG-EE | • Alignment of Mission and Vision Statements, Institute to department<br>• Increase in involvement of industries<br>• Maintenance of the classrooms / labs |

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|---|---|
| | • Increase in participation in activities outside the institute<br>• Networking by faculty and students outside the Institute<br>• Up-gradation of syllabus, inclusion of modern subjects required. |
| UG-ME | • Revision of curriculum<br>• Enhancement of Laboratory equipment and infrastructure<br>• Increase in number of experiments per lab course<br>• Establishment of laboratories in the emerging areas such as Robotics, Mechatronics, gas turbines, automobile vehicle apparatus etc.<br>• Arrangements for frequent industrial visits by the students<br>• Reframing of the PSO statements<br>• Consultancy Projects<br>• Tie-up with professional body for opening chapter in the department<br>• Increase in generation of IP from UG Students<br>• Increase in no. of FDPs / STTPS organized, attended by faculty<br>• Improvement of Student Faculty Ratio (SFR) |
| UG-MM | • Improvement in the understanding of OBE<br>• Dept's focus on UG attainment, CO, PO attainment calculations<br>• Revision in the UG Curriculum<br>• CO-PO awareness among students, faculty<br>• Increase in Co-curricular and professional activities by the students<br>• More frequent industrial tours for the students<br>• Safety issues in laboratories<br>• Increase in Industry-Institute-Interactions<br>• Maintenance of the laboratories<br>• Lack of qualified supporting staffs<br>• Alignment of Vision, Mission statements, Institute to department<br>• Conduct of Academic Audit |

One day compliance visit for data verification for the UG Program in Electronics and communication engineering held on 06/05/2023. No such observations were made by the expert team.

**Item No. 70.8 Opening of DBT-sponsored MSC Program on Life Sciences with specialization in Microbial Biotechnology / Plant & Animal Biotechnology from AY2023-24.**

Presently, there exist a MSC program on Life Sciences offered by the Department of Biotechnology. However, DBT, Govt. of India agreed to provide financial support for running a MSC program on Life Sciences with specialization in Microbial Biotechnology / Animal & Plant Biotechnology following certain clauses (refer to Annexure 70.8). The Chairman Senate has already approved for opening the same from AY 2023-24 with the consent from the Chairperson, BoG. **(refer to Annexure 70.8).**

The PGAC has deliberated on different aspects of the same program as submitted by DAC of Dept. of Biotechnology and following resolutions are taken.
Recommended that the present MSc programme in Life Sciences will be discontinued from the AY2024-25 and a new programme namely MSc programme in Life Sciences with ( Specialization in Microbial Biotechnology / Plant & Animal Biotechnology) will be started from AY2023-24.
(a) Selection and Admission of students: Admission shall be made based on the GAT-B rank of the applicants.

(b) Starting Academic Year: 2023-24
(c) Total No. of Seats: 10
(d) Fee Structure & Fee Waiver: As per the existing norms of NIT Durgapur
(e) Processing of Scholarships: Similar to existing GATE qualified MTECH students
(f) Leave rules for the students: Similar to the existing GATE qualified MTECH student
(g) Curriculum and Syllabus – Annexure IV of PGAC meeting held on 17.05.2023

The Senate may recommend the above.

**Item No. 70.9 Any other matter with the permission of the Chair.**

28.07.23

**Date: 28.07.2023**

**Registrar & Secretary, Senate**
**NIT Durgapur**

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Annexure – 70.1

# Minutes of the 69th Senate Meetings held on January 23, 2023

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Annexure - 70.1

**NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR**

# 69th MEETING OF THE SENATE

*HELD ON*
***MONDAY, JANUARY 23, 2023***
***FROM 4.30 PM ONWARD***
*AT THE SENATE ROOM, S.N. RAY MEMORIAL BUILDING*
*NIT DURGAPUR*

**MINUTES**

**Minutes: 69th Meeting of the Senate**
**National Institute of Technology Durgapur**

The meeting was attended by the following members:

| | | | |
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| 1. | **Prof. Indrajit Basak**<br>Director (Officiating) & Chairman-Senate<br>NIT Durgapur | : | Chairman |
| 2. | **Prof. K. Aikat**<br>Department of Biotechnology,<br>NIT Durgapur | : | Member |
| 3. | **Dr. Debjani Dutta**<br>Department of Biotechnology,<br>NIT Durgapur | : | Invited Member |
| 4. | **Prof. S. S. Mukhopadhyay**<br>Department of Biotechnology,<br>NIT Durgapur | : | Member |
| 5. | **Prof. Dalia Dasgupta Mandal**<br>Department of Biotechnology,<br>NIT Durgapur | : | Member |
| 6. | **Prof. A. Dey**<br>Department of Biotechnology,<br>NIT Durgapur | : | Member |
| 7. | **Prof. (Ms.) Surabhi Chaudhuri**<br>Department of Biotechnology,<br>NIT Durgapur | : | Member |
| 8. | **Prof. A.K. Patra**<br>Department of Chemistry,<br>NIT Durgapur | : | Member |
| 9. | **Prof. Rajnarayan Saha**<br>Department of Chemistry,<br>NIT Durgapur | : | Member |
| 10. | **Prof. Sankar Ch. Moi**<br>Department of Chemistry,<br>NIT Durgapur | : | Member |
| 11. | **Prof. D. Sukul**<br>Department of Chemistry,<br>NIT Durgapur | : | Member |

12. **Prof. M. Maji** : Member
Department of Chemistry,
NIT Durgapur

13. **Prof. P. Gupta** : Member
Department of Chemical Engineering,
NIT Durgapur

14. **Prof. K. C. Ghanta** : Member
Department of Chemical Engineering,
NIT Durgapur

15. **Prof. Tamal Mandal** : Member
Department of Chemical Engineering,
NIT Durgapur

16. **Dr. Jaya Sikder** : Invited Member
Department of Chemical Engineering,
NIT Durgapur

17. **Prof. A. K. Sadhukhan** : Member
Department of Chemical Engineering,
NIT Durgapur

18. **Prof. D.K. Singha Roy** : Member
Department of Civil Engineering,
NIT Durgapur

19. **Prof. S. Bhattacharyya** : Member
Department of Civil Engineering,
NIT Durgapur

20. **Prof. A.K. Banik** : Member
Department of Civil Engineering,
NIT Durgapur

21. **Prof. Amiya Kr Samanta** : Member
Department of Civil Engineering,
NIT Durgapur

22. **Prof. A. Das** : Member
Department of Civil Engineering,
NIT Durgapur

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| 23. | **Dr. Diptesh Das**<br>Civil Engineering<br>NIT Durgapur | : | Invited Member |
| 24. | **Prof. S. Saha**<br>Department of Civil Engineering,<br>NIT Durgapur | : | Member |
| 25. | **Prof. K. Bhattacharya**<br>Department of Civil Engineering,<br>NIT Durgapur | : | Member |
| 26. | **Prof. P. Ray**<br>Department of Civil Engineering,<br>NIT Durgapur | : | Member |
| 27. | **Prof. (Mrs.) T. Pal**<br>Dept. of Computer Science & Engg.<br>NIT Durgapur | : | Member |
| 28. | **Prof. Tanmay Dey**<br>Dept. of Computer Science & Engg.<br>NIT Durgapur | : | Member |
| 29. | **Prof. Subrata Nandi**<br>Dept. of Computer Science & Engg.<br>NIT Durgapur | : | Member |
| 30. | **Prof. (Mrs.) Suchismita Roy**<br>Dept. of Computer Science & Engg.<br>NIT Durgapur | : | Member |
| 31. | **Prof. Subhrabrata Choudhury**<br>Dept. of Computer Science & Engg.<br>NIT Durgapur | : | Member |
| 32. | **Prof. D. Nandi**<br>Dept. of Computer Science & Engg.<br>NIT Durgapur | : | Member |
| 33. | **Prof. Avijan Dutta**<br>Dept. of Management Studies<br>NIT Durgapur | : | Member |
| 34. | **Prof. Gautam Bandopadhyay**<br>Dept. of Management Studies<br>NIT Durgapur | : | Member |

35. **Dr. Kaushik Mandal** : Invited Member
Dept. of Management Studies
NIT Durgapur

36. **Prof. A.K. Bhattacharjee** : Member
Dept. of Electronics & Communication Engineering
NIT Durgapur

37. **Dr. Durbadal Mondal** : Invited Member
Dept. of Electronics & Communication Engineering
NIT Durgapur

38. **Prof. Rowdra Ghatak** : Member
Dept. of Electronics & Communication Engineering
NIT Durgapur

39. **Prof. R. Mahapatra** : Member
Dept. of Electronics & Communication Engineering
NIT Durgapur

40. **Prof. G.K. Mahanti** : Member
Dept. of Electronics & Communication Engineering
NIT Durgapur

41. **Prof. Ashis Kr. Mal** : Member
Dept. of Electronics & Communication Engineering
NIT Durgapur

42. **Prof. S.S. Thakur** : Member
Dept. of Electrical Engineering
NIT Durgapur

43. **Prof. S. N. Mahato** : Member
**HoD,** Dept. of Electrical Engineering
NIT Durgapur

44. **Prof. T. K. Saha** : Member
Dept. of Electrical Engineering
NIT Durgapur

45. **Prof. C. Koley** : Member
Dept. of Electrical Engineering
NIT Durgapur

46. **Prof. Parimal Acharjee** : Member
Dept. of Electrical Engineering
NIT Durgapur

47. **Prof. S. Banerjee** : Member
Dept. of Electrical Engineering
NIT Durgapur

48. **Dr. Arindam Modak** : Invited Member
Dept. of Humanities and Social Sciences
NIT Durgapur

49. **Dr. Lakshmi Kanta Dey** : Invited Member
Dept. of Mathematics
NIT Durgapur

50. **Prof. (Mrs.) Seema Sarkar (Mondal)** : Member
Dept. of Mathematics
NIT Durgapur

51. **Prof. S. Kar** : Member
Dept. of Mathematics
NIT Durgapur

52. **Prof. K. Adhikari** : Member
Dept. of EES
NIT Durgapur

53. **Prof. B. Halder** : Member
Dept. of Mechanical Engineering
NIT Durgapur

54. **Prof. N. B. Hui** : Member
Dept. of Mechanical Engineering
NIT Durgapur

55. **Prof. N. Banerjee** : Member
Dept. of Mechanical Engineering
NIT Durgapur

56. **Prof. A. Layek** : Member
Dept. of Mechanical Engineering
NIT Durgapur

57. **Dr. Sumit Mukhopadhyay** : Invited Member
Dept. of Mechanical Engineering
NIT Durgapur

58. **Prof. A. B. Puri** : Member
Dept. of Mechanical Engineering
NIT Durgapur

59. **Prof. S. S. Roy** : Member
Dept. of Mechanical Engineering
NIT Durgapur

60. **Dr. Supriya Bera** : Invited Member
Dept. of MME
NIT Durgapur

| | | | |
|---|---|---|---|
| 61. | **Prof. K. S. Ghosh**<br>Dept. of MME<br>NIT Durgapur | : | Member |
| 62. | **Prof. P. Kubhakar**<br>Dept. of Physics<br>NIT Durgapur | : | Member |
| 63. | **Prof. A. K. Meikap**<br>Dept. of Physics<br>NIT Durgapur | : | Member |
| 64. | **Dr. Sukadev Sahoo**<br>Dept. of Physics<br>NIT Durgapur | : | Invited Member |
| 66. | **Prof. Amit Kr. Chakraborty**<br>Dept. of Physics<br>NIT Durgapur | : | Member |
| 66. | **Dr. Bibhash Sen**<br>Computer Centre | : | Invited Member |
| 67. | **Mr. Soumya Sen Sharma**<br>Registrar<br>NIT Durgapur | : | Secretary |

Prof. Ajitava Raychaudhuri, Prof. Siddhartha Sen, Prof. (Mrs.) Swagata Dasgupta, Sri S. Chatterjee, Mr. B. Bhattacharya, Prof. N.K. Roy, Prof. Mousumi Roy**,** Prof. S. Chattopadhyay, Ms. Ishani Ray, Prof. Sumit Kundu Prof. P. Pal, Prof. S. Dutta, Prof. B. Maji, Prof. Gopinath Halder, Prof. A. N. Mullick, and Prof. Joydeep Maity could not attend the meeting and were granted leave of absence.

At the outset the Chairman welcomed the Senate members to the meeting. Then one minute of silence was observed each in the memory of the departed souls of Dr. Kajla Basu, Professor, department of Mathematics and Dr. Aniruddha Gangopadhyay, former Professor, department of Earth and Environmental Studies.

Then the Chairman requested the Secretary, Senate to present the agenda of the 69th Senate meeting.

**Item No. 69.1** **Confirmation of the Minutes of the 68th. Senate Meetings.**

The minutes of the Extraordinary (68th) Senate meeting were confirmed by the Senate.

**Item No. 69.2** **Action Taken Reports**

The Senate of the Institute noted the Action Taken Reports with satisfaction.

**PART A: MATTERS RELATED TO UG STUDIES**

**Item No. 69.3** **To consider the resolutions of UGAC meetings.**

The Senate approved/ratified the resolutions of UGAC meetings held on 17.11.2022, 15.12.2022, 27.12.2022 and 19.01.2023 with the following riders:

***Item No. # 2* of UGAC meeting held on 17/11/2022**: The punishment for adopting unfair means in mid-term examinations shall be decided in the same line as specified in Appendix VI of UG regulations.

***Item No. # 11* of UGAC meeting held on 17/11/2022**: Starting of a new academic program entitled "Integrated MSc in Physics" was recommended in principle with effect from AY 2024-25. The Department of Physics, along with external experts, will submit a complete curriculum and syllabus for further necessary action.

***Item No. # 12* of UGAC meeting held on 17/11/2022, *Item No.* # 9 of UGAC meeting held on 15/12/2022, *Item No.* # 13 of UGAC meeting held on 19/01/2023**: Following points related to Minor program as recommended by UGAC are approved and recommended for implementation.

(a) Minor changes in curriculum is approved (Biotechnology, Chemical Engineering, Computer Science and Engineering, Electronics and Communication Engineering, Electrical Engineering, Mathematics, etc.).
(b) A CGPA $\geq$ 8.0 is to be maintained in the subsequent semesters without any backlog in order to keep the Minor registration active. Should CGPA fall below 8.0 at any point after registering for the minor, the Minor registration shall be cancelled.
(c) A student may take the courses as mentioned in respective Minor Curriculum either as a depth, elective or an open elective course or as additional credits. He/she can earn up to 8 credits as depth/elective/open elective course, and the rest as additional credits to earn a minor.
(d) Students enrolled in Dual Degree, Integrated M.Sc. are permitted to take the minor courses in other disciplines up to the 10th Semester, while the students of B. Tech should complete the minor requirements by the 8th semester.
(e) Tie-breaking shall be implemented in the following sequence: (CGPA of particular semester – SGPA of that semester – CGPA of preceding semester – SGPA of preceding semester).
(f) The allotment of Minor will be made based on the results of the second

semester examination from 2023-2024.

(g) The Minor program will be reviewed by the Institute after two years based on the feedback of the stakeholders.

***Item No. # 5* of UGAC meeting held on 19/01/2023**: The matter was not approved.

***Item No. # 6* of UGAC meeting held on 19/01/2023**: An FIR shall be lodged against the candidate.

***Item No. # 7* of UGAC meeting held on 19/01/2023**: A student undergoing an internship shall submit an internship report and the evaluation sheet (marks out of 50) from the competent authority of the company in a sealed envelope. However, the evaluation of internship as a project shall be finalized by the departmental internship evaluation board with the marks submitted by the company being used as an indicator of the performance of the student in the internship.

***Item No. # 8* of UGAC meeting held on 19/01/2023**: Seat matrix of UG was kept unchanged from that in AY 2022-23 vide **Annexure I.** There will be supernumerary seats for students of A&N Islands in the similar line as was existing in AY 2022-23.

***Item No. # 10* of UGAC meeting held on 19/01/2023**: The Senate empowered the Chairman, Senate to endorse the fee structure as recommended by the committee constituted by it. Subsequently, the revised fee structure shall be placed to the FC and BoG for approval. The revised fee structure shall be applicable for students getting admitted in AY 2023-24. The rest of the students shall follow the same Fee structure as was approved for AY 2022-23.

***Item No. # 14* of UGAC meeting held on 19/01/2023**: Assessment committee for evaluating the Best Project for UG program was approved as proposed.

(a) Dean (Academic Courses) – Chairman
(b) Dean (R&C) – Member
(c) Dean (Academic Research) – Member
(d) Dean (Students Welfare) – Member
(e) Members of Innovation and Incubation Cell (IIC) – Members
(f) Coordinator of IIC - Coordinator

**PART B: MATTERS RELATED TO PG STUDIES**

**Item No. 69.4 To consider the resolutions of PGAC meetings.**

The Senate ratified the resolutions of PGAC meetings held on 17.11.2022, 15.12.2022, 27.12.2022 and 19.01.2023 with the following riders:

***Item No. # 2* of PGAC meeting held on 17/11/2022**: The punishment for adopting unfair means in mid-term examinations shall be decided in the same line as specified in Appendix V of PG regulations.

***Item No. # 7* of PGAC meeting held on 19/01/2023**: A student undergoing an internship shall submit an internship report and the evaluation sheet (marks out of 50) from the competent authority of the company in a sealed envelope. However, the evaluation of internship as a project shall be finalized by the departmental internship evaluation board with the marks submitted by the company being used as an indicator of the performance of the student in the internship.

***Item No. # 8* of PGAC meeting held on 19/01/2023**: Seat matrix of different PG programs for the AY 2023-24 was approved as was resolved in the Senate meeting. (**Annexure II**)

The HoD, BT raised some objections in the change of the seat matrix for BT related programmes. The Senate resolved that the HoD, BT may discuss the issues in DAC and will send the resolution to the Chairman, Senate. The house empowered the Chairman, Senate to take the final decision on the seat matrix.

Further, the norms for the increase/reduction in seats in the PG programs were discussed, and it was decided that the same shall be taken up in the next Senate meeting as a separate agenda item.

***Item No. # 9* of PGAC meeting held on 19/01/2023**: Admission advertisements for MBA 2023 was approved with the inclusion of MAT in the eligibility criteria for the AY 2023-24. Online conduction of GD and PI as recommended by the PGAC for selection of students for the MBA program was approved.

Admission advertisements for MSW 2023 was approved as recommended by PGAC.

***Item No. # 10* of PGAC meeting held on 19/01/2023**: The Senate empowered the Chairman, Senate to endorse the fee structure as recommended by the committee constituted by the Senate. Subsequently, the revised fee structure shall be placed to the FC and BoG for approval. The revised fee structure shall be applicable for students getting admitted in AY 2023-24. The rest of the students shall follow the same Fee structure as was approved for AY 2022-23.

***Item No. # 14* of PGAC meeting held on 19/01/2023**: Assessment committee for evaluating the Best Project for PG program was approved as proposed.

(a) Dean (Academic Courses) – Chairman
(b) Dean (R & C) – Member
(c) Dean (Academic Research) – Member
(d) Dean (Students Welfare) – Member
(e) Members of Innovation and Incubation Cell (IIC) – Members
(f) Coordinator of IIC - Coordinator

**PART C: MATTERS RELATED TO PhD STUDIES**

**Item No. 69.5 To consider the resolutions of RAC meetings.**

The Senate approved/ratified the resolutions of RAC meetings held on 23.11.2022, 16.12.2022, 27.12.2022 and 18.01.2023 including the registration of 47 candidates (**Annexure III**) for the PhD program, and recommended the award of PhD degrees to 6 candidates **(Annexure IV)** were permitted.

**RAC meeting held on 23.11.2022**

**Item # 4: To consider the appeal for an Extension of period of Registration of the following scholars:** (i) Tanushree Ghosh (Roll No.: 14/CHE/1502, Reg. No. NITD/PhD/ChE/2014/00539, & (ii) Biswajit Kamila (Roll. No. 13/CHE/1107, Reg. No. NITD/PhD/ChE/2014/00522) were permitted.

**Item # 9: To consider the matter regarding award of degree certificate to the recipients of PhD in an interval of three/four months in a span of one academic year:** The Senate recommended that the present practice of providing the Provisional PhD degree certificate by the office of Dean (AR) after the successful completion of all academic requirements and the awarding of the PhD degree certificate in the Convocation of the Institute be continued.

The Senate also recommended that to the candidates who face difficulties, for want of PhD degree certificate, a separate endorsement of the PhD degree by the Chairman (Senate) in official letterhead may be provided on demand after the successful completion of all academic requirements, as were done at earlier instances.

**Item # 10: To consider the request from the office of Dean (SW) and Chief Warden to include a check box of hostel clearance of the previous semester at the time of semester registration of PhD students:** The matter was approved.

**Item # 11: To consider the date of implementation on the matter as approved by the Senate regarding equivalence of patent filing with one publication in an SCI/SSCI/AHCI/Non-paid Scopus/Web of Science Journal:** The matter was approved and shall be applicable for the scholars admitted from Odd Semester 2023-2024 onwards.

**Item # 13: To consider the request of Sanjib Kumar Jana (Roll No. 16CH1506) regarding semester registration and PhD registration:** The readmission of the candidate was recommended in the Odd Semester 2023-2024.

**RAC meeting held on 16.12.2022**

**Item # 5: To consider the appeal for an Extension of period of Registration of the following scholars:**

i. Arun Kumar Singh (Roll No.14/ECE/1503, Reg. No. NITD/PhD/EC/2016/00830) – The extension was approved up to 12.10.2023 and the candidate may appear in the pre-submission seminar.

ii. Debi Prasad Das (Roll No.13/CE/1503, Reg. No. NITD/PhD/CE/2016/00700) – The extension was approved up to 07.07.2023 and no further request for extension will be entertained.

iii. Sushma (Roll No.14/IT/1104, Reg. No. NITD/PhD/IT/2015/00648) -- The extension was approved up to 15.09.2023 and no further request for extension will be entertained.

**Item 6: To consider the matter regarding the approval for extension of Pre-registration seminar:** Tamoghna Mandal (Roll No. 19CS1106) – The matter was approved.

**Item # 8: To consider the matter of Sreeram Srinivasan (Roll No. 22BT1108) regarding refund of admission fee and other fees:** No refund shall be made to the candidate as per the existing regulations.

**RAC meeting held on 27.12.2022**

**Item # 2: To Consider the matter on publication of course work results for Odd semester 2022-2023:** The publication of the provisional result of course works for Odd Semester 2022-2023 was noted.

**RAC meeting held on 18.01.2023**

**Item # 4 To consider the appeal for an Extension of period of Registration of the following scholars:**

i. Karunya Sakhile (Roll No. 15/CHE/1504, Reg. No. NITD/PhD/CH/2015/00687) - The extension was approved up to 28.02.2023 and the candidate may appear in the pre-submission seminar and submit the PhD thesis.

ii. Arvind Kumar Jaiswal (Roll No. 15/MME/1105, Reg. No. NITD/PhD/MME/2017/00842)- The extension was approved up to 10.01.2024 and the candidate may appear in the pre-submission seminar.

**Item # 9: To consider the matter of Md Mozaffar Masud (Roll No. 21CE1103, Category-A. Regular Research Scholar with Institute Fellowship) regarding conversion of PhD programme to Professional Mode:** The request of the candidate was not considered. The matter of release of regular Institute fellows shall be guided by the regulations of PhD programme.

**Item # 10: To consider the matter regarding a communication dated 11.12.2022 from PubPapers Team, Address: Shelton Street, Covent Garden, London, United Kingdom on Dr. Indrajit Patra (Roll No. 15/HSS/1507, Reg. No. NITD/PhD/HSS/2016/00728, Date of Defense Seminar: 27.08.2019, Date of Convocation: 07.09.2019-15th Convocation) and subsequent communication from Dr. Indrajit Patra dated 18.12.2022:** It was resolved that the Head, Dept. of HSS will direct Dr. Indrajit Parta to refrain from using the name of the Institute in any of his publications and the Institute may

communicate to PubPapers Team [Address: Shelton Street, Covent Garden, London, United Kingdom] that Dr. Indrajit Patra has not been associated with the Institute in any way since 2019.

**Item # 12: To consider the matter related to refund of fees to the students of PhD program who are leaving the program / terminated from the program:** Resolved that the following clauses may be incorporated in the PhD regulations.

**Fees and Refunds**

- A scholar admitted to the academic programme shall be required to pay, at the time of joining, and also in subsequent semesters, prevalent tuition and other fees as prescribed by the Institute till he/she is on roll including the period beyond the normal duration.
- If the Institute revises the fee structure in the midst of the PhD programme, a scholar is obliged to comply with it.
- Caution money collected will be returned at the end of the programme after due adjustment, if any.
- If a scholar is removed or he/she withdraws/leaves the Institute in the mid-session without completing the entire programme, all fees paid including the caution deposit will not be refunded by the Institute. Mess advance may, however, be refunded after deduction of dues, if any.

The refund Clause will be applicable for all PhD scholars.

**Item # 13: To consider the matter of fees structure of PhD programme for admission year 2023-2024:** The matter will be considered when the committee constituted by the Senate submits the report after revisiting the fee structure.

**PART D: OTHER MATTERS**

**Item No. 69.6 To consider signing MoUs with universities in India and abroad.**

The Senate recommended signing of MoU with ISI Kolkata **(Annexure V)**. The possibility of signing MoU with IIT Madras will be explored further and will be discussed in the next meeting of the Senate. The matter of signing MoU with IIIT Hyderabad, UEM Kolkata and Brainware University were not considered by the Senate.

**Item No. 69.7 To discuss the scope of participation of NIT Durgapur in the PM GatiShakti Master Plan**

The Senate was informed that the department of Management Studies have already been offering courses on Supply Chain Management and creating trained human resource compatible with the theme of the Plan. The department will explore the possibility of offering this as an Open Elective for the B. Tech. students.

**Item No. 69.8 To consider the norms for instituting new endowment gold medals**

The Senate approved the matter in principle. However, the selection norms for awarding new endowment gold medals shall be discussed further in the next Senate meeting.

**Item No. 69.9 Any other matter with the permission of the Chair.**

An Institute Flag, proposed by the Director (Officiating), was endorsed by the Senate.

The meeting ended with a vote of thanks to the Chair.

**Registrar & Secretary, Senate**
**NIT Durgapur**
**Date:**

**Annexure I**

# National Institute of Technology Durgapur

## CSAB 2023

| Program Name | Quota | Gender | OPEN | OPEN-PWD | EWS | EWS-PWD | SC | SC-PWD | ST | ST-PWD | OBC-NCL | OBC-NCL-PWD | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bio Technology (4 Years, Bachelor of Technology) | HS | Gender neutral | 11 | 1 | 3 | 0 | 5 | 0 | 2 | 0 | 7 | 1 | 30 |
| | HS | Female | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 8 |
| | AI | Gender neutral | 11 | 0 | 2 | 1 | 6 | 0 | 2 | 0 | 7 | 0 | 29 |
| | AI | Female | 3 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 8 |
| Chemical Engineering (4 Years, Bachelor of Technology) | HS | Gender neutral | 11 | 1 | 3 | 0 | 4 | 0 | 2 | 0 | 7 | 1 | 29 |
| | HS | Female | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 8 |
| | AI | Gender neutral | 11 | 1 | 3 | 0 | 5 | 0 | 2 | 0 | 8 | 1 | 31 |
| | AI | Female | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 7 |
| Civil Engineering (4 Years, Bachelor of Technology) | HS | Gender neutral | 14 | 0 | 3 | 0 | 4 | 0 | 2 | 0 | 7 | 0 | 30 |
| | HS | Female | 2 | 0 | 1 | 0 | 2 | 1 | 1 | 0 | 2 | 1 | 10 |
| | AI | Gender neutral | 14 | 0 | 3 | 0 | 3 | 1 | 2 | 0 | 7 | 1 | 31 |
| | AI | Female | 2 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 3 | 0 | 9 |
| Computer Science and Engineering (4 Years, Bachelor of Technology) | HS | Gender neutral | 31 | 1 | 6 | 1 | 9 | 1 | 5 | 0 | 20 | 1 | 75 |
| | HS | Female | 5 | 1 | 2 | 0 | 4 | 0 | 2 | 0 | 4 | 0 | 18 |
| | AI | Gender neutral | 32 | 1 | 7 | 0 | 9 | 1 | 4 | 0 | 20 | 1 | 75 |
| | AI | Female | 5 | 0 | 3 | 0 | 3 | 0 | 2 | 1 | 5 | 0 | 19 |

**Dean (Academic Courses)** **Director**

# National Institute of Technology Durgapur

**CSAB 2023**

| Program Name | Quota | Gender | OPEN | OPEN-PWD | EWS | EWS-PWD | SC | SC-PWD | ST | ST-PWD | OBC-NCL | OBC-NCL-PWD | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Electronics and Communication Engineering (4 Years, Bachelor of Technology) | HS | Gender neutral | 16 | 1 | 4 | 0 | 5 | 1 | 2 | 0 | 11 | 0 | 40 |
| | HS | Female | 3 | 0 | 1 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 10 |
| | AI | Gender neutral | 16 | 1 | 4 | 0 | 5 | 0 | 2 | 0 | 11 | 1 | 40 |
| | AI | Female | 3 | 0 | 1 | 0 | 2 | 1 | 1 | 0 | 2 | 0 | 10 |
| Electrical Engineering (4 Years, Bachelor of Technology) | HS | Gender neutral | 15 | 0 | 4 | 0 | 6 | 0 | 2 | 1 | 9 | 1 | 38 |
| | HS | Female | 3 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 4 | 0 | 11 |
| | AI | Gender neutral | 15 | 1 | 4 | 0 | 5 | 1 | 2 | 0 | 10 | 0 | 38 |
| | AI | Female | 3 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 3 | 0 | 10 |
| Mechanical Engineering (4 Years, Bachelor of Technology) | HS | Gender neutral | 32 | 1 | 6 | 1 | 10 | 1 | 4 | 0 | 20 | 0 | 75 |
| | HS | Female | 4 | 1 | 3 | 0 | 3 | 0 | 2 | 1 | 5 | 0 | 19 |
| | AI | Gender neutral | 32 | 1 | 6 | 0 | 11 | 0 | 5 | 0 | 18 | 1 | 74 |
| | AI | Female | 4 | 1 | 2 | 0 | 3 | 1 | 2 | 0 | 5 | 1 | 19 |
| Metallurgical and Materials Engineering (4 Years, Bachelor of Technology) | HS | Gender neutral | 10 | 1 | 3 | 0 | 5 | 0 | 1 | 1 | 9 | 0 | 30 |
| | HS | Female | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 7 |
| | AI | Gender neutral | 11 | 1 | 2 | 1 | 4 | 0 | 2 | 0 | 8 | 1 | 30 |
| | AI | Female | 4 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 8 |

**Dean (Academic Courses)** **Director**

# National Institute of Technology Durgapur

**CSAB 2023**

| Program Name | Quota | Gender | OPEN | OPEN-PWD | EWS | EWS-PWD | SC | SC-PWD | ST | ST-PWD | OBC-NCL | OBC-NCL-PWD | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chemical Engineering (5 Years, Dual Degree) | HS | Gender neutral | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 |
| | HS | Female | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | AI | Gender neutral | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 |
| | AI | Female | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| Biotechnology (5 Years, Dual Degree) | HS | Gender neutral | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 |
| | HS | Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| | AI | Gender neutral | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 |
| | AI | Female | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Chemistry (5 Years, Integrated MSC) | HS | Gender neutral | 3 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 7 |
| | HS | Female | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| | AI | Gender neutral | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 8 |
| | AI | Female | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 |
| | Total | | **347** | **17** | **89** | **4** | **131** | **9** | **63** | **5** | **232** | **12** | **909** |

**Dean (Academic Courses)** **Director**

# National Institute of Technology Durgapur

**Seat Matrix under Foreign Quota (UG Programmes)**

| | BT | CE | CH | CS | EC | EE | ME | MM | DD-BT | DD-CH | INT-MSC-CY | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL SEATS 2023 | 75 | 80 | 75 | 187 | 97 | 100 | 187 | 75 | 7 | 7 | 19 | 909 |
| SEATS FOR FOREIGN NATIONALS 2023 | 11 | 12 | 11 | 28 | 15 | 15 | 28 | 11 | 1 | 2 | 3 | 137 |
| ICCR 2023 | 02 | 03 | 03 | 10 | 04 | 04 | 10 | 03 | 1 | 1 | 1 | 42 |
| DASA 2023 | 03 | 02 | 02 | 06 | 03 | 03 | 06 | 02 | 0 | 0 | 1 | 28 |
| DASA (CIWG) 2023 | 01 | 02 | 01 | 02 | 02 | 02 | 02 | 01 | 0 | 0 | 0 | 13 |
| GOI-MEA 2023 | 02 | 02 | 02 | 05 | 03 | 03 | 05 | 02 | 0 | 1 | 0 | 25 |
| SII-EdCIL 2023 | 03 | 03 | 03 | 05 | 03 | 03 | 05 | 03 | 0 | 0 | 1 | 29 |
| ICCR 2023 & MEA-2023* | 04 | 05 | 05 | 15 | 07 | 07 | 15 | 05 | 1 | 1 | 2 | 67 |

* Maximum seats under any specific branch in this category = Individual limits + 3 (if required, depending on the application received)

**Eligibility criteria:**

(1) **ICCR/SII-EdCIL:**

- Date of Birth after October 01, 1995.
- Must have appeared in +2 standard examinations on or after 2020 (i.e. totals no. of four attempts) and obtained 75 percent in aggregate.
- Must have Physics, Chemistry, Mathematics and English as subjects in +2 standards.

(2) **DASA and MEA:** As decided by GOI, MHRD.

**Dean (Academic Courses)** **Director**

**Annexure II**

# National Institute of Technology Durgapur

## MTECH Programmes (CCMT 2023 and Sponsored)

| Specialization / Program Name | OC | OC-PWD | EWS | EWS-PWD | SC | SC-PWD | ST | ST-PWD | OBN | OBN-PWD | CCMT | Sponsored |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Biotechnology | 7 | 1 | 1 | 0 | 3 | 0 | 1 | 0 | 5 | 0 | 18 | 2 |
| Chemical Engineering | 6 | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 4 | 0 | 15 | 2 |
| Energy Resources and Sustainable Environmental Engineering | 6 | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 4 | 0 | 15 | 2 |
| Geotechnical Engineering | 7 | 1 | 2 | 0 | 3 | 0 | 1 | 0 | 6 | 0 | 20 | 2 |
| Structural Engineering | 10 | 1 | 3 | 0 | 4 | 0 | 2 | 1 | 7 | 0 | 28 | 3 |
| Computer Science and Engineering | 19 | 1 | 5 | 0 | 7 | 0 | 4 | 0 | 13 | 1 | 50 | 5 |
| Environmental Science and Technology | 7 | 1 | 2 | 0 | 3 | 0 | 2 | 0 | 5 | 0 | 20 | 2 |
| Power Electronics and Machine Drives | 8 | 0 | 2 | 0 | 3 | 0 | 2 | 0 | 4 | 1 | 20 | 2 |
| Power Systems | 7 | 1 | 2 | 0 | 3 | 0 | 1 | 0 | 6 | 0 | 20 | 2 |
| Instrumentation and Control | 6 | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 4 | 0 | 15 | 1 |
| Microelectronics and VLSI | 12 | 0 | 2 | 1 | 4 | 1 | 2 | 0 | 8 | 0 | 30 | 3 |
| Next Generation Communication and Networks | 8 | 0 | 2 | 0 | 3 | 0 | 1 | 0 | 5 | 1 | 20 | 2 |
| Operations Research | 7 | 1 | 2 | 0 | 2 | 1 | 2 | 0 | 5 | 0 | 20 | 2 |
| Fluid Mechanics and Heat Transfer | 7 | 1 | 1 | 0 | 2 | 0 | 2 | 0 | 5 | 0 | 18 | 2 |
| Machine Design | 8 | 0 | 2 | 0 | 3 | 0 | 2 | 0 | 5 | 0 | 20 | 2 |
| Thermal Engineering | 8 | 0 | 2 | 0 | 3 | 0 | 1 | 0 | 5 | 1 | 20 | 2 |
| Metallurgy and Materials Technology | 7 | 0 | 1 | 0 | 2 | 1 | 1 | 0 | 4 | 0 | 16 | 1 |
| Advanced Material Science and Technology | 5 | 0 | 2 | 0 | 3 | 0 | 1 | 0 | 4 | 0 | 15 | 1 |
| **Sub-total** | 145 | 8 | 37 | 1 | 54 | 3 | 28 | 1 | 99 | 4 | | **38** |
| Category-wise Total | **191** | | | | **57** | | **29** | | **103** | | **380** | |

**Dean (Academic Courses)** **Director**

# National Institute of Technology Durgapur

## MSC Programmes (CCMN 2023)

| Specialization / Program Name | OC | OC-PWD | EWS | EWS-PWD | OBN | OBN-PWD | SC | SC-PWD | ST | ST-PWD | CCMN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CHEMISTRY | 10 | 0 | 3 | 0 | 6 | 0 | 3 | 1 | 2 | 0 | **25** |
| MATHEMATICS | 9 | 1 | 2 | 0 | 7 | 1 | 4 | 0 | 1 | 0 | **25** |
| PHYSICS | 10 | 0 | 2 | 1 | 6 | 0 | 4 | 0 | 2 | 0 | **25** |
| LIFE SCIENCE | 6 | 1 | 2 | 0 | 5 | 0 | 3 | 0 | 1 | 0 | **18** |
| APPLIED GEOLOGY AND GEOINFORMATICS | 9 | 1 | 2 | 0 | 5 | 1 | 3 | 0 | 2 | 0 | **23** |
| **Total** | **44** | **3** | **11** | **1** | **29** | **2** | **17** | **1** | **8** | **0** | **116** |

## MBA 2023

| Program Name | OPEN | OP-PwD | EWS | EWS-PWD | SC | SC-PwD | ST | ST-PwD | OBC | OBC-PwD | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MBA | 17 | 1 | 4 | 0 | 6 | 1 | 3 | 0 | 11 | 1 | 44 |

## MSW 2023

| Program Name | OPEN | OP-PwD | EWS | EWS-PWD | SC | SC-PwD | ST | ST-PwD | OBC | OBC-PwD | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MSW | 6 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 4 | 0 | **15** |

**Dean (Academic Courses)** **Director**

# National Institute of Technology Durgapur

## Seat Matrix under Foreign Quota (MSC, MBA and MSW Programmes)

| Sl. No. | | Indian Students | ICCR | SII | DASA | DASA (CIWG) | MEA | Seats under FN | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| 1 | MSC IN APPLIED GEOLOGY AND GEOINFORMATICS | 23 | NIL | NIL | NIL | NIL | NIL | NIL | 23 |
| 2 | MSC IN LIFE SCIENCE | 18 | 1 | 1 | NIL | NIL | NIL | 2 | 20 |
| 3 | MSC IN CHEMISTRY | 25 | 1 | 1 | 1 | NIL | 1 | 4 | 29 |
| 4 | MSC IN MATHEMATICS | 25 | 1 | 1 | NIL | 1 | 1 | 4 | 29 |
| 5 | MSC IN PHYSICS | 25 | 1 | 1 | 1 | NIL | 1 | 4 | 29 |
| 6 | **MBA** | 40 | 2 | 1 | 2 | 1 | 1 | 7 | 47 |
| 7 | **MSW** | 15 | 1 | 1 | NIL | NIL | NIL | 2 | 17 |

**Eligibility criteria:**

a) SII-EdCIL – As mentioned in the SII website.
b) ICCR – Institute norms for MBA and MSW (Similar as advertised).
c) DASA and MEA – As decided by GOI, MEA

**Dean (Academic Courses)** **Director**

# National Institute of Technology Durgapur

## Seat Matrix under Foreign Quota (MTECH Programmes)

| SPECIALIZATION (M. TECH. in) | CCMT 2023 | SEATS FOR FOREIGN QUOTA | ICCR | DASA (CIWG) | DASA | GOI-MEA | SII/EdCIL | ICCR & GOI-MEA |
|---|---|---|---|---|---|---|---|---|
| Biotechnology | 18 | 3 | 1 | 0 | 1 | 0 | 1 | |
| Chemical Engg. | 15 | 3 | 1 | 0 | 0 | 1 | 1 | |
| Energy Resources and Sustainable Environmental Engineering | 15 | 3 | 1 | 1 | 0 | 0 | 1 | |
| Structural Engg. | 28 | 4 | 1 | 0 | 1 | 0 | 2 | |
| Geotechnical Engg. | 20 | 3 | 1 | 0 | 0 | 1 | 1 | |
| Computer Science & Engg. | 50 | 7 | 2 | 1 | 1 | 1 | 2 | |
| Power Systems | 20 | 3 | 1 | 0 | 1 | 0 | 1 | |
| Power Electronics and Machine Drives | 20 | 3 | 1 | 0 | 0 | 1 | 1 | 26 (maximum limit 3 per specialization) |
| Instrumentation and Control | 15 | 3 | 1 | 1 | 0 | 0 | 1 | |
| Next Generation Comm Network | 20 | 3 | 1 | 0 | 1 | 0 | 1 | |
| Microelectronics & VLSI | 30 | 4 | 2 | 0 | 0 | 1 | 1 | |
| Environmental Science & Technology | 20 | 3 | 1 | 1 | 0 | 0 | 1 | |
| Operations Research | 20 | 3 | 1 | 0 | 1 | 0 | 1 | |
| Machine Design | 20 | 3 | 1 | 0 | 0 | 1 | 1 | |
| Fluid Mechanics and Heat Transfer | 18 | 3 | 1 | 1 | 0 | 0 | 1 | |
| Thermal Engg. | 20 | 3 | 1 | 0 | 1 | 0 | 1 | |
| Metallurgy and Materials Technology | 16 | 3 | 1 | 0 | 1 | 0 | 1 | |
| Advanced Materials Science & Technology | 15 | 3 | 1 | 1 | 0 | 0 | 1 | |
| Total | **380** | **60** | **20** | **6** | **8** | **6** | **20** | |

**Eligibility criteria:**

d) SII-EdCIL – As mentioned in the SII website.
e) ICCR – Similar to CCMT 2023 / CCMN 2023 and obtained 60 percent / 6.5 CGPA in a 10 point scale in aggregate, individual departments may set additional criteria.
f) DASA and MEA – As decided by GOI, MEA

**Dean (Academic Courses)** **Director**

# Annexure - III

**To consider registration of 47 candidates for Ph.D. Programme**
**RAC Meetings held on 23.11.2022, 16.12.2022, and 18.01.2023**

| Sl. No. | Roll No. | Name of the Scholar | Dept. | Course Work (Total Credit) | | | Name of the Supervisor(s) | Date of Registration |
|---|---|---|---|---|---|---|---|---|
| | | | | Asgn. by DSC | As per regulation | Completed | | |
| **Item # 2 RAC meeting held on 23.11.2022** | | | | | | | | |
| 1 | 20BT1104 | Plaban Kumar Saha | BT | 12 | 12 | 12 | Dr. K. S. Khannam | 09.09.2022 |
| 2 | 20MS1501 | Krishna Roy | MS | 16 | 16 | 27 | Dr. U. K. Paul | 13.09.2022 |
| 3 | 19MM1104 | Pritam Sadhukhan | MM | 8 | 8 | 12 | Dr. B. Maji, Dr. M. M. Ghosh | 13.09.2022 |
| 4 | 20PH1503 | Biswajit Saha | PH | 24 | 16 | 24 | Dr. S. Das, Dr. A. Mondal | 14.09.2022 |
| 5 | 20PH1102 | Pijushkanti Jana | PH | 24 | 16 | 24 | Dr. S. Das | 14.09.2022 |
| 6 | 20ME1501 | Ranjan Kumar | ME | 12 | 8 | 12 | Dr. R. K. Mitra | 21.09.2022 |
| 7 | 21HS1103 | Shibu Gorai | HS | 20 | 20 | 20 | Dr. S. K. Rai | 22.09.2022 |
| 8 | 21HS1102 | Sumanta Pramanik | HS | 20 | 20 | 20 | Dr. S. K. Rai | 22.09.2022 |
| 9 | 21HS1101 | Anindita Ghosal | HS | 20 | 20 | 20 | Dr. A. Modak | 23.09.2022 |
| 10 | 20EC1107 | Priyanka Ghosh | EC | 16 | 8 | 20 | Dr. S. Kundu | 26.09.2022 |
| 11 | 20EC1105 | Deepak Kumar Nayak | EC | 20 | 12 | 20 | Dr. S. Dhar Roy | 26.09.2022 |
| 12 | 20CY1102 | Shibaditya Kumar | CY | 20 | 20 | 20 | Dr. M. Maji, Dr. A. K. Patra | 26.09.2022 |
| 13 | 20CY1101 | Aniruddha Das | CY | 20 | 20 | 20 | Dr. A. K. Patra | 26.09.2022 |
| 14 | 20EC1101 | Prabin Kumar Bera | EC | 20 | 20 | 20 | Dr. R. Kar | 27.09.2022 |
| 15 | 20ME1502 | Soumya Ghosh | ME | 12 | 12 | 12 | Dr. B. Halder | 27.09.2022 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 16 | 20CS1104 | Naren Debnath | CS | 20 | 20 | 20 | Dr. S. Mukhopadhyay | 27.09.2022 |
| 17 | 20BT1105 | Bivash Sinha | BT | 20 | 20 | 20 | Dr. O. Mukherjee | 27.09.2022 |
| 18 | 19EE1503 | Sunil Kumar Choudhary | EE | 20 | 20 | 24 | Dr. T. K. Bera | 27.09.2022 |
| 19 | 20CE1101 | Taniya Saha | CE | 20 | 20 | 20 | Dr. S. Karmakar | 28.09.2022 |
| 20 | 20CE1104 | Bittu Ghosh | CE | 12 | 12 | 12 | Dr. S. Karmakar | 28.09.2022 |
| 21 | 21CEQ1106 | Kapildeo Prasad Yadav | CE | 22 | 16 | 22 | Dr. A. K. Samanta | 28.09.2022 |
| 22 | 20CH1104 | Bulti Kandar | CH | 16 | 16 | 16 | Dr. K. C. Ghanta Dr. S. Dutta | 28.09.2022 |
| 23 | 21HS1501 | Shibaji Bose | HS | 20 | 20 | 20 | Dr. P. P. Sengupta , Dr. A. Modak | 12.10.2022 |
| 24 | 20CS1108 | Kazi Amrin Kabir | CS | 15 | 13 | 15 | Dr. P. K. Guha Thakurta | 03.11.2022 |
| 25 | 20CS1103 | Tuhin Kumar Biswas | CS | 12 | 8 | 16 | Dr. A. Dutta | 09.11.2022 |
| 26 | 18CH1501 | Rashid Imran Ahmad Khan | CH | 12 | 12 | 12 | Dr. G. Halder | 09.11.2022 |
| 27 | 20ES1101 | Sneha Das | ES | 12 | 12 | 16 | Dr. S. Mondal | 10.11.2022 |
| **Item # 3 RAC meeting held on 16.12.2022** | | | | | | | | |
| 28 | 18EC1505 | Anu Samanta | EC | 16 | 16 | 18 | Dr. A. K. Mal, Dr. I. Hatai, SRM Univ. A.P. | 15.11.2022 |
| 29 | 20CH1504 | Narottam Behera | CH | 16 | 16 | 16 | Dr. S.K. Lahiri, Dr. B. Das | 29.11.2022 |
| 30 | 20EE1101 | Rupali Brahmachary | EE | 12 | 12 | 12 | Dr. A. Bhattacharya | 02.12.2022 |
| 31 | 20EE1102 | Manoj Saha | EE | 12 | 12 | 12 | Dr. S. S. Thakur | 02.12.2022 |
| 32 | 20BT1113 | Nandita Ghosh | BT | 20 | 20 | 20 | Dr. S. Mondal | 02.12.2022 |
| 33 | 19EE1501 | Anuj Kumar Pandey | EE | 12 | 12 | 12 | Dr. I. Ahmed | 14.12.2022 |

| **Item # 2 RAC meeting held on 18.01.2023** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 34 | 20ME1104 | Samrat Mandal | ME | 12 | 12 | 12 | Dr. C. Mishra, Dr. N. B. Hui | 05.12.2022 |
| 35 | 20EE1103 | Abhishek Kumar | EE | 12 | 12 | 12 | Dr .N. K. Roy | 13.12.2022 |
| 36 | 20CE1103 | Tathagata Banerjee | CE | 12 | 8 | 16 | Dr. D. Das | 15.12.2022 |
| 37 | 20ME1103 | Jay Shankar Prasad | ME | 8 | 8 | 12 | Dr. S. Mondal | 15.12.2022 |
| 38 | 20CE1102 | Arindam Karmakar | CE | 15 | 12 | 15 | Dr. K. Bhattacharya, Dr. S. Pal | 19.12.2022 |
| 39 | 18MS1505 | Santanu Dutta | MS | 12 | 12 | 12 | Dr. K. Mandal | 19.12.2022 |
| 40 | 20CS1503 | Sandip Chakrabarty | CS | 22 | 20 | 23 | Dr. B. Sen | 20.12.2022 |
| 41 | 19EE1502 | Niti Rani | EE | 12 | 12 | 12 | Dr. A. K. Bohre, Dr. A. Bhattacharya | 20.12.2022 |
| 42 | 20EE1501 | Pranab Hazra | EE | 20 | 16 | 20 | Dr. T. K. Bera, Dr. A. Dhara | 20.12.2022 |
| 43 | 21MM1104 | S Arulmozhiselvar | MM | 16 | 13 | 16 | Dr. S. Bera, Dr. D. Mandal | 21.12.2022 |
| 44 | 19CH1501 | Sumana Roy | CH | 16 | 16 | 20 | Dr. S. K. Lahiri | 21.12.2022 |
| 45 | 19CH1502 | Somashish Saha | CH | 20 | 20 | 24 | Dr. S. K. Lahiri, Dr. A. Hens | 21.12.2022 |
| 46 | 20CH1502 | Chhanda Mondal Roy | CH | 16 | 16 | 20 | Dr. J. Sikder | 21.12.2022 |
| 47 | 19CS1106 | Tamoghna Mandal | CS | 8 | 8 | 12 | Dr. J. Howlader | 02.01.2023* *(Pre-Reg. Sem. Extn. given upto Dec., 2022- recommended in RAC dt. 16.12.2022) |
| The registration to the PhD programme of the above mentioned scholars are approved by 69 th SENATE dt. 23.01.2023 on the dates as mentioned against the respective scholars. | | | | | | | | |

# Annexure - IV

**List of PhD students to be awarded with Ph.D. Degree –**completed all requirements for the award of Ph.D. Degree- Reported to the Senate by RAC dated 23.11.2022, 16.12.2022, and 18.01.2023 and Recommended by 69 th SENATE dated 23.01.2023 for approval of the BOG.

| Sl. No. | Registration No. | Dept. | Name of the Scholar | Title of the Thesis | Name of the Supervisor(s) | Date of Defense/ Award |
|---|---|---|---|---|---|---|
| **Item#3 of RAC meeting held on 23.11.2022** | | | | | | |
| 1 | NITD/PhD/MA/2018/01051 | MA | Sourav Mondal | Study of Some Graph Invariants and Their Applications | Dr. A. Pal, Dr. N. De, Tehatta Sadananda Mahavidyalaya | 02.11.2022 |
| 2 | NITD/PhD/ME/2017/00968 | ME | Praveen Sharma | Experimental and Numerical Study of Vibration and Stability Analysis of Rotating Shaft using Bearings and Lubricants | Dr. R. N. Barman, Dr. S. C. Rana | 14.11.2022 |
| 3 | NITD/PhD/CY/2018/01000 | CY | Sanjoy Satpati | Anti-corrosive activity of Schiff bases involving biomolecules towards mild steel in hydrochloric acid medium | Dr. D. Sukul, Dr. P. Banerjee (CSIR-CMERI Durgapur) | 17.11.2022 |
| **Item#4 of RAC meeting held on 16.12.2022** | | | | | | |
| 4 | NITD/PhD/EC/2017/00894 | EC | Anirban Chattopadhyay | Statistical signal processing based reconnaissance to explore the kinematics of Coronal Mass Ejection &its impact on Earth | Dr. A. K. Bhattacharjee, Dr. A. Chandra, Dr. M. H. Khondekar, BCREC, Durgapur | 14.11.2022 |
| **Item#3 of RAC meeting held on 18.01.2023** | | | | | | |
| 5 | NITD/PhD/BT/2018/01042 | BT | Indrani Paul | Studies on bacterial delignification and biosurfactant production | Dr. D. Dasgupta Mandal | 12.12.2022 |
| 6 | 19RPH001 | PH | Swagata Biswas | Possible Signatures of New Physics in Rare Decays of b Hadrons in the Framework of Non-Universal Z' Model | Dr. S .Sahoo | 04.01.2023 |

**List of PhD students to be awarded with Ph.D. Degree –**completed all requirements for the award of Ph.D. Degree- Reported to the Senate by **RAC dated 23.11.2022, 16.12.2022, and 18.01.2023 and Recommended by 69 th SENATE dated 23.01.2023 for approval of the BOG.**

# MEMORANDUM OF UNDERSTANDING

**This Memorandum of Understanding (MoU) is made between**

**(A) National Institute of Technology Durgapur, West Bengal, INDIA**

**(B) Indian Statistical Institute Kolkata**

National Institute of Technology Durgapur and Indian Statistical Institute are two leading institutions of higher and technical education and research in the country. To promote academic and research cooperation and the development of these two institutions as Centres of excellence of higher and technical education and scientific research, the two institutions agree to the following broad terms of cooperation.

1. Both the institutions will support each other's endeavours in delivery of academic programmes and research activities through the following though not limited to:

   (i) Joint supervision of Ph.D. research
   (ii) Joint supervision of projects of postgraduate students
   (iii) Formation of joint research groups
   (iv) Exchange of faculty in areas of mutual interest
   (v) Exchange of scientific and technical information
   (vi) Undertaking collaborative research activities through participation in nationally and internationally funded projects
   (vii) Jointly organize events such as seminars, workshops,conferences and training programmes
   (viii) Training of students of both institutions as per facilities and resources available
   (ix) Sharing of Library facility
   (x) Offer discounted rates to the other institute for testing and analysis
   (xi) Any other matter/s as agreed which are not covered above

2. Both parties acknowledge and understand that all financial arrangements, if any, will be subjected to prior written agreement and availability of funds for each activity/project undertaken.
3. The MoU remains in place for a period of ___ years from the date of signing of the agreement and may be renewed for a further period of ___ years or such time period as agreed by both the parties in writing.
4. No party shall have the right to use the name or logo of the other partywithout the prior approval of that party in writing.
5. The terms of this MoU may be modified/amended at any time subject to mutual written agreement. Such modifications/changes shall be effective from the date on which both the parties execute them in writing.
6. The MoU may be terminated by either party by giving 3 months written notice. In the event of termination, both parties shall ensure that the interest of students working/projects under this MoU is safe-guarded to the extent possible.IN CASE OF SUCH TERMINATION, ALL CONTRACTS SIGNED UNDER THIS MOU WILL BE TERMINATED AUTOMATICALLY.

## ~~INSERT NUMBER(C)~~Responsibilities of the Parties

~~a.~~Both parties mutually agree to identify various areas of interest, and depute faculty/officials as per the requirements with mutual consent. The inviting institution shall extend local hospitality to the deputed person.

~~b.~~Both the institutions shall identify faculty for accomplishing the above laid down objectives. Each party shall attempt to make such faculty available as and when required. Such identified faculty may be given Visiting or Adjunct Faculty appointments in accordance with the norms and procedures of the host institution.

Both the institutions shall organize regular faculty interactions/meets to promote research interaction and collaboration among their faculty members. These meets may be organized for entire institute or specific to any department or school as per mutual convenience.

Each individual research collaboration shall have separate agreement/terms of contract that addresses issues such as Intellectual Property Right (IPR), funding pattern, disclosure of confidential information etc.

In the event of any dispute or difference arising in the implementation of the MoU, such disputes shall be resolved amicably by mutual discussions by the Directors of both the institutions. All such decisions shall take into account the status of students working/projects under this arrangement and the interest of such students/ projects shall be guarded as much as possible.

Now, based on the aforementioned promise(s), the parties put their signatures on this MoU on - - - - - - - - - - - - - - - - - - - - - - - - -.

| | |
|---|---|
| **……** | **_____** |
| **Director** | **Director** |
| **National Institute of Technology Durgapur** | **_____** |
| **Mahatma Gandhi Avenue, Durgapur** | **_____** |
| **PIN-713209, West Bengal** | **_____** |

**WITNESSES**

| | |
|---|---|
| **1._____** | **1._____** |
| **2._____** | **2._____** |

**Date:**

**Place:**

Annexure 70.3.1

# Resolutions of the UGAC & PGAC meeting held on 31.01.2023

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# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

## Academic Section

Date: 31.01.2023

**Minutes of the meeting of UGAC and PGAC held jointly on 31.01.2023 (Tuesday) at 03.00 pm at the meeting room of the Academic Section.**

The Chairman welcomed the members to the meeting.
The agenda items were placed for discussion.

**Item # 1** **To confirm the minutes of online meeting of the UGAC and PGAC held on 19.01.2023.**

The minutes of the meeting of the UGAC and PGAC held on 19.01.2023 are confirmed with rectifications of typographical errors.

**Item # 2** **To consider the publication of results of Odd semester supplementary, backlog examinations 2022 – 2023 (for other than first year Undergraduate programme ).**

The supplementary and backlog results are recommended for publication.

**Item # 3** **To consider the appeal on cancellation of admission –**

| Sl No. | Reg. No. | Roll No. | Name | Programme |
|---|---|---|---|---|
| 1 | 22P20287 | 22BT4511 | Suraj Gaikwad | M.Sc |

The matter of withdrawal by the student is accepted. The Institute fee and Hostel fee paid by the candidate /student will not be refunded.

However, no refund will be admissible to the candidates, who do not take admission to the Institute after final allotment of seats through centralized counselling such as CCMT, CCMN, CSAB, JoSAA, etc. Entire amount paid by such candidates during the counselling process and admission process will not be refunded.

**Item # 4** **To consider the matter of modification of marks in ME3071 (Dissertation – 1, 3rd semester 2022 – 2023) of Prakhar Rai (Roll no. 21ME4203).**

The matter is recommended for approval as a special case.

However, all departments are requested to follow the provisions of regulations for PG programme related to evaluation of PG project work.
*"11.3 Project Work:*
*vi) The weightage for evaluation will be as under:*
*Final semester: Supervisor– 50%; External examiner– 30%; rest of the board of examiners – 20%*
*Other semesters: Supervisor–60%; Rest of the board of examiners– 40%*
*For seminar and viva voce, evaluation shall be made uniformly by all members of the board."*

**Item # 5** **To consider the matter related to Dande Harshini (Roll No. 20F80016, Reg. No. 20U10176 ) regarding CSS51 (1st Semester sessional subject).**

The provisions of regulations for UG program are to be followed in this regard. The candidate needs to complete the semester registration and readmission process as quickly as possible to take any decision on the academic matter.

Dean (Academic Courses)
National Institute of Technology
Durgapur-713209 India

**Item # 6** **To consider the matter related to mid semester examinations of 4th / 6th / 8th Semester 2022-2023 and end term examinations of 1st semester 2022-2023.**

- 8th semester – to be conducted online.
  - Examination schedule to be prepared centrally.
  - Duration will be of 90 minutes (Subject teacher shall consider any 90 minutes between 09.00 am to 12.00 noon) – with 10 to15 minutes additional allocations of time to upload answer scripts.
  - T**he question paper** will either be mailed to the student's institute email ID from the examiner's email or Uploaded in MS-Teams or Moodles on the scheduled date / time of examination. Students shall submit hand-written answer copy, **nicely scanned in pdf format only** (all the pages must be scanned in a sequential manner) as instructed by the subject teacher.

- 6th semester – from 01.00 pm to 02.30 pm (Monday to Saturday)
- 4th semester – from 03.30 pm to 05.00 pm (Monday to Sunday), in order to accommodate overlapped subjects, examination shall also be conducted on Sunday.
- 1st semester end term examinations – from 09.00 am to 12.00 noon (Monday to Saturday)

The meeting ended with vote of thanks to the Chairman.

Dean (Academic Courses)
National Institute of Technology
Durgapur-713209 India

**Dean (Academic Courses)**
**Date: 31.01.2023**

Annexure 70.3.2

# Resolutions of the UGAC & PGAC meeting held on 28.03.2023

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# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

**Academic Section**

Annexure 70.3.2

Date: 28.03.2023

**Minutes of the meeting of UGAC and PGAC held jointly on 28.03.2023 (Tuesday) at 03.00 pm at the meeting room of the academic section.**

The Chairman welcomed the members to the meeting.
The agenda items were placed for discussion.

**Item # 1** **To confirm the minutes of the meeting of the UGAC and PGAC held on 31.01.2023.**

The minutes of the meeting of the UGAC and PGAC held on 31.01.2023 are confirmed.

**Item # 2** **To consider the matter regarding publication of results of first semester B.Tech / Dual Degree / Integrated M.Sc program 2022 - 2023.**

The result will be kept withheld for all the students as the marks of XEC01 for the students of section C was not received from the concerned examiner. Intervention of the Chairman Senate may be sought in this regard.

There are some students who was declared failed in sessional / laboratory subjects (not more than one subject). Relevant courses may be reassessed by undertaking extra / remedial classes in the ongoing semester.

**Item # 3** **To consider the minutes of the meeting of examination disciplinary committee held on 01.03.2023.**

The matter is recommended for approval (Annexure I).

**Item # 4** **To consider the appeal for withdrawal of admission –**

| Sl No. | Reg. No. | Roll No. | Name | Programme |
|---|---|---|---|---|
| 1. | 22U10709 | 22D80177 | PRITHVIJIT RAY | B.TECH |
| 2. | 22U10118 | 22B80030 | SOUMYADIP SHYAM | B.TECH |
| 3. | 22P20023 | 22HS4006 | MAINAK DAS | MSW |
| 4. | 22U10510 | 22A80128 | ABHIBRATA PAUL | B.TECH |

The matter of withdrawal by the students are accepted. The Institute fee and Hostel fee paid by the candidate /student will not be refunded.

However, no refund will be admissible to the candidates, who do not take admission to the Institute after final allotment of seats through centralized counselling such as CCMT, CCMN, CSAB, JoSAA, etc. Entire amount paid by such candidates during the counselling process and admission process will not be refunded.

**Item # 5** **To consider the appeal of 08 students to appear in 1st semester supplementary examination under medical condition / compelling reason like Inter NIT tournament.**

The matter is approved as per the clauses of UG regulations.

**Item # 6** **To consider the matter of recommendation for the Chairman, DAC of SAC.**

Dean (Academic Courses)
National Institute of Technology
Durgapur-713209 India

Resolved that the Dean (Student Welfare) will be the ex-officio Chairman of all the committees of SAC and One committee may be constituted by merger of all committees functional in SAC like DAC, Athletic Committee etc.

**Item # 7** **To consider the matter of defaulter students related to Mess fee and Hostel Caution Money.**

Dean (Student Welfare) and Chief Warden will communicate with the parents of K. Nirupam Kumar (Roll No.: 18CS8038) regarding outstanding mess fee and mess caution deposit.

**Item # 8** **To consider the matter of Sukanya Biswas (M. Tech - Roll No. 22CS4134) regarding correction of semester marks.**

The matter is recommended for approval.

**Item # 9** **To consider the matter of Swastika Ghosh (Roll No. 22D80153) regarding her prayer to take re-admission in 2023-2024 due to her serious medical condition.**

The matter is recommended for approval.

**Item # 10** **To consider the matter regarding minimization of overlapping in subjects like Discrete Mathematics (CSC 301) and Discrete Mathematical Structures (MAO 441).**

The students of Computer Science and Engineering department shall be restricted to undertake both the subjects, they may study only one.

The meeting ended with vote of thanks to the Chairman.

Dean (Academic Courses)
National Institute of Technology
Durgapur-713209 India

**Dean (Academic Courses)**
**Date: 28.03.2023**

Annexure 70.3.3

# Resolutions of the UGAC & PGAC meeting held on 17.05.2023

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# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

## Academic Section

Date: 17.05.2023

**Minutes of the meeting of UGAC and PGAC held jointly on 17.05.2023 (Wednesday) at 03.00 pm at the meeting room of the academic section.**

The Chairman welcomed the members to the meeting.

The agenda items were placed for discussion.

**Item # 1** **To confirm the minutes of the meeting of the UGAC and PGAC held on 28.03.2023.**

The minutes of the meeting of the UGAC and PGAC held on 28.03.2023 are confirmed.

**Item # 2** **To consider the matter regarding correction of answer scripts of first semester supplementary examinations 2022-2023**

**(a) five students, who were reported against in the first semester regular examinations and were not supposed not to appear in supplementary examinations as per the minutes of the meeting of the examination disciplinary committee dated 11.5.2023**

**(b) five students who were declared as failed in the first semester regular examinations.**

Resolved that -

(a) The examination papers are treated as cancelled.

(b) Shall be discussed again in the next UGAC and PGAC meeting.

**Item # 3** **To consider the request of change / correction of grades in few subjects in odd semester regular examinations 2022 – 2023 (UG First Year).**

The matter is recommended for approval (Annexure I).

**Item # 4** **To consider the matter of students who could not appear in the odd semester regular examinations 2022 - 2023 due to medical reasons –**

| Sl. No. | Name | Roll No. | Subject Codes |
|---|---|---|---|
| 1 | Anish Dutta | 21BT8016 | CSO443 |
| 2 | Purushottam Kumar Singh | 21CS8024 | CSC401, CSC402, CSC403, CSC404, CSC405, PHO441 |
| 3 | Tirtharaj Misra | 21CS8082 | CSC401 |
| 4 | Aiman Aisha | 21CS8144 | CSC401 |
| 5 | Pankhuri Kumari | 21CS8138 | CSC403 |
| 6 | Sayan Hazra | 21CS8160 | EEO443 |
| 7 | Sagar Das | 21EE8009 | EEC402 |
| 8 | Harshit Loyalka | 21EC8075 | CHO441 |
| 9 | Ayush Bhartia | 21EC8019 | EEC402 |
| 10 | Roshni Gorai | 21ME8004 | MEC401, MEC402, MEC403, EEC432, EEO443 |
| 11 | Sourasish Paul | 21ME8103 | EEC432 |
| 12 | R Kritikaa | 21MM8028 | MMC401 |

The matter will be treated as per the provisions of the regulations for UG programme.

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**Item # 5** **To consider the academic calendar of 2023 – 2024 for UG programme and PG programme.**

The matter is recommended for approval – Annexure II.

**Item # 6** **To consider the appeal on cancellation of admission –.**

| Sl No. | Reg. No. | Roll No. | Name | Programme |
|---|---|---|---|---|
| 1 | 22U10213 | 22A80054 | ARPAN CHANDRA | B. TECH |

The matter of withdrawal by the student is accepted. The Institute fee and Hostel fee paid by the candidate /student will not be refunded.

No refund will be admissible to the candidate, who does not take admission to the Institute after final allotment of seats through centralized counselling such as CCMT, CCMN, CSAB, JoSAA, etc. Entire amount paid by such candidate during the counselling process and admission process will be forfeited.

**Item # 7** **To consider the matter of DBT sponsorship of MSc in Life Science Program.**

Recommended that the present MSc programme in Life Sciences will be discontinued from the AY2024-25 and a new programme namely MSc programme in Life Sciences with ( Specialization in Microbial Biotechnology / Plant & Animal Biotechnology) will be started from AY2024-25.
It is to also noted that the proposed programme is fully funded by DBT, Govt. of India and agreement paper as per the prescribed format of DBT is attached (Annexure III).
Following points are also recommended regarding the proposed DBT sponsored MSC Programmed for approval.
(a) Selection and Admission of students: As per Clause No. 2 of agreement paper (Annexure –III)
(b) Starting Academic Year: 2024-25
(c) Total No. of Seats: 10
(d) Fee Structure & Fee Waiver: As per the existing norms of NIT Durgapur
(e) Processing of Scholarships: Similar to existing GATE qualified MTECH students
(f) Leave rules for the students: Similar to the existing GATE qualified MTECH student
(g) Curriculum and Syllabus – Annexure IV

**Item # 8** **To consider the matter of Department of Chemical Engineering regarding interchange of laboratory subjects in semesters – for CHS 351 and CHS 451.**

The matter is kept in abeyance for one academic year.

**Item # 9** **To consider the matter of the Department of Chemical Engineering regarding academic audit and curricula revision.**

The matter is kept in abeyance till the next meeting of the Senate.

**Item # 10** **To consider the matter of inclusion of new disciplines in XXS51 and XXS52.**

The matter is kept in abeyance till the next meeting of the Senate.

**Item # 11** **To consider the matter of change of names / surname of the students from Telengana –**

- **Roll No.: 21CE4108 – Damarla Rithwez in place of Rithwez Damarla.**
- **Roll No.: 21CE4113 – G Rahul Raj in place of Rahul Ganga.**
- **Roll No.: 21CE4212 – Balsukuri Mahesh in place of Mahesh Balsukuri.**

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- **Roll No.: 21CE4107 – Konam Venkat Raj in place of Venkat Raj Konam.**
- **Roll No.: 21CE4118 – Gudipati Bhanu Kiran in place of Bhanu Kiran Gudipati.**

**Item # 11** **To consider the matter of advance advertisement in Self-sponsored MTECH programs –**

The advance advertisement copy (vide Annexure V) is recommended for publication and circulation in the website after taking approval from the Chairman, Senate.

The meeting ended with vote of thanks to the Chairman.

Dean (Academic Courses)
National Institute of Technology
Durgapur-713209 India

**Dean (Academic Courses)**
**Date: 17.05.2023**

# राष्ट्रीय प्रौद्योगिकी संस्थान दुर्गापुर

# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR 

Annexure - I

CORREGENDUM RESULT OF B. TECH., B. TECH. & M. TECH. DUAL DEGREE, INT-CY. **FIRST** SEMESTER REGULAR EXAMINATION, **2022 - 2023**

| Sl. No. | Program | Reg. No | Roll. No | NAME | Gender | SGPA | CGPA | Remarks | Supple in |
|---|---|---|---|---|---|---|---|---|---|
| 1 | B.Tech-CH | 20U10001 | 20CH8001 | DINCHEN TAMANG | M | 6.05 | 6.05 | SUPP | XEC01 |
| 2 | B.Tech-CS | 21U10824 | 21CS8183 | SOBHAG BAIRWA | M | 6.65 | 6.65 | SUPP | XES51 |
| 3 | B.Tech-EE | 22U10501 | 22D80125 | SRIJAN BISWAS | M | 6.27 | 6.27 | Passed | |
| 4 | B.Tech-CS | 22U10581 | 22D80145 | DEVAKIVADA ARAVIND | M | 6.02 | 6.02 | SUPP | EEC01 |
| 5 | B.Tech-MM | 22U10693 | 22D80173 | ANSHIKA GOSWAMI | F | 6.96 | 6.96 | Passed | |
| 6 | B.Tech-BT | 22U10414 | 22B80104 | ANKIT NANGLIYA | M | 6.10 | 6.10 | SUPP | PHC01, ESC01, XES51, XXS51 |
| 7 | B.Tech-CE | 22U10422 | 22B80106 | SIVALA RISHITA | F | 7.10 | 7.10 | Passed | |
| 8 | B.Tech-ME | 22U10459 | 22B80116 | ARNAB  PRADHAN | M | 6.23 | 6.23 | SUPP | PHC01, ESC01, MAC01 |

# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

**ACADEMIC CALENDAR** - 2023-2024

## Annexure - II

| DAYS | JULY' 23 | | AUG' 23 | | SEPT' 23 | | OCT' 23 | | NOV' 23 | | DEC' 23 | | JAN' 24 | | FEB' 24 | | MARCH' 24 | | APRIL' 24 | | MAY' 24 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ODD SEMESTER | | | | | | | | | | | | EVEN SEMESTER | | | | | | | | | |
| SUN | | | | | | | 1 | Gandhi's Birthday | | | | | | | | | | | | | | |
| MON | | | | | | | 2 | | | | | | 1 | Even Semester Begins | | | | | 1 | | | |
| TUE | | | 1 | Supp. Exam, Even Sem. 2022-23 | | | 3 | | | | | | 2 | | | | | | 2 | | | |
| WED | | | 2 | | | | 4 | | 1 | | | | 3 | | | | | | 3 | | 1 | |
| THU | | | 3 | | | | 5 | | 2 | | | | 4 | | 1 | | | | 4 | | 2 | |
| FRI | | | 4 | | 1 | | 6 | | 3 | | 1 | | 5 | | 2 | | 1 | | 5 | | 3 | |
| SAT | 1 | | 5 | | 2 | | 7 | | 4 | | 2 | | 6 | | 3 | | 2 | | 6 | | 4 | |
| SUN | 2 | | 6 | | 3 | | 8 | | 5 | | 3 | | 7 | | 4 | | 3 | | 7 | | 5 | |
| MON | 3 | | 7 | | 4 | | 9 | | 6 | | 4 | | 8 | Corrigendum Results, Odd Sem. 2023-24 | 5 | # Marks Submission (Supply Exam) | 4 | | 8 | | 6 | UG Project Evaluation |
| TUE | 4 | | 8 | | 5 | | 10 | | 7 | | 5 | | 9 | | 6 | | 5 | | 9 | | 7 | |
| WED | 5 | | 9 | | 6 | | 11 | | 8 | | 6 | | 10 | | 7 | | 6 | | 10 | Idul-Fitr | 8 | |
| THU | 6 | | 10 | # Marks Submission (Supply Exam) | 7 | Janmasthami | 12 | | 9 | | 7 | | 11 | | 8 | Pub. of Supp. Result, Odd Sem, 2023-24 | 7 | | 11 | | 9 | |
| FRI | 7 | | 11 | | 8 | MID-TERM EXAM (THEORY) ODD SEMESTER 2023-24 | 13 | | 10 | | 8 | | 12 | | 9 | | 8 | | 12 | | 10 | |
| SAT | 8 | | 12 | | 9 | | 14 | | 11 | | 9 | | 13 | | 10 | | 9 | | 13 | | 11 | |
| SUN | 9 | | 13 | | 10 | | 15 | | 12 | Diwali | 10 | | 14 | | 11 | | 10 | | 14 | | 12 | |
| MON | 10 | | 14 | | 11 | | 16 | | 13 | | 11 | | 15 | Supp. Examination, Odd Sem 2023-24 | 12 | | 11 | | 15 | | 13 | PG Project Evaluation |
| TUE | 11 | | 15 | Independence Day | 12 | | 17 | | 14 | Pub. of Attendance Defaulter List | 12 | | 16 | | 13 | | 12 | | 16 | | 14 | |
| WED | 12 | | 16 | | 13 | | 18 | | 15 | | 13 | | 17 | | 14 | | 13 | | 17 | | 15 | |
| THU | 13 | | 17 | | 14 | | 19 | | 16 | | 14 | | 18 | | 15 | | 14 | | 18 | | 16 | |
| FRI | 14 | | 18 | Closing date of Odd Semester Registration | 15 | | 20 | | 17 | END-TERM EXAM (THEORY) ODD SEMESTER 2023-24 | 15 | # Marks Submission (Regular Exam) | 19 | | 16 | | 15 | | 19 | Pub. Of Attendance Defaulter List | 17 | |
| SAT | 15 | | 19 | | 16 | | 21 | | 18 | | 16 | | 20 | | 17 | | 16 | | 20 | | 18 | |
| SUN | 16 | | 20 | | 17 | | 22 | Mahaasthami | 19 | | 17 | | 21 | | 18 | | 17 | | 21 | | 19 | |
| MON | 17 | Odd Semester Begins | 21 | Pub. of Supp. Result, Even Sem, 2021-22 | 18 | | 23 | | 20 | | 18 | | 22 | | 19 | MID-TERM EXAM (THEORY) EVEN SEMESTER 2023-24 | 18 | | 22 | | 20 | # Marks Submission (Regular Exam) |
| TUE | 18 | | 22 | | 19 | | 24 | Dussehrra | 21 | | 19 | | 23 | | 20 | | 19 | | 23 | END-TERM EXAM (THEORY) EVEN SEMESTER 2023-24 | 21 | |
| WED | 19 | | 23 | | 20 | | 25 | | 22 | | 20 | | 24 | | 21 | | 20 | | 24 | | 22 | |
| THU | 20 | | 24 | | 21 | | 26 | | 23 | | 21 | Pub. of Result, Odd Sem, 2023-24 | 25 | | 22 | | 21 | | 25 | | 23 | Buddha Purnima |
| FRI | 21 | | 25 | | 22 | | 27 | | 24 | | 22 | | 26 | Republic Day | 23 | | 22 | | 26 | | 24 | |
| SAT | 22 | | 26 | | 23 | | 28 | | 25 | | 23 | | 27 | Sports Day | 24 | | 23 | | 27 | | 25 | |
| SUN | 23 | | 27 | | 24 | | 29 | | 26 | | 24 | | 28 | | 25 | | 24 | | 28 | | 26 | |
| MON | 24 | | 28 | | 25 | | 30 | | 27 | Guru Nanak's Birthday | 25 | Chirstmas Day | 29 | | 26 | | 25 | Holi / Dolyatra | 29 | | 27 | |
| TUE | 25 | Corrigendum Results, Even Sem. 2022-23 | 29 | | 26 | | 31 | | 28 | | 26 | | 30 | Closing date of Even Semester Registration | 27 | | 26 | | 30 | | 28 | Pub. of Result, Even Sem, 2023-24 |
| WED | 26 | | 30 | | 27 | | | | 29 | | 27 | | 31 | | 28 | | 27 | | | | 29 | |
| THU | 27 | | 31 | | 28 | Id-e-Milad | | | 30 | | 28 | | | | 29 | | 28 | | | | 30 | |
| FRI | 28 | | | | 29 | | | | | | 29 | | | | | | 29 | Good Friday | | | 31 | |
| SAT | 29 | Muhharram | | | 30 | | | | | | 30 | | | | | | 30 | | | | | |
| SUN | 30 | | | | | | | | | | 31 | | | | | | 31 | | | | | |
| MON | 31 | Supp. Exam, Even Sem. 2022-23 | | | | | | | | | | | | | | | | | | | | |

Festival Break (Students, Faculty): October 23 - 27, 2023

Winter Break (Students): November 27 - December 31, 2023

Winter Break (Faculty): December 18 - 29, 2023

Summer Break (Students): May 01 - July 14, 2024

Summer Break (Faculty): May 27 - July 12, 2024

# Last date of Marks submission by the teachers in Chanakya

Academic Year 2024-25 begins : July 15, 2024

**Date: 28/04/2023**

Dean (Academic Courses)

Registrar

**Mandatory Terms and Conditions as per Recommendations of DBT-HRD Task Force for Uniformity in Implementation of Postgraduate Teaching Program selected for Financial Support during 15th Finance commission (2020-21 to 2024-25)**

**(1) Core Faculty:** University/Institute should ensure the six regular faculty members as core group in the Department, along with 4-6 Associated Faculty, from collaborating Departments of the University/institute, for imparting the teaching and training under DBT support.

**(A) Details of Core Faculty:**

| S. No. | Name of Core (Regular) Faculty | Designation, Qualification and Name of Affiliated Department | Specialization and Teaching Area |
|---|---|---|---|
| 1. | Dr. Sudit S. Mukhopadhyay | Professor, Biotechnology | Cancer Biology/Animal Biotechnology |
| 2. | Dr. Kazy Sufia Khannam | Associate professor, Biotechnology | Microbiology /Microbial Biotechnology |
| 3. | Dr. Subhankar Roy Barman | Associate Professor, Biotechnology | Molecular Plant Pathogen interactions/ Plant Biotechnology |
| 4. | Dr. Ashish Bhattacharjee | Associate Professor, Biotechnology | Cell Signaling and inflammation/ Animal Biotechnology |
| 5. | Dr. Sougata Saha | Assistant Professor, Biotechnology | Cell and Molecular Biology/ Animal Biotechnology |
| 6. | Dr. Amita Barik | Assistant Professor, Biotechnology | Bioinformatics/Computational Biology |

**(All other faculty members of the Biotechnology department will be involved in teaching)**

**(B) Details of Associated Faculty:**

| S. No. | Name of Associated (Regular) Faculty | Designation, Qualification and Name of Affiliated Department | Specialization and Teaching Area* |
|---|---|---|---|
| 1. | Dr. Hemachander Subramanian | Assistant Professor, Physics | Fundamental Properties of DNA/ Structural Biology |
| 2. | Dr. Sayantari Ghosh | Assistant Professor, Physics | Approaches for modeling living systems/Systems Biology |
| 3. | Dr. Sankar Chandra Moi | Professor, Chemistry | Cancer drug development/ Organic Chemistry |
| 4. | Dr. Samarjit Kar | Professor, Mathematics | Computational Biology/ Operations research |

***Associated faculty members will be involved in teaching as and when required**

**(2) Selection and Admission of Students:** University/Institute will admit the students under DBT support through Centralized selection process i.e., National level entrance exam conducted by DBT recognized/approved agency only and no parallel system of selection and admission will be allowed to any institution under DBT support.

Sudit S. Mukhopadhyay

Dr. Sudit Sekhar Mukhopadhyay
Professor
Department of Biotechnology
National Institute of Technology Durgapur
Durgapur - 713209, West Bengal, India

**(3) Reservation Policy and Norms:** Admission of students under DBT supported PG Teaching Courses will be done by Universities/Institutes as per reservation policy and norms of Government of India only.

**(4) Uniform Fee Structure:** University/Institute should not charge the fee more than Rs. 50,000 (upper limit) for 2 years degree program. Full Relaxation/concession in Fees should be considered by Universities/Institutes for ST/SC/DA/EWS students admitted under DBT support as per prescribed guidelines of MHRD, Govt. of India.

***(For all the students fee norms of MoE, GOI will be followed)**

| S. No. | Semester | Fee Structure (Provide the breakup of Fee Heads) |
|---|---|---|
| 1. | Semester-I | Tuition fees Rs 7500, Examination fees Rs 1000 and other fees* |
| 2. | Semester-II | Tuition fees Rs 7500, Examination fees Rs 1000 and other fees* |
| 3. | Semester-III | Tuition fees Rs 7500, Examination fees Rs 1000 and other fees* |
| 4. | Semester-IV | Tuition fees Rs 7500, Examination fees Rs 1000 and other fees* |

*** Other fees include hostel charges and charges for other amenities/facilities**

**(5) Completion of Degree Program:** University/Institute should complete the course work and examination on time, within 2 Years' time period (24 Months), for DBT supported PG Teaching Program.

**(6) Approval of Statutory Agencies/Body (UGC/AICTE/PCI/MCI/Anyother Body):** University/Institute is solely responsible or liable to get the approval of Statutory Agencies/Body required for implementation of PG Teaching Program before admission of students under DBT support. DBT has no role and responsibility in such approval.

**(7) Constitution of Biosafety Committee:** University/Institute selected for support under DBT PG Teaching Program shall constitute the Institutional Biosafety Committee as per norms of Department of Biotechnology within three-month period after sanction of the project and inform to DBT, HRD Division.

**(8) In-house Dissertation:** University/Institute selected under DBT PG Teaching Program shall organize-in-house thesis/dissertation in core Department or in collaborating Department/s individually for all students admitted under DBT support. Institutions should ensure all the laboratory/field work facilities well in time for conducting the experiments by students and submission of project/thesis and dissertation on time and timely award of degree.

**(9) Placement of Students:** Universities/Institutes shall set up the in-house Placement Cell and Placement and Biotechnology Entrepreneurship Development Committee in the institution and ensure the placement of students desirous to work in Industries or provide handholding support to students desirous to start their own enterprise/start-ups under different schemes of Central/State Government. Institutions should also develop the linkages with industries and carry out the placement of students in following manner:

Sudeep S. Mukhopadhyay

Dr. Sudip Shekhar Mukhopadhyay
Professor
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National Institute of Technology Durgapur
Durgapur - 713209, West Bengal, India

***[Institute has CDC (Career Development Cell) and also IIC (Industry Incubation Centre) for Placement and Entrepreneurship Development]**

| S. No. | Category | Percentage of Pass out Students |
|---|---|---|
| 1. | Academic Research | 40 % |
| 2. | Industry Jobs and Entrepreneurship Development/Start-ups/MSME | 50% |
| 3. | Any Other Sector | 10% |

Institutions should also motivate the students to appear in National Fellowship Examination (DBT-JRF, CSIR-NET, ICMR-JRF etc.) for pursuing the career in academic Research and Development. University/Institute should frame the entrepreneurship Development plan in consultation with experts for DBT students and submit to DBT within 3 months of sanction of program.

**(10) Skill Training:** Universities/Institutes shall ensure and impart the skill training during summer/winter break of semester to all students under approved skill courses of Ministry of Skill and Entrepreneurship Development, GoI, New Delhi and certification by concerned Sector Skill Council.

**(11) Acknowledgement of DBT Grants.** All research articles/report/presentation/Thesis should have a funding acknowledgement statement that the outcome of thesis/in-house dissertation of students supported under DBT-PG Teaching Program. Any patent from Thesis work/dissertation will be filed through DBT-Patent Facilitation Cell only.

**(12) Monthly Disbursement of Stipend/Studentship:** Universities/Institutes shall ensure the monthly disbursement of studentship/stipend to all the students. Each student selected should receive stipend/studentship every month. The stipend/studentship should be credited to the bank account linked with Aadhar of the student by 30th or 31st of each month as the case may be through RTGS/ECS Transfer. Even if there is delay in receiving funds from the DBT due to delay in submission of financial or other documents to DBT, the University/Institute will have to ensure timely disbursement of studentship in consultation with DBT.

**(13) Course curriculum:** Universities/Institutes shall ensure the adoption of Model Course Curriculum prescribed by DBT without any deviation.

**(14) Submission of Financial Documents:** Universities/Institutes shall ensure the submission of Financial Documents (Utilization Certificate and Statement of Expenditure in prescribed format) in the month of April (within 30 Days after end of previous Financial Year) of every Financial Year for release of subsequent grant/annual grant for smooth running of PG Teaching Program under DBT support.

**(15) Hostel Facility:** Universities/Institutes should provide hostel accommodation in campus for all out-station students.

***(NIT-Durgapur is a fully residential institute and hostel accommodation is compulsory)**

Sudip S. Mukhopadhyay

Dr. Sudip S. Kumar Mukhopadhyay
Professor
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Durgapur - 713209, West Bengal, India

**(16) Monitoring of Program:** DBT will monitor the progress of program through three tier mechanism (A) Annual In-house Advisory Committee (B) Annual Program Coordinator Meeting (C) Annual DBT-HRD TF/Steering Committee.

**(A) Annual In-house Advisory Committee:** An in-house Advisory Committee with the following composition will be constituted by the University/Institute:

| S. No. | Role | Designation |
|---|---|---|
| 1. | Vice Chancellor/Director | Chairman |
| 2. | DBT Representative | Member (1) DBT Nominee |
| 3. | External Academic Experts Outside | Member 1.Dr. Naryan Chandra Mandal, Professor, Siksha Bhavana (Institute of Science) Visva-Bharati, Santiniketan – 731235, Birbhum, WB.<br><br>2. Dr. Suvro Chatterjee, Professor, Department of Biotechnology, Universtiy of Burdwan, W.B, |
| 4. | Industrial Representative | Member (1) Dr. Sabyasachi Chakraborty-Senior Director Biology, TCG Life Science Private Limited, Kolkata |
| 5. | Skill Expert | Member (1) Concerned Sector Skill Council Nominee |
| 6. | All Core and Associated Faculty of Department | Member |
| 7. | Program Coordinator | Prof. Sudit S. Mukhopadhyay |

The committee shall meet at least once a year, preferably before the commencement of academic session to review the progress and decide the future course of action.

**(B) Annual Program Coordinator Meeting**: DBT will organize the meeting annually in one of the university/Institute supported under DBT PG Program and invite all the program coordinators for review of progress of program and resolving the issues, if any, being faced by Universities/Institutes in running the PG Teaching Course.

**(C) DBT-HRD Task Force/DBT-HRD Steering Committee:** DBT will review the progress of DBT PG Teaching Program in High Power Committee annually. Based on the recommendations of Committee DBT will decide about continuity of support to PG Teaching Program.

**(17) Monitoring Parameters:** Department of Biotechnology Govt. of India will provide the monitoring parameters for evaluation of Progress of DBT supported PG Teaching Program to University/Institute in due course of time.

**(18) Intake of Students:** Private Institution will not admit more than 10 students under proposed course under non-DBT category in each academic session.

Sudit S. Mukhopadhyay

Dr. Sudit Shekhar Mukhopadhyay
Professor
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Durgapur - 713209, West Bengal, India

**Disclaimer:** **National Institute of Technology Durgapur** understands the DBT Mandatory Terms and Conditions as mentioned at serial Number 1-18 above, in this document and agree to abide by and fulfill all these before selection and admission of students under DBT support for **M.Sc. Life Science (Microbial Biotechnology/Plant and Animal Biotechnology)**. If at any stage, it is found that the information provided by Program Coordinator in the proposal and in presentation by the course coordinator in TF/Steering Committee Meeting is false or there is any deficiency in the basic requirements set by the Department for this support, the Department (DBT) has the right to withdraw the support. The University/Institute has no legal right/claim for this support, if the Department discontinues it.

Sudip S. Mukhopadhyay

**Program Coordinator**
**Name and Designation**
**Signature and Stamp**

Dr. Sudip Shekhar Mukhopadhyay
Professor
Department of Biotechnology
National Institute of Technology Durgapur
Durgapur - 713209, West Bengal, India

*****

24/3/2023

**Head of the Institute**
**Name and Designation**
**Signature and Stamp**

(Prof. Indrajit Basak)

Director
National Institute of Technology
Mahatma Gandhi Avenue
Durgapur - 713209 (W.B.) INDIA

Annexure - IV

# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

## DEPARTMENT OF BIOTECHNOLOGY

## Curriculum and Syllabi

## Program Name
## Master of Science in Life Sciences
## (Specialization in Microbial Biotechnology / Plant & Animal Biotechnology)
## Sponsored by DBT, New Delhi
## Effective from the Academic Year: 2024-2025

| | |
|---|---|
| Recommended by DPAC | 19-04-2023 |
| Recommended by PGAC | 17-05-2023 |
| Approved in 70$^{th}$ Senate | |
| Approved by BOG | |

# DETAILED CURRICULUM

**L= Lecture hour/ week; T= Tutorial hour/ week; S= Sessional/ practical hour/ week**

**C= Subject credit point; H= Subject contact hour/ week.**

**First Semester**

| Sl. No. | Subject Code | Subject | L | T | P | CP/CH |
|---|---|---|---|---|---|---|
| 1 | BT1101 | Biochemistry | 3 | 1 | 0 | 4 |
| 2 | BT1102 | Microbiology | 3 | 0 | 0 | 3 |
| 3 | BT1103 | Molecular Biology | 3 | 1 | 0 | 4 |
| 4 | BT1104 | Classical & Molecular Genetics | 3 | 0 | 0 | 3 |
| 5 | BT1105 | Chemistry for Biologists | 3 | 0 | 0 | 3 |
| 6 | BT1151 | Biochemistry Laboratory | 0 | 0 | 3 | 2 |
| 7 | BT1152 | Microbiology Laboratory | 0 | 0 | 3 | 2 |
| 8 | BT1153 | Molecular Biology Laboratory | 0 | 0 | 3 | 2 |
| | | **Total Credit** | | | | **23/26** |

**Second Semester**

| Sl. No. | Subject Code | Subject | L | T | P | CP/CH |
|---|---|---|---|---|---|---|
| 1 | BT2101 | Omics & Bioinformatics | 3 | 1 | 0 | 4 |
| 2 | BT2102 | Immunology | 3 | 1 | 0 | 4 |
| 3 | BT2103 | Biophysics & Structural Biology | 3 | 1 | 0 | 4 |
| 4 | BT2104 | Genetic Engineering | 3 | 0 | 0 | 3 |
| 5 | BT2105 | Cell Biology | 3 | 0 | 0 | 3 |
| 6 | BT2151 | Omics & Bioinformatics Laboratory | 0 | 0 | 3 | 2 |
| 7 | BT2152 | Immunology Laboratory | 0 | 0 | 3 | 2 |
| 8 | BT2153 | Cell Biology Laboratory | 0 | 0 | 3 | 2 |
| | | **Total Credit** | | | | **24/27** |

**Third Semester**

| Sl. No. | Subject Code | Subject | L | T | P | CP/CH |
|---|---|---|---|---|---|---|
| 1 | BT91** | Elective I | 3 | 0 | 0 | 3 |
| 2 | BT91** | Elective II | 3 | 0 | 0 | 3 |
| 3 | BT3101 | Programming for Biologists | 3 | 0 | 0 | 3 |
| 4 | BT3102 | IPR, Biosafety & Bioethics | 3 | 0 | 0 | 3 |
| 5 | BT3103 | Bio-entrepreneurship | 2 | 1 | 0 | 3 |
| 6 | BT3151 | Genetic Engineering Laboratory | 0 | 0 | 3 | 2 |
| 7 | BT3152 | Protein Purification Laboratory | 0 | 0 | 3 | 2 |
| 8 | BT3153 | Project Work - I | 0 | 0 | 4 | 4 |
| 9 | BT3154 | Project Seminar - I | 0 | 0 | 1 | 1 |
| | | **Total Credit** | | | | **24/26** |

**Fourth Semester**

| Sl. No. | Subject Code | Subject | L | T | P | CP/CH |
|---|---|---|---|---|---|---|
| 1 | BT91** | Elective III | 3 | 0 | 0 | 3 |
| 2 | BT91** | Elective IV | 3 | 0 | 0 | 3 |
| 4 | BT4151 | Project Work – II | 0 | 0 | 10 | 10 |
| 5 | BT4152 | Project Seminar - II | 0 | 0 | 3 | 3 |
| | | **Total Credit** | | | | **19/19** |

**Total Program Credit: 90**

**List of Electives:**
**Elective basket for Microbial Biotechnology:**
**(For Elective I, II, III, and IV)**

| Sl. No. | Code | Course Title |
|---|---|---|
| 1 | BT9112 | Enzymology & Bioenergetics |
| 2 | BT9132 | Nutraceuticals & Nutrigenomics |
| 3 | BT9133 | Metabolic Engineering |
| 4 | BT9141 | Bioprocess Engineering & Technology |
| 5 | BT9142 | Environmental Biotechnology |
| 6 | BT9143 | Industrial Microbiology |

**Elective basket for Plant & Animal Biotechnology:**
**(For Elective I, II, III, and IV)**

| Sl. No. | Code | Course Title |
|---|---|---|
| 1 | BT9111 | Cancer Biology |
| 2 | BT9114 | Protein Folding Misfolding and Diseases |
| 3 | BT9122 | Molecular Virology |
| 4 | BT9123 | Host – Pathogen Interactions |
| 5 | BT9124 | Infection Biology |
| 6 | BT9146 | Regenerative Medicine and Translational Research |
| 7 | BT9147 | Drug Discovery and Development |
| 8 | BT9148 | Vaccine technology |
| 9 | BT9149 | Plant Biotechnology |
| 10 | BT9150 | Plant Developmental Biology |
| 11 | BT9151 | Genetic Engineering of Crop Plants |
| 12 | BT9152 | Molecular Plant Pathogen Interactions |
| 13 | BT9145 | Animal Biotechnology |

## Syllabus

**First Semester**

<table>
<tr><td colspan="8">Department of Biotechnology</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2">Title of the course</td><td rowspan="2">Program Core (PCR) / Electives (PEL)</td><td colspan="4">Total Number of contact hours</td><td rowspan="2">Credit</td></tr>
<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT1101</td><td>Biochemistry</td><td>PCR</td><td>3</td><td>1</td><td>0</td><td>4</td><td>4</td></tr>
<tr><td colspan="3">Pre-requisites</td><td colspan="5">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="3">NA</td><td colspan="5">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">• CO1: Students will gain fundamental knowledge in biochemistry.<br>• CO2: Students will understand the molecular basis of various pathological conditions from the perspective of biochemical reactions.<br>• CO3: Will be able to apply knowledge of biochemistry in other areas of study like genetics, cell and molecular biology and microbiology.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">History of Biochemistry. Diversities of biomolecules: carbohydrates (Monosaccharides and derivatives of sugars, polysaccharides), nucleic acids, lipids (Fatty acids, triacylglycerols, glycerophospholipids, sphingolipids, cholesterol lipid bilayers), proteins (glycoproteins, nucleoproteins, lipoproteins etc.). Role of small molecules and trace elements in biology. Structure of amino acids, peptide bonds, Ramachandran Plot, Structural organization of Proteins: Motifs, domains, super secondary structures of proteins.<br>Basic concepts, Central role of ATP in metabolism, Carbon fuel and its oxidation, Concept of energy rich compounds and intermediates, Common types of reactions involved in metabolism, Glycolysis and gluconeogenesis, Energetics and ATP productions, Regulation of glycolysis, glycogen synthase, metabolic flux and its regulation by various metabolic intermediates, TCA cycle, its regulation, its role in energy generation, its role in generating biosynthetic intermediates, Redox reaction, mitochondrial structure and its role in energy metabolism, electron transport system, ATP synthesis and chemo-osmotic hypothesis of ATP generation, Pentose phosphate pathway and its importance in biosynthetic reactions, Glycogen synthesis, breakdown and its regulation, Fatty acid biosynthesis and degradation, Synthesis and degradation of steroids, Amino acid metabolism, Urea cycle, one carbon reaction, non-protein amino acids, amines and their role in cell function, Nucleotide biosynthesis and metabolism, salvage pathways, its regulation and diseases, Special topics in biochemistry. Mechanisms of hormone action, Role of post-translation modifications in regulation of cell function.</td></tr>
<tr><td>Text Books, and/or reference material</td><td colspan="7">Text Books: 1. Biochemistry (5th Edition) by Jeremy Berg, John Tymoczko and Lubert Stryer. 2. Biochemistry (3rd Edition) by Donald J. Voet and Judith G. Voet. 3. Lehninger Principles of Biochemistry (4th Edition) by David L. Nelson and Michael M. Cox.</td></tr>
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<tr><td rowspan="2">Course Code</td><td rowspan="2">Title of the course</td><td rowspan="2">Program Core (PCR) / Electives (PEL)</td><td colspan="4">Total Number of contact hours</td><td rowspan="2">Credit</td></tr>
<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT1102</td><td>Microbiology</td><td>PCR</td><td>3</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td colspan="3">Pre-requisites</td><td colspan="5">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="3">NA</td><td colspan="5">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">• CO1: To identify major categories of microorganisms and analyse their classification, diversity, and ubiquity.<br>• CO2: To identify and demonstrate structural, physiological, genetic similarities and differences of major categories of microorganisms.<br>• CO3: To identify and demonstrate how to control microbial growth; Demonstrate and evaluate interactions between microbes, hosts and environment.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">History of microbiology: Theory of spontaneous generation Experiments of Pasteur and Tyndall, Koch’s Postulates, Isolation of bacteria, methods of sterilization. Role of bacteria in human welfare: Biological concepts – Immunization (Pasteur experiment Antibiosis), (penicillin story), The Microbial cell: General organization of cell, Prokaryotes Eukaryotes and Archaea, Cell wall organization on Prokaryotes, Eukaryotes and Archaea, Cell surface appendages pilli, locomotion by flagella chemotactic Movement, Peptidoglycan synthesis inhibitors in different steps. Changing concepts in microbiology taxonomy, Earlier systems, Molecular taxonomy, Jackard’s similarly coefficients. Growth and nutrition: Growth kinetics, Batch and continuous cultures, Nutritional classification of microorganisms, Nutritional uptake by microorganisms (C.N.P). Metabolic Pathways: Metabolic versatility of microbes, Anaerobic Carbon metabolism: Aerobic Carbon metabolism: Nitrogen metabolism; Nitrogen Fixation, Regulation of ‘nif’. Energy Metabolism: Chemo autotrophs, Hydrogen bacteria, Phototrophic bacteria/Cyanobacteria. Microbial Genetics: Modes of genetic exchange in microbes, Transformation, Transduction, Conjugation, Evolutionary Significance. Microbes in Extreme Environment: The basis of extremophiles and their applications, Life of a thermophile (Thermus, Pyrococcus). Microbes and Agriculture: Symbiotic nitrogen fixation, Rhizobium, Cyanobacteria (Anabaena, Azolla etc.), Mycorrihiza, Clinical Microbiology, Survey of disease causing microbes, Mechanisms of Pathogenesis, Antibiotics and their targets, Immune response elicited by microorganisms. Industrial Microbiology: Major industrial products from microbes, Beverages, Antibiotics, Secondary metabolites, Recombinant products. Environmental Microbiology: Nature of anthropogenic wastes, Municipal wastes and xenobiotics, Enrichment cultures, Xenobiotic degrading consortia, Bioremediation.</td></tr>
<tr><td>Text Books, and/or reference material</td><td colspan="7">Text Books:<br>1. Microbiology, J.G. Cappuccino, N. Sherman, Pearson Education Publications.<br>2. Essential Microbiology, Stuart Hogg, John Wiley and Sons Limited.<br>3. Microbiology: A Human Perspective, E.W. Nester, D.G. Anderson, C.E.<br>4. Roberts, N.N. Pearsall, M. T. Nester McGraw Hill Higher Education.<br>5. Culture of Animal Cells, A Manual of Basic Technique. R. I. Freshney, Wiley.<br>6. Manual of Environmental Microbiology, C. J. Hurst, R.L. Crawford, G. R. Knudsen, M. J. McInerney, L. D. Stetzenbach, ASM Press.<br>7. Microbiology, L.M. Prescott, J. P. Harley, D.A., Klein, McGraw Hill.<br>8. General Microbiology. H.G. Schlegel, Cambridge University Press.<br>9. Microbiology by Pelczar.</td></tr>
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<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT1103</td><td>Molecular Biology</td><td>PCR</td><td>3</td><td>1</td><td>0</td><td>4</td><td>4</td></tr>
<tr><td colspan="2">Pre-requisites</td><td colspan="6">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="2">NA</td><td colspan="6">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">• CO1: To understand the central dogma in molecular biology.<br>• CO2: To understand the detailed mechanisms of regulations of gene expression.<br>• CO3: To apply the molecular biology in explanations of physiological phenomena.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">Genetic material (Classical experiments: Griffith’s experiment, Avery and McCarty’s experiment).<br>Macromolecules and Organization: DNA, RNA Structure, Conformation, Denaturation, Renaturation, Chromatin structure, Nucleosome. Genes and genome organization. Transposons and retrotransposons.<br>DNA Replication-mechanism-Prokaryotes/eukaryotes, DNA damage repair.<br>RNA world and RNA Replication. Mechanism of transcription-Prokaryotes/eukaryotes. RNA processing: capping, polyadenylation, splicing, editing. Genetic code and translation.<br>Transcriptional regulation- Prokaryotes/eukaryotes.<br>Gene expression and posttranscriptional regulations.<br>Protein synthesis – translation: Genetic code, ribosome, transfer RNA, protein biosynthesis stages – attachment of amino acid to specific tRNA, initiation, elongation, termination, folding and processing; inhibition of protein synthesis.<br>Epigenetics. Regulation of chromatin structure and chromatin remodeling.</td></tr>
<tr><td>Text Books, and/or reference material</td><td colspan="7">Text Books:<br>1. Genes IX. Lewin (2008)<br>2. Molecular Biology of the Gene. Watson et. al. (6th edn., 2009)<br>3. Molecular Cell Biology. Lodish et. al. (6th edn., 2008)<br>4. Molecular Biology of the Cell. Alberts et. al. (5th edn.,2007).</td></tr>
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| Department of Biotechnology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Code | Title of the course | Program Core (PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| BT1104 | Classical & Molecular Genetics | PCR | 3 | 0 | 0 | 3 | 3 |
| Pre-requisites | | Course Assessment methods (Continuous (CT) and end assessment (EA)) | | | | | |
| NA | | CT+EA | | | | | |
| Course Outcomes | • CO1: To describe fundamental molecular principles of genetics.<br>• CO2: To understand relationship between phenotype and genotype in human genetic traits. | | | | | | |
| Topics Covered | Mendelian Genetics: An overview Law of segregation and independent assortment, chromosome theory of inheritance. Allelic and non-allelic interactions: Concept of alleles, types of dominance, lethal alleles, multiple alleles, test of allelism, complementation, epistasis, Linkage and recombination, nondisjunction, gene mapping in Drosophila. Changes in chromosome number and structure: Polyploidy, aneuploidy, deletion, inversion, duplication, and translocation. Sex-linked inheritance and extrachromosomal inheritance. Non-Mendelian/quantitative genetics: Genes and environment, heritability, penetrance and expressivity. Mutation: Types, mechanism and role in creating genetic variation/evolution. Bacterial genetics: Transformation, conjugation, and transduction. Human Genetics, Plant Genetics- including molecular markers, Population Genetics. | | | | | | |
| Text Books, and/or reference material | Text Books:<br>1. An introduction to Genetic Analysis by Griffiths et al.<br>2. Genetics: Analysis of Genes and Genomes by Hartl and Ruvolo.<br>3. Genetics: A conceptual approach by Pierce et al. | | | | | | |

| Department of Biotechnology | | | | | | | |
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| Course Code | Title of the course | Program Core (PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| BT1105 | Chemistry for Biologists | PCR | 3 | 0 | 0 | 3 | 3 |
| Pre-requisites | | Course Assessment methods (Continuous (CT) and end assessment (EA)) | | | | | |
| NA | | CT+EA | | | | | |
| Course Outcomes | • CO1: Students will be able to gain clear understanding of fundamental laws of chemistry.<br>• CO2: Students will be able to learn to associate biological problems with chemical properties. | | | | | | |
| Topics Covered | Electronic configuration of atoms and ions. Hund's rule and Pauli's exclusion principle. Periodic table and periodic properties: ionization energy, electron affinity, electronegativity and atomic size. Ionic and covalent bonding, MO and VB approaches for diatomic molecules, VSEPR theory and shape of molecules, hybridization, resonance, dipole moment, structure parameters such as bond length, bond angle and bond energy, hydrogen bonding and van der Waals interactions. Ionic solids, ionic radii and lattice energy (Born-Haber cycle). HSAB principle. General characteristics of 3d elements. Coordination | | | | | | |

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|---|---|
| | complexes: valence bond and crystal field theory, color, geometry, magnetic properties and isomerism.<br>Ionic equilibria in solution, solubility product, common ion effect, hydrolysis of salts, pH, buffer and their applications. Equilibrium constants (Kc, Kp and Kx) for homogeneous reactions. Rate constant, order of reaction, molecularity, activation energy, zero, first and second order kinetics, catalysis and elementary enzyme reactions. Reversible and irreversible inhibition of enzymes.<br>Qualitative treatment of state and path functions, First law, reversible and irreversible processes, internal energy, enthalpy, Kirchoff equation, heat of reaction, Hess's law, heat of formation. Second law, entropy and free energy. Gibbs-Helmholtz equation, free energy change and spontaneity, Free energy changes from equilibrium constant.<br>Acids and bases, electronic and steric effects, Stereochemistry, optical and geometrical isomerism, tautomerism, conformers and concept of aromaticity. Elementary treatment of SN1, SN2, E1, E2 and radical reactions, Hoffmann/Saytzeff rules, addition reactions, Markownikoff rule and Kharasch effect. Elementary hydroboration reactions. Grignard's reagents and their uses. Aromatic electrophilic substitutions, orientation effect as exemplified by various functional groups. Identification of common functional groups by chemical tests. |
| Text Books, and/or reference material | Text Books:<br>1. Ebbing, D. D., & Wrighton, M. S. (1990). General Chemistry. Boston: Houghton Mifflin.<br>2. Averill, B., & Eldredge, P. (2007). Chemistry: Principles, Patterns, and Applications. San Francisco: Benjamin Cummings.<br>3. Mahan, B. H. (1965). University Chemistry. Reading, MA: Addison-Wesley Pub.<br>4. Cantor, C. R., & Schimmel, P. R. (2004). Biophysical Chemistry. San Francisco: W.H. Freeman. |

| Department of Biotechnology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Code | Title of the course | | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| **BT1151** | **Biochemistry Laboratory** | | 0 | 0 | 3 | 3 | 2 |
| Student Learning Outcomes | • CO1: To elaborate concepts of biochemistry with easy to run experiments.<br>• CO2: To familiarize with basic laboratory instruments and understand the principle of measurements using those instruments with experiments in biochemistry. | | | | | | |
| Topics Covered | 1. To Prepare various stock solutions and working solutions that will be needed for the course.<br>2. To prepare an Acetic-Na Acetate Buffer and validate the Henderson-Hasselbach equation.<br>3. Quantitative Estimation of carbohydrate.<br>4. To determine an unknown protein concentration by different methods (by plotting a standard curve of BSA using UV-Vis Spectrophotometer and validating the Beer- Lambert's Law, Bradford's dye-binding method, Lowry method).<br>5. Titration of Amino Acids and separation of aliphatic, aromatic and polar amino acids by thin layer chromatography.<br>6. Extraction, separation and estimation of lipids.<br>7. Kinetic study of enzymes (Determination of Km, Vmax and Kcat) and Inhibition kinetics of enzymes<br>8. Identification of an unknown samples of DNA, RNA or protein using | | | | | | |

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|---|---|
| | spectrophotometric method.<br>9. Biophysical methods (Circular Dichroism Spectroscopy, Fluorescence Spectroscopy). |

| Department of Biotechnology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Code | Title of the course | | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| **BT1152** | **Microbiology Laboratory** | | 0 | 0 | 3 | 3 | 2 |
| Student Learning Outcomes | Students will be able to:<br>• CO1: Isolate, characterize and identify common bacterial organisms.<br>• CO2: Determine bacterial load of different samples.<br>• CO3: Perform antimicrobial sensitivity tests.<br>• CO4: Preserve bacterial cultures. | | | | | | |
| Topics Covered | 1. Sterilization, disinfection and safety in microbiological laboratory.<br>2. Preparation of media for cultivation of bacteria.<br>3. Isolation of bacteria in pure culture by streak plate method.<br>4. Study of colony and growth characteristics of some common bacteria: *Bacillus, E. coli, Staphylococcus, Streptococcus, etc.*<br>5. Preparation of bacterial smear and Gram's staining.<br>6. Enumeration of bacteria: standard plate count.<br>7. Antimicrobial sensitivity test and demonstration of drug resistance.<br>8. Maintenance of stock cultures: slants, stabs and glycerol stock cultures<br>9. Determination of phenol co-efficient of antimicrobial agents.<br>10. Determination of Minimum Inhibitory Concentration (MIC). | | | | | | |

| Department of Biotechnology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Code | Title of the course | | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| **BT1153** | **Molecular Biology Laboratory** | | 0 | 0 | 3 | 3 | 2 |
| Student Learning Outcomes | • CO1: Students will learn basic molecular biology techniques.<br>• CO2: Students will get exposure to ideal practices and standards in nucleic acid manipulation.<br>• CO3: Students will get exposure to safety and ethical issue related to handing and manipulating nucleic acid. | | | | | | |
| Topics Covered | 1. Plasmid DNA isolation and DNA quantitation.<br>2. Restriction Enzyme digestion of plasmid DNA.<br>3. Agarose gel electrophoresis.<br>4. Polymerase Chain Reaction and analysis by agarose gel electrophoresis.<br>5. Isolate DNA from cells by SDS method.<br>6. Concept of lac-operon:<br>a) Lactose induction of □-galactosidase.<br>b) Glucose Repression.<br>c) Diauxic growth curve of *E. coli.*<br>7. UV mutagenesis to isolate amino acid auxotroph. | | | | | | |

## Second Semester

<table>
<tr><td colspan="8">Department of Biotechnology</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2">Title of the course</td><td rowspan="2">Program Core (PCR) / Electives (PEL)</td><td colspan="4">Total Number of contact hours</td><td rowspan="2">Credit</td></tr>
<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT2101</td><td>Omics & Bioinformatics</td><td>PCR</td><td>3</td><td>1</td><td>0</td><td>4</td><td>4</td></tr>
<tr><td colspan="3">Pre-requisites</td><td colspan="5">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="3">NA</td><td colspan="5">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">• CO1: In depth understanding of genomes, transcriptomes and proteomes and methods to probe them.<br>• CO2: Understanding of concepts for functional analysis of genes and proteins.<br>• CO3: Learning bioinformatics to analyse nucleic acid and protein sequence and structure.<br>• CO4: Learning bioinformatics to analyse genomes, transcriptomes and proteomes.<br>• CO5: Development of comprehensive understanding of Omes, Omics and bioinformatics to apply them to solve existing problems in biology.</td></tr>
<tr><td>Topics Covered</td><td colspan="7"><u>Omics</u><br>Definition, classification, and scopes. The emergence of proteome concept: structural and functional proteomes, protein structure related to functional kinetics. Proteome analysis: 2-D PAGE, mass spectrometry and mass fingerprinting, LC-MS/MS and PTM analysis. Quantitative Proteomics, Proteomics in relation to animal and plant health and welfare. Transcriptomes: measurement of gene expression. Genome and genome analysis. Bridging genomics to proteomics. Metagenomics. Metabolomics. Protein-protein interaction and interactome. Systems biology.<br><u>Bioinformatics</u><br>Brief description of the Course, biological data, data mining, databases. Examples of different databases, Database searching, Boolean operators, SRS. Practical on databases and database searching. Nucleic acid sequences, simple sequence features, such as GC content, skew ness, Motifs, manipulation of sequences. Practical on nucleic acid sequences. Amino acid sequences of proteins and their manipulation, motifs and domains, Practical on proteins. Concept of sequence alignment and similarity, different algorithms, global and local alignment, scoring systems, Practical on sequence alignment. Multiple sequence alignment, theory and practical. Phylogenetic tree construction, theory and practical. Protein structure, 3D viewer, simple structure manipulation both theory and practical. Introduction to Biostatistics: hypothesis testing, ANOVA, t-test, correlation, and regression.</td></tr>
<tr><td>Text Books, and/or reference material</td><td colspan="7">Text Books:<br>Omics<br>1. A Textbook of Protein and Proteomics, C Subramanian and Nandan Hazare, Dominant Pub. 2. Discovering Genomics, Proteomics and Bioinformatics (2nd Edition), by A. Malcolm Campbell and Laurie J. Heyer.<br>Bioinformatics<br>1. Bioinformatics, edited by Des Higgins and Willie Taylor; Oxford University Press.<br>2. Bioinformatics by Orpita Basu and Simminder K Thukral, Oxford Higher Education.<br>3. Introduction to Bioinformatics by Arthur M Lesk, Oxford University Press.</td></tr>
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<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT2102</td><td>Immunology</td><td>PCR</td><td>3</td><td>1</td><td>0</td><td>4</td><td>4</td></tr>
<tr><td colspan="3">Pre-requisites</td><td colspan="5">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="3">NA</td><td colspan="5">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">• CO1: To understand basic concepts of innate and adaptive immunity.<br>• CO2: To apply their knowledge and design immunological experiments to demonstrate innate, humoral or cytotoxic T lymphocyte responses and figure out kind of immune responses in the setting of infection (viral or bacterial).<br>• CO3: To understand the application of immunological techniques in pathology labs and clinical studies.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">Introduction to Immune System, organs, cells and molecules involved in Innate and Adaptive Immunity. Mechanisms of barrier to entry of microbes/pathogens. Hematopoiesis and its regulation: Differentiation of stem cells to different cellular elements in blood, role of cytokines. Introduction to inflammatory reaction: chemokines, adhesion molecules, migration of leukocytes to the site of infection, phagocytosis and microbicidal mechanisms. Immediate hypersensitivity: role of eosinophils, and mast cells. Asthma. IgE receptor, prostaglandins and leukotrienes. Receptors of innate immunity: Toll-like receptors and sensing of PAMPs, signal transduction, opsonization, Fc receptors. Antigens, antigenicity, and immunogenicity. B and T cell epitopes. Antibody structure and function (classification of immunoglobulins, immunoglobulin domains, concept of variability, isotypes, allotypes and idiotypic markers). Antigen-antibody interactions. Immunoglobulin genes, VJ/VDJ rearrangements and genetic mechanisms responsible for antibody diversity, affinity maturation, allelic exclusion. Class switching, receptor and soluble forms of immunoglobulin. Hybridoma, monoclonal antibodies, and antibody engineering. The complement system: classical and alternative pathways. Major Histocompatibility Complex: genetic organization of H2 and HLA complexes. Class I and class II MHC molecules, structure and function. Antigen processing and presentation pathways. Differentiation and activation of B cells, BCR and pre BCR, receptor editing. T cell receptors, αβ and γδ T cells, receptor diversity. Activation of T cells, APC-T cell interaction, Th1/Th2 cells and cytokines. T cell differentiation in thymus, thymic selection and tolerance to self, MHC restriction, super antigens. Cell-mediated effector functions: Cytotoxic T cells, Natural Killer Cells, ADCC, NK cell receptors, inverse correlation with target MHC expression, missing self hypothesis, cytotoxicity reaction. Topics like Applications of immunological principles (vaccines, and diagnostics); tumor and transplantation Immunology; and diseases of relevance to the immune system (autoimmunity and immunodeficiency) etc.</td></tr>
<tr><td>Text Books, and/or reference material</td><td colspan="7">Text Books:<br>1. Roitt’s Essential Immunology.<br>2. Immunobiology: The immune system in health and disease by Charles Janeway et. al.<br>3. Kuby Immunology.<br>4. Relevant review articles/research papers/handouts provided in the course.</td></tr>
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<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT2103</td><td>Biophysics & Structural Biology</td><td>PCR</td><td>3</td><td>1</td><td>0</td><td>4</td><td>4</td></tr>
<tr><td colspan="3">Pre-requisites</td><td colspan="5">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="3">NA</td><td colspan="5">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">• CO1: To understand biophysical parameter governing structure of biomolecules.<br>• CO2: To analyse the structure of biomolecules.<br>• CO3: To apply the knowledge of biophysical technique and methods to solve questions on structure of biomolecules.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">Introduction. Structure of Biomolecules and conformations of protein and nucleic acids. Secondary, tertiary and quaternary structure of protein. Primary and secondary structure of RNA and DNA. Method of conformational analysis and prediction of conformation. Thermodynamics and kinetics of conformational transition of proteins. Protein folding, techniques for studying Macromolecular structure. Ultra centrifugation Sedimentation velocity and equilibrium determination of molecular weights. Electron microscopy. UV Visible Spectroscopy, Fluorescence Spectroscopy. Circular Dichroism Spectroscopy. Symmetry, space group crystal lattices, brag’s law in real & reciprocal space. Nuclear Magnetic Resonance.</td></tr>
<tr><td>Text Books, and/or reference material</td><td colspan="7">Text Books:<br>1. Biophysical Chemistry by Cantor & P. Schimmel. Vol. I & II. 2. Physical Biochemistry by David I Reifelder. 3. Protein: Structure & Molecular Properties by TE Creighton, 4. Introduction to Protein structure by Branden and Tooze.<br>5. Introduction to experimental biophysics by Jay L Nadeau.<br>Reference books:<br>1. Textbook of structural biology by Liljas Anders.<br>2. Principles of Protein structure by G E Schulz and Schirmer.<br>3. Fundamentals of Protein Structure and function by Engelbert Buxbaum.<br>4. Protein structure: A practical approach by Creighton.<br>5. Proteins: Structure and function by James J L'Italien.<br>6. Biomolecular Crystallography: Principles, Practice and application to structural Biology by Bernhard Rupp.<br>7. Introduction to Protein Architecture: The structural Biology of proteins by A M Lesk.<br>8. The physics of proteins by Robert H Austin and Charles E Schulz.<br>9. Structure and mechanism in protein science by Alan R Fersht.</td></tr>
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<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT2104</td><td>Genetic Engineering</td><td>PCR</td><td>3</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td colspan="3">Pre-requisites</td><td colspan="5">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="3">NA</td><td colspan="5">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">• CO1: To gain a strong theoretical base of manipulation of nucleic acid.<br>• CO2: To get exposure of advanced genetic engineering and molecular biology tools.<br>• CO3: To apply the knowledge in designing experiment or strategy to solve problems of basic science and industry applications.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">Introduction and tools for genetic engineering: Impact of genetic engineering in modern society; general requirements for performing a genetic engineering experiment; restriction endonucleases and methylases; DNA ligase, Klenow enzyme, T4 DNA polymerase, polynucleotide kinase, alkaline phosphatase; cohesive and blunt end ligation; linkers; adaptors; homopolymeric tailing; labelling of DNA: nick translation, random priming, radioactive and non-radioactive probes, hybridization techniques: northern, southern, south-western and far-western and colony hybridization, fluorescence in situ hybridization.<br>Different types of vectors: Plasmids; Bacteriophages; M13 mp vectors; PUC19 and Bluescript vectors, hagemids; Lambda vectors; Insertion and Replacement vectors; Cosmids; Artificial chromosome vectors (YACs; BACs); Principles for maximizing gene expression vectors; pMal; GST; pET-based vectors; Protein purification; Histag; GST-tag; MBP-tag etc.; Inclusion bodies; methodologies to reduce formation of inclusion bodies; mammalian expression and replicating vectors; Baculovirus and Pichia vectors system, plant based vectors, Ti and Ri as vectors, yeast vectors, shuttle vectors.<br>Different types of PCR techniques: Principles of PCR: primer design; fidelity of<br>thermostable enzymes; DNA polymerases; types of PCR – multiplex, nested; reverse transcription PCR, real time PCR, touchdown PCR, hot start PCR, colony PCR, asymmetric PCR, cloning of PCR products; T-vectors; proof reading enzymes; PCR based site specific mutagenesis; PCR in molecular diagnostics; viral and bacterial detection; sequencing methods; enzymatic DNA sequencing; chemical sequencing of DNA; automated DNA sequencing; RNA sequencing; chemical synthesis of oligonucleotides; mutation detection: SSCP, DGGE, RFLP.<br>Gene manipulation and protein-DNA interaction: Insertion of foreign DNA into host cells; transformation, electroporation, transfection; construction of libraries; isolation of mRNA and total RNA; reverse transcriptase and cDNA synthesis; cDNA and genomic libraries; construction of microarrays – genomic arrays, cDNA arrays and oligo arrays; study of protein-DNA interactions: electrophoretic mobility shift assay; DNase footprinting; methyl interference assay, chromatin immunoprecipitation; protein-protein interactions using yeast two-hybrid system; phage display.<br>Gene silencing and genome editing technologies: Gene silencing techniques;<br>introduction to siRNA; siRNA technology; Micro RNA; construction of siRNA vectors; principle and application of gene silencing; gene knockouts and gene therapy; creation of transgenic plants; debate over GM crops; introduction to methods of genetic manipulation in different model systems e.g. fruit flies (Drosophila), worms (C. elegans), frogs (Xenopus), fish (zebra fish) and chick;</td></tr>
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| | Transgenics- gene replacement; gene targeting; creation of transgenic and knock-out mice; disease model; introduction to genome editing by CRISPR-CAS with specific emphasis on Chinese and American clinical trials. |
| Text Books, and/or reference material | Text Books:<br>1. Old, R. W., Primrose, S. B., & Twyman, R. M. (2001). Principles of Gene Manipulation: An Introduction to Genetic Engineering. Oxford: Blackwell Scientific Publications.<br>2. Green, M. R., & Sambrook, J. (2012). Molecular Cloning: A Laboratory Manual.<br>Cold Spring Harbor, NY: Cold Spring Harbor Laboratory Press.<br>3. Brown, T. A. (2006). Genomes (3rd ed.). New York: Garland Science Pub.<br>4. Selected papers from scientific journals, particularly Nature & Science.<br>5. Technical Literature from Stratagene, Promega, Novagen, New England Biolab etc. |

| Department of Biotechnology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Code | Title of the course | Program Core (PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| BT2105 | Cell Biology | PCR | 3 | 0 | 0 | 3 | 3 |
| Pre-requisites | | Course Assessment methods (Continuous (CT) and end assessment (EA)) | | | | | |
| NA | | CT+EA | | | | | |
| Course Outcomes | • CO1: To understand the concepts of structure and organization of eukaryotic cells.<br>• CO2: To understand molecular signalling and its role in the regulation of cellular functions.<br>• CO2: To learn the application of experimental methods and designs to solve cell biology questions in basic cell biology and human diseases. | | | | | | |
| Topics Covered | Introduction to the Cell: The evolution of the cell, From molecules to first cell, From Prokaryotes to eukaryotes, From single cells to multicellular organisms. The Plasma membrane, Membrane structure: The Lipid bilayer, Membrane proteins, Membrane carbohydrates, Membrane transport of small molecules, Membrane transport of macromolecules and particles. The Cell nucleus and subnuclear organization: Organelles to the eukaryotic cell: The lysosomes, The peroxisomes, The Golgi apparatus, The endoplasmic reticulum. Mitochondria and chloroplast, Structure of the mitochondria and chloroplast, Protein sorting in different cellular compartments and locations organelle biogenesis and protein secretion. vesicular traffic and secretary pathway, exocytosis and endocytosis. The cytoskeleton, the nature of cytoskeleton, Intermediate filaments, Microtubules, Actin filaments, Cilia and centrioles, Organization of the cytoskeleton. Cell growth and division, Overview of the Cell cycle and its control, the molecular mechanisms for regulating mitotic events, Cell cycle control in mammalian cells, Checkpoints in cell cycle regulation. Cell adhesions, cell junctions and the extracellular matrix, Cell to cell adhesion and communication. Stem cells and cellular differentiation. | | | | | | |
| Text Books, and/or reference material | Text Books:<br>1. Essential Cell Biology: An Introduction to the Molecular Biology of the Cell, B. Alberts, D. Bray, A. Johnson, J. Lewis, M. Roff, K. Robert, P. Walter and K. Roberts, Garland Publishing Company.<br>2. Cell and Molecular Biology, De Robertis, B. I. Publication Pvt. Ltd.<br>3. Molecular Cell Biology, H. Lodish, A. Berk, S.L. Zipursky, P. Matsudaura, D. Baltimore and J. Danell, W.H. Preeman and Company. | | | | | | |

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| | 4. Essential Cell Biology: An Introduction to the Molecular Biology of the Cell, B. Alberts, D. Bray, A. Johnson, J. Lewis, M. Roff, K. Robert, P. Walter and K. Roberts, Garland Publishing Company. |

| Department of Biotechnology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Code | Title of the course | | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| BT2151 | Omics & Bioinformatics Laboratory | | 0 | 0 | 3 | 3 | 2 |
| Student Learning Outcomes | Students will be able to:<br>• CO1: Describe contents and properties of most important bioinformatics databases.<br>• CO2: Perform text- and sequence-based searches and analyze and discuss results in light of molecular biological knowledge.<br>• CO3: Explain major steps in pairwise and multiple sequence alignment, explain principle and execute pairwise sequence alignment by dynamic programming.<br>• CO4: Predict secondary and tertiary structures of protein sequence. | | | | | | |
| Topics Covered | 1. Using NCBI and Uniprot web resources.<br>2. Introduction and use of various genome databases.<br>3. Sequence information resource: Using NCBI, EMBL, Genbank, Entrez, Swissprot/TrEMBL, UniProt.<br>4. Similarity searches using tools like BLAST and interpretation of results.<br>5. Multiple sequence alignment using ClustalW.<br>6. Phylogenetic analysis of protein and nucleotide sequences.<br>7. Use of gene prediction methods (GRAIL, Genscan, Glimmer).<br>8. Using RNA structure prediction tools.<br>9. Use of various primer designing and restriction site prediction tools.<br>10. Use of different protein structure prediction databases (PDB, SCOP, CATH).<br>11. Construction and study of protein structures using Deepview/PyMol.<br>12. Homology modelling of proteins.<br>13. Use of tools for mutation and analysis of the energy minimization of protein structures.<br>14. Use of miRNA prediction, designing and target prediction tools. | | | | | | |

| Department of Biotechnology | | | | | | | |
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| Course Code | Title of the course | | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| **BT2152** | **Immunology Laboratory** | | 0 | 0 | 3 | 3 | 2 |
| Student Learning Outcomes | Students will be able to:<br>• CO1: Detect different antigen and antibody interactions.<br>• CO2: Identify and isolate different immune cells.<br>• CO3: Design simple experiments and interpret data.<br>• CO4: Understand the application of immunological techniques in pathology labs and clinical studies. | | | | | | |
| Topics Covered | 1. Selection of animals, preparation of antigens, immunization and methods of blood collection, serum separation and storage.<br>2. Antibody titre by ELISA method.<br>3. Double diffusion, Immuno-electrophoresis and Radial Immuno diffusion. | | | | | | |

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| | 4. Complement fixation test.<br>5. Isolation and purification of IgG from serum or IgY from chicken egg.<br>6. SDS-PAGE, Immunoblotting, Dot blot assays.<br>7. Blood smear identification of leucocytes by Giemsa stain.<br>8. Separation of leucocytes by dextran method.<br>9. Demonstration of Phagocytosis of latex beads and their cryopreservation.<br>10. Separation of mononuclear cells by Ficoll-Hypaque and their cryopreservation.<br>11. Demonstration of ELISPOT.<br>12. Demonstration of FACS. |

| Department of Biotechnology | | | | | | | |
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| Course Code | Title of the course | | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| **BT2153** | Cell Biology Laboratory | | 0 | 0 | 3 | 3 | 2 |
| Student Learning Outcomes | • CO1: Students will learn basic animal cell culture techniques.<br>• CO2: Students will get exposure to ideal practices and standards in animal cell culture technique.<br>• CO4: Students will get exposure to safety and ethical issue related to handing and experimentation using animal cells. | | | | | | |
| Topics Covered | 1. Counting of cells and check their viability.<br>2. Prepare culture media with various supplements for cell culture.<br>3. Monitor and measure doubling time of animal cells.<br>4. Chromosome preparations from cultured animal cells.<br>6. Cell migration and invasion assay.<br>7. Immunofluorescent staining of animal cells and fluorescence microscopy. | | | | | | |

## Third Semester

| Department of Biotechnology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Code | Title of the course | Program Core (PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| BT3101 | Programming for Biologists | PEL | 3 | 0 | 0 | 3 | 3 |
| Pre-requisites | | Course Assessment methods (Continuous (CT) and end assessment (EA)) | | | | | |
| NA | | CT+EA | | | | | |
| Course Outcomes | • CO1: To learn about scripting and programming<br>• CO2: To learn and write programs to analyse vast amount of biological data<br>• CO3: To acquire knowledge about Artificial Intelligence and Machine learning approaches in the field of Biology. | | | | | | |
| Topics Covered | Introduction to Linux operating system, Kernel system, benefits of Linux for computational biology.<br>Bash programming for bioinformatics: Shell scripting, working in terminal with different commands, use of important commands such as sed, grep, awk<br>C programming for bioinformatics: Introduction to C, Identifiers, Variables, Constants, Operators, Input statement, Output statement, Conditional and Unconditional Control Statement, Looping Statement: while, do-while, for loop, Arrays. Read, write files (biological data)<br>Python scripting for bioinformatics: File handling in python, numpy, pandas etc<br>Basics of Machine Learning and its applications in biological data analysis. | | | | | | |
| Text Books, and/or reference material | Text Books:<br>1. Computational Biology —Unix/Linux, Data Processing and Programming by Röbbe Wünschiers<br>2. Learning Python, 5th Edition by Mark Lu<br>3. Machine Learning For Absolute Beginners: A Plain English Introduction (Second Edition) by Oliver Theobald | | | | | | |

| Department of Biotechnology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Code | Title of the course | Program Core (PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| BT3102 | IPR, Biosafety & Bioethics | PCR | 3 | 0 | 0 | 3 | 3 |
| Pre-requisites | | Course Assessment methods (Continuous (CT) and end assessment (EA)) | | | | | |
| NA | | CT+EA | | | | | |
| Course Outcomes | • CO1: The students will understand the rationale for and against IPR and especially patents.<br>• CO2: Students will understand why India has adopted an IPR Policy and be familiar with broad outline of patent regulations.<br>• CO3: The students will gain knowledge of biosafety and risk assessment of products derived from recombinant DNA research and environmental release of genetically modified organisms, national and international regulations. They will also understand ethical aspects related to biological, biomedical, health care and biotechnology research. | | | | | | |
| Topics Covered | **Intellectual Property Rights (IPR)**<br>Introduction to IPR | | | | | | |

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| | Introduction to intellectual property; types of IP: patents, trademarks, copyright & related rights, industrial design, traditional knowledge, geographical indications, protection of new GMOs; International framework for the protection of IP; IP as a factor in R&D; IPs of relevance to biotechnology and few case studies; introduction to history of GATT,WTO, WIPO and TRIPS; plant variety protection and farmers rights act; concept of 'prior art': invention in context of "prior art"; patent databases - country-wise patent searches (USPTO, EPO, India); analysis and report formation.<br>Patenting Basics of patents: types of patents; Indian Patent Act 1970; recent amendments; WIPO Treaties; Budapest Treaty; Patent Cooperation Treaty (PCT) and implications; procedure for filing a PCT application; role of a Country Patent Office; filing of a patent application; precautions before patenting-disclosure/non-disclosure - patent application forms and guidelines including those of National Bio-diversity Authority (NBA) and other regulatory bodies, fee structure, time frames; types of patent applications: provisional and complete specifications; PCT and conventional patent applications; international patenting requirement, procedures and costs; financial assistance for patenting introduction to existing schemes; publication of patents-gazette of India, status in Europe and US; patent infringement- meaning, scope, litigation, case studies and examples; commercialization of patented innovations; licensing – outright sale, licensing, royalty; patenting by research students and scientists-university/organizational rules in India and abroad, collaborative research - backward and forward IP; benefit/credit sharing among parties/community, commercial (financial) and non-commercial incentives.<br><br>**Biosafety**<br>Biosafety and Biosecurity - introduction; historical background; introduction to biological safety cabinets; primary containment for biohazards; biosafety levels; GRAS organisms, biosafety levels of specific microorganisms; recommended biosafety levels for infectious agents and infected animals; definition of GMOs & LMOs; principles of safety assessment of transgenic plants – sequential steps in risk assessment; concepts of familiarity and substantial equivalence; risk environmental risk assessment and food and feed safety assessment; problem formulation – protection goals, compilation of relevant information, risk characterization and development of analysis plan; risk assessment of transgenic crops vs cisgenic plants or products derived from RNAi, genome editing tools.<br><br>**National and international regulations**<br>International regulations – Cartagena protocol, OECD consensus documents and Codex Alimentarius; Indian regulations – EPA act and rules, guidance documents, regulatory framework – RCGM, GEAC, IBSC and other regulatory bodies; Draft bill of Biotechnology Regulatory authority of India - containments – biosafety levels and category of rDNA experiments; field trails – biosafety research trials – standard operating procedures -guidelines of state governments; GM labelling – Food Safety and Standards Authority of India (FSSAI).<br>**Bioethics**<br>Introduction, ethical conflicts in biological sciences - interference with nature, bioethics in health care - patient confidentiality, informed consent, euthanasia, artificial reproductive technologies, prenatal diagnosis, genetic screening, gene therapy, transplantation. Bioethics in research – cloning and stem cell research, Human and animal experimentation, animal rights/welfare, Agricultural biotechnology - Genetically engineered food, environmental risk, labelling and public opinion. Sharing benefits and protecting future generations - Protection of environment and biodiversity – biopiracy. |

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| Text Books, and/or reference material | Text Books:<br>**IPR:**<br>1. Ganguli, P. (2001). Intellectual Property Rights: Unleashing the Knowledge Economy. New Delhi: Tata McGraw-Hill Pub.<br>2. National IPR Policy, Department of Industrial Policy & Promotion, Ministry of Commerce, GoI.<br>3. Complete Reference to Intellectual Property Rights Laws. (2007). Snow White Publication Oct.<br>**Biosafety & Bioethics**<br>1. Kuhse, H. (2010). Bioethics: an Anthology. Malden, MA: Blackwell.<br>2. Karen F. Greif and Jon F. Merz, Current Controversies in the Biological Sciences -Case Studies of Policy Challenges from New Technologies, MIT Press<br>3. Recombinant DNA Safety Guidelines, 1990 Department of Biotechnology, Ministry of Science and Technology, Govt. of India. Retrieved from http://www.envfor.nic.in/divisions/csurv/geac/annex-5.pdf<br>4. Craig, W., Tepfer, M., Degrassi, G., & Ripandelli, D. (2008). An Overview of General Features of Risk Assessments of Genetically Modified Crops. Euphytica, 164(3), 853-880. doi:10.1007/s10681-007-9643-8<br>5. Guidelines for Safety Assessment of Foods Derived from Genetically Engineered<br>Plants. 2008.<br>6. Guidelines and Standard Operating Procedures for Confined Field Trials of Regulated Genetically Engineered Plants. 2008. Retrieved from http://www.igmoris.nic.in/guidelines1.asp<br>7. Alonso, G. M. (2013). Safety Assessment of Food and Feed Derived from GM Crops:Using Problem Formulation to Ensure "Fit for Purpose" Risk Assessments. Retrieved from http://biosafety.icgeb.org/inhouse publications collection biosafety reviews. |

| Department of Biotechnology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Code | Title of the course | Program Core (PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| BT3103 | Bioentrepreneurship | PEL | 2 | 1 | 0 | 3 | 3 |
| Pre-requisites | | Course Assessment methods (Continuous (CT) and end assessment (EA)) | | | | | |
| Basic understanding of Biosafety guidelines | | CT+EA | | | | | |
| Course Outcomes | **CO1.** To educate about various societal, governance and regulatory issues in biotechnology.<br>**CO 2**. To educate about entrepreneurial skill attainment in customer development, customer validation, competitive analysis of the real-world problems and projects and market survey.<br>**CO 3**. To build managerial capacity in value creation through company formation, intellectual property licensing of biopharmaceutical products.<br>**CO 4.** To raise awareness about the ethical implications and safety rules in biopharma and GMO production management. | | | | | | |

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| Topics Covered | Introduction to Bioentrepreneurship: Fundamentals of Marketing of biotechnological products, patent rules regarding product licensing. (4)<br><br>Entrepreneurship traits & motivation: Growth of entrepreneurship, The marketing and selling of Biotechnology, Creating and marketing the image of the biotechnology company, Effective advertising and marketing.(8)<br>Entrepreneurial development: Training, institution in aid of entrepreneur, Power and importance of Positioning of a company name and product. (6)<br>Capacity building: Regulatory systems for health products in India: Regulatory authority India central (federal) and state (provincial) authorities. Central Licensing Authority. International collaboration of India with South East Asia Regulatory Network (SEARN). Quality management system (QMS). Regulatory functions : Control of clinical trials. Marketing Authorization, Registration Certificate for Import, Manufacturing Licence, Non-Objection Certification (NOC). Licence to manufacture Pre-approval batches, Import Licence, Export NOC for Biological Samples Pharmacovigilance for medicines, vaccines and blood products. (3)<br>Setting of a small industry, location of an enterprise, steps of starting small industry, Incentive & subsidies for industry, Problems of entrepreneurship, The Art of Negotiation, Workable marketing and the strength of distribution. Opportunities in international marketing. (8)<br>Risk & benefit assessment: Steps involved in product licensing and technology transfer for commercialization of a biotechnological product. (6)<br>Ethical issues and Biosafety guidelines: Food safety and environmental safety evaluation of genetically modified microbes, crops, animals (GMO & LMOs); Roles of Institutional Biosafety Committee, WHO, DBT guideline for institutional biosafety . Primary Containment for Biohazards; Biosafety Levels; Biosafety Levels of Specific Microorganisms. Ethical implications of biotechnological products and techniques over human health. (7) |
| Text Books, and/or reference material | Text Book:<br>1. Dynamics of Entrepreneurial development & management; Vasant Desai, Himalay Publications.<br>2. Entrepreneurship reflection & investigation; M.S. Bisht & R.C. Mishra, Chugh Publication.<br>3. Entrepreneurship development in India; Samiuddin, Mittal Publication References:<br>4. Innovation, Product Development and Commercialization: Case Studies and Key<br>5. Practices for Market<br>6. Science Business: The Promise, the Reality, and the Future of Biotech by Gary P. Pisano Harvard Business School Press: 2006.<br>7. Design and Marketing of New Products by Urban and Hauser,ISBN 0-13- 201567-6<br>8. Putting Biotechnology to Work: Bioprocess Engineering (1992) Commission on Life Sciences The national academy press |

| Department of Biotechnology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Code | Title of the course | | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| BT3151 | Genetic Engineering Laboratory | | 0 | 0 | 3 | 3 | 2 |
| Student Learning Outcomes | Students will be able to:<br>• CO1: Clone a piece of DNA or a ORF.<br>• CO2: Over express a protein and purify by affinity chromatography.<br>• CO3: Gain ideas to trouble shoot problems with gene cloning and protein expression. | | | | | | |
| Topics Covered | 1. Vector and Insert Ligation.<br>2. Preparation of competent cells.<br>3. Transformation of *E. coli* with standard plasmids, Calculation of transformation efficiency.<br>4. Confirmation of the insert by Colony PCR and Restriction mapping.<br>5. Expression of recombinant protein, concept of soluble proteins and inclusion body formation in *E. coli*, SDS-PAGE analysis.<br>6. Purification of His-Tagged protein on Ni-NTA columns:<br>a) Random Primer labeling<br>b) Southern hybridization | | | | | | |

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| Course Code | Title of the course | Program Core (PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| **BT3152** | **Protein Purification Laboratory** | PCR | 0 | 0 | 3 | 3 | 2 |
| Student Learning Outcomes | • CO1: Students should be able to perform the basic protein purification techniques for biochemical and molecular biological experiments | | | | | | |
| Topics Covered | a) Preparation of cell-free lysates<br>b) Ammonium Sulfate precipitation<br>c) Ion-exchange Chromatography<br>d) Gel Filtration<br>e) Affinity Chromatography<br>f) Generating a Purification Table<br>g) Assessing purity by SDS-PAGE Gel Electrophoresis<br>h) Assessing purity by 2-D gel Electrophoresis | | | | | | |

**ELECTIVE SUBJECTS**

**Elective basket for Microbial Biotechnology:**
**(For Elective I, II, III, and IV)**

<table>
<tr><td colspan="7">Department of Biotechnology</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2">Title of the course</td><td rowspan="2">Program Core (PCR) / Electives (PEL)</td><td colspan="4">Total Number of contact hours</td><td rowspan="2">Credit</td></tr>
<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT9112</td><td>Enzymology & Bioenergetics</td><td>PEL</td><td>3</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td colspan="2">Pre-requisites</td><td colspan="5">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="2">NA</td><td colspan="5">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="6">• CO1: Gain clear understanding of function of enzymes, principle of enzyme catalysis and enzyme kinetics.<br>• CO2: Acquire knowledge about isolation, purification and characterization of enzymes.<br>• CO3: Gain concept of free energy and measurement of free energy.<br>• CO4: Apply the concept of Chemical mechanisms of biological energy conversion in different cellular organelles.</td></tr>
<tr><td>Topics Covered</td><td colspan="6"><u>Enzymology</u><br>Rate accelerations in biological systems; Catalysis and historical perspective on enzymes; Overview of applied enzymology and enzyme technology; Enzyme nomenclature; Origins of enzyme catalytic power; Structural basis of enzyme action and characterization of active site residues; Kinetic approaches to understand enzyme action; Michaelis-Menten kinetics; Evaluation of Km, kcat and enzyme inhibition analysis; Concept of an efficient catalyst; Elucidation of kinetic mechanism through initial velocity, product inhibition, pH and isotopic analysis; Role of metal ions in enzyme catalysis; Integration of kinetic, chemical and structural data to describe enzyme action; Control of enzyme activity and its role in regulating metabolism – in vivo enzymology; Frontiers in enzymology: Rational design of an enzyme catalyst, directed evolution, abzymes, non-protein catalysts.<br><u>Bioenergetics</u><br>Molecular basis of entropy, concept of free energy, standard free energy and measurement of free energy, significance in metabolism. Application of first and second law of thermodynamics to biological systems. Energy rich bonds - ATP and interconversions of nucleotide phosphates. Phosphorylation potential. Biochemical reaction mechanism; Temperature dependency from Arrhenius law; Theoretical prediction of rate constant: Interpretation of batch kinetic data; analysis of intra-particle diffusion and reaction; Kinetics of substrate utilization, product formation and biomass production; Chemical mechanisms of biological energy conversion in mitochondria and chloroplasts, Photosynthesis energy transfer kinetics.</td></tr>
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<tr><td colspan="8">Department of Biotechnology</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2">Title of the course</td><td rowspan="2">Program Core (PCR) / Electives (PEL)</td><td colspan="4">Total Number of contact hours</td><td rowspan="2">Credit</td></tr>
<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT9132</td><td>Nutraceuticals & Nutrigenomics</td><td>PEL</td><td>3</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td colspan="2">Pre-requisites</td><td colspan="6">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="2">NA</td><td colspan="6">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">• CO1: Understand the role of nutraceuticals in cellular physiology.<br>• CO2: Understand basics of genetics, genomics and gene regulation with relation to diet.<br>• CO3: Understand the application of nutraceuticals and its market potentials.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">Nutraceuticals: General concepts of cell apoptosis/proliferation and molecular targets of nutraceuticals.<br>Nutraceutical role in host immune response, in cancer, infection and chronic/acute<br>inflammations. Mechanism of action of Nutraceutical-signaling events, proteomics and transcription factors.<br>Nutraceuticals from food and herbs I: Polyphenols, flavonoids and other phenolic<br>compounds.<br>Nutraceuticals from food and herb -II: Saponins, terpenoids and sulphur compounds, Probiotic food with therapeutic applications, Prebiotics, Genomics of Lactic Acid Bacteria<br>Nutragenomics: An introduction, Nutrient gene interaction- Structure of nuclear receptors with reference to carbohydrate, fat and vitamin A, Type 2 Diabetes Mellitus and nutrigenomics, PPAR-γ and Diabetes Mellitus, Bioactive Peptides and its role in Nutrigenomics</td></tr>
<tr><td>Text Books, and/or reference material</td><td colspan="7">Text Books<br>1. Nutritional Genomics: Discovering the Path to Personalized Nutrition by James<br>Kaput, Raymond L. Rodriguez, Wiley Functional Food Ingredients and Nutraceuticals by John Shi, CRC Press.<br>2. Nutraceuticals by Lisa Rapport, Brian Lockwood, Pharmaceutical press.<br><br>References:<br>1. Nutragenomics and Proteomics in Health Promotion and Disease Prevention by<br>Mohamed M. Rafi, FereidoonShahidi, CRC Press<br>2. Nutraceuticals: The Complete Encyclopedia of Supplements, Herbs, Vitamins, and Healing Foods by Arthur J. Roberts, GenelleSubak-Sharpe, Mary E. O'Brien<br>(Designer), Perigee Trade<br>3. Regulation of Functional Foods and Nutraceuticals: A Global Perspective by Clare Hasler, Blackwell Publishing Professional.</td></tr>
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<tr><td colspan="8">Department of Biotechnology</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2">Title of the course</td><td rowspan="2">Program Core (PCR) / Electives (PEL)</td><td colspan="4">Total Number of contact hours</td><td rowspan="2">Credit</td></tr>
<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT9133</td><td>Metabolic Engineering</td><td>PEL</td><td>3</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td colspan="2">Pre-requisites</td><td colspan="6">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="2">NA</td><td colspan="6">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">• CO1: To learn about the basic concepts of Metabolic Engineering.<br>• CO2: To understand the manipulation of metabolic pathways to enhance the yield and quality of the products.<br>• CO3: To learn and understand the models and the concepts required for the purpose of metabolic flux analysis.<br>• CO4: To study the methods and application of metabolic flux analysis.<br>• CO5: To analyze metabolic networks.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">Importance of metabolic engineering.<br>Review of cellular metabolism, Regulation of metabolic pathways, Examples of pathway manipulations: metabolic engineering in practice – enhancement of product yield and productivity.<br>Extension of product spectrum and novel products (antibiotics, biopolymers, polyketides, vitamins etc), Improvement of cellular properties.<br>Metabolic modeling: Introduction to models for cellular reactions-stoichiometry,<br>rates, and yield coefficients of cellular reactions, black box stoichiometries.<br>Material balance & data consistency: Black box model; elemental balances, degree of reduction balances, Heat balance.<br>Biochemical reaction networks: simple metabolic networks, flux analysis in metabolic networks; Metabolic control analysis.<br>Xenobiotic degradation.</td></tr>
<tr><td>Text Books, and/or reference material</td><td colspan="7">Text Books:<br>1. Metabolic Engineering: Principles and Methodologies, Gregory N. Stephanopoulos, Aristos A. Aristidou, Jens Nielsen, Academic Press.<br>2. Bioreaction Engineering Principles, Jens Nielsen, John Villadsen, Gunnar Liden, Springer.<br>Reference Books:<br>1. Pathway Analysis and Optimization in Metabolic Engineering, Néstor V. Torres, Eberhard O. Voit, Cambridge University Press.<br>2. An Introduction to Metabolic and Cellular Engineering, S. Cortassa, M. A. Aon, A.A. Iglesias, D. Lloyd, World Scientific Publishing Company.</td></tr>
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<table>
<tr><td colspan="7">Department of Biotechnology</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2">Title of the course</td><td rowspan="2">Program Core (PCR) / Electives (PEL)</td><td colspan="4">Total Number of contact hours</td><td rowspan="2">Credit</td></tr>
<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT9141</td><td>Bioprocess Engineering & Technology</td><td>PEL</td><td>3</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td colspan="2">Pre-requisites</td><td colspan="5">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="2">NA</td><td colspan="5">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="6">Students should be able to:<br>• CO1: Appreciate relevance of microorganisms from industrial context.<br>• CO2: Carry out stoichiometric calculations and specify models of their growth.<br>• CO3: Give an account of design and operations of various fermenters.<br>• CO4: Present unit operations together with the fundamental principles for basic methods in production technique for bio-based products.<br>• CO5: Calculate yield and production rates in a biological production process, and also interpret data.<br>• CO6: Calculate the need for oxygen and oxygen transfer.<br>• CO7: Critically analyse any bioprocess from market point of view.<br>• CO8: Give an account of important microbial/enzymatic industrial processes in food and fuel industry.</td></tr>
<tr><td>Topics Covered</td><td colspan="6">Basic principles of biochemical engineering<br>Isolation, screening and maintenance of industrially important microbes; microbial growth and death kinetics (an example from each group, particularly with reference to industrially useful microorganisms); strain improvement for increased yield and other desirable characteristics.<br>Stoichiometry and models of microbial growth<br>Elemental balance equations; metabolic coupling – ATP and NAD+; yield coefficients; unstructured models of microbial growth; structured models of microbial growth.<br>Bioreactor design and analysis<br>Batch and continuous fermenters; modifying batch and continuous reactors: chemostat with recycle, multistage chemostat systems, fed-batch operations; conventional fermentation v/s biotransformation; immobilized cell systems; large scale animal and plant cell cultivation; fermentation economics; upstream processing: media formulation and optimization; sterilization; aeration, agitation and heat transfer in bioprocess; scale up and scale down; measurement and control of bioprocess parameters.<br>Downstream processing and product recovery<br>Separation of insoluble products - filtration, centrifugation, sedimentation, flocculation; Cell disruption; separation of soluble products: liquid-liquid extraction, precipitation, chromatographic techniques, reverse osmosis, ultra and micro filtration, electrophoresis; final purification: drying; crystallization; storage and packaging.<br>Fermentation economics<br>Isolation of micro-organisms of potential industrial interest; strain improvement; market analysis; equipment and plant costs; media; sterilization, heating and cooling; aeration and agitation; bath-process cycle times and continuous cultures; recovery costs; water usage and recycling; effluent treatment and disposal.<br>Applications of enzyme technology in food processing<br>Mechanism of enzyme function and reactions in process techniques; enzymatic</td></tr>
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| | bioconversions *e.g.* starch and sugar conversion processes; high-fructose corn syrup; interesterified fat; hydrolyzed protein *etc.* and their downstream processing; baking by amylases, deoxygenation and desugaring by glucoses oxidase, beer mashing and chill proofing; cheese making by proteases and various other enzyme catalytic actions in food processing.<br>**Applications of microbial technology in food process operations and production, biofuels and biorefinery**<br>Fermented foods and beverages; food ingredients and additives prepared by fermentation and their purification; fermentation as a method of preparing and preserving foods; microbes and their use in pickling, producing colours and flavours, alcoholic beverages and other products; process wastes-whey, molasses, starch substrates and other food wastes for bioconversion to useful products; bacteriocins from lactic acid bacteria–production and applications in food preservation; biofuels and biorefinery. |
| Text Books, and/or reference material | Text Books:<br>1. Shuler, M. L., & Kargi, F. (2002). *Bioprocess Engineering: Basic Concepts.* Upper Saddle River, NJ: Prentice Hall.<br>2. Stanbury, P. F., & Whitaker, A. (2010). *Principles of Fermentation Technology*.<br>Oxford: Pergamon Press.<br>3. Blanch, H. W., & Clark, D. S. (1997). *Biochemical Engineering.* New York: M. Dekker. |

| Department of Biotechnology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Code | Title of the course | Program Core (PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| **BT9142** | Environmental Biotechnology | PEL | 3 | 0 | 0 | 3 | 3 |
| Pre-requisites | | Course Assessment methods (Continuous (CT) and end assessment (EA)) | | | | | |
| NA | | CT+EA | | | | | |
| Course Outcomes | • Learn about scope, applications (pollution prevention and abatement) and different parameters in the field of Environmental Biotechnology. Learn about different modes of microbial interaction with inorganic and organic pollutants.<br>• Learn about aerobic and anaerobic biotransformation mechanisms and about the scope of genetically engineered organisms in bioremediation. Learn about role and requirements of microorganisms, Microbial community composition and the interactions between community members for enhanced bioremediation.<br>• Learn about different strategies of bioremediation - in-situ bioremediation approaches, ex-situ bioremediation approaches, biostimulation, bioaugmentation, monitored natural attenuation, phytoremediation. Learn about different factors regulating bioremediation.<br>• Learn about waste water characteristics. Learn about effluent treatment processes. Learn about various suspended growth Aerobic effluent treatment processes. Learn about various attached growth Aerobic and anaerobic effluent treatment processes. | | | | | |
| Topics Covered | **Unit 1-**Introduction to Environmental Biotechnology: definition, scope of applications; Biotechnology for pollution prevention and pollution abatement (green technologies – bioleaching of metals, microbially enhanced oil recovery, biodegradable polymers, biobleaching, biodesulphurization, biofuel production, biogas, bioremediation, etc.) (4) | | | | | | |

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| | **Unit 2 -**Types of pollutants, sources of pollutants, magnitude of contamination problem, merits and limitations of bioremediation, bioremediation of organic and inorganic pollutants. Microbial interactions with heavy metals/radionuclides – bioaccumulation, biosorption, biotransformation, bioprecipitation, applications of metal-microbe interactions, biomining, engineering microorganisms for metal bioremediation (4)<br>**Unit 3 -** Biodegradation principles – microbial processes, biotransformation, mineralization, detoxification, activation, cometabolism and growth associated degradation. Requirements for biodegradation, cooperation between different microbial species for enhanced biodegradation, Implications of recalcitrance, acclimation, biotransformation mechanisms – genes, enzymes, reactions, Biodegradation pathways and metabolites, effect of contaminant structure on biodegradability. (10)<br>**Unit 4 -** Bioremediation strategies – microbial community composition and interactions between community members for enhanced bioremediation, natural attenuation and accelerated bioremediation, aerobic, anaerobic, ex-situ bioremediation approaches, in-situ bioremediation approaches, biostimulation, bioaugmentation, Phytoremediation - phytoextraction, rhizofiltration, phytodegradation, phytovolatilization, rhizoremediation, phytostabilization.(10)<br>**Unit 5 -** Waste Water & Sludge treatment:Characteristics and analysis of waste water, Treatment of waste water of sewage & Industry. Bio-kinetics coefficient and its application in waste water treatment. Basic design concepts and calculations for waste water treatment of:Preliminary treatment units – screening,grit removal , removal of oil and grease; Primary treatment units-settling tank, flotation.Biological treatment:Aerobic: Activated sludge process, secondary settling tank, trickling filter, waste stabilization pond.Anaerobic : Anaerobic reactors for treatment of waste water- Anaerobic Digesters, Upflow Anaerobic Sludge Blanket Reactor(UASB), Fluidized Bed Biofilm Reactor(FBBR), Treatment and disposal of sludge, Solid waste management , Advanced Waste Water Treatment-Limitations of conventional treatment, pathogen removal, toxic substances removal, phosphorous and nitrogen removal (12) |
| Text Books, and/or reference material | Text Books:<br>1. Bioremediation and Natural Attenuation: Process fundamentals and mathematical models by P J J Alvarez and W A Illman, Wiley-Interscience<br>2. Environmental Biotechnology – Alan Scragg<br>3. Wastewater treatement: Concepts & design approach, G L Karia, R A Christian, PHI<br>4. Water supply & waste water engineering, B S N Raju, Tata Mc Graw Hill Publications<br>5. Industrial wastes, Their disposal & Treatment; Willem Rudolfs, Reinhold Publishing Corporation, American series<br>6. Waste water Engineering: Treatment, disposal, reuse, by Metcalf & Eddy, Tata Mc Graw Hill<br>7. Environmental Engineering: A design Approach, Sincero, Arcadio. P, Sr. & Greogia; PHI<br>8. Water & wastewater Technology; Hammer, Mark J, Mark J Hammer; PHI<br>9. Biodegradation & Bioremediation (1999), Martin Alexander, Academic press.<br>10. Bioremediation engineering; design and application 1995 John. T. cookson, Jr. Mc Graw Hill, Inc.<br>11. Foster C.F., John Ware D.A., Environmental Biotechnology, Ellis Horwood Ltd.,<br>12. Environmental Pollution Control Microbiology by Ross E Mc Kinney, Dekker publisher<br>13. Environmental Engineer's Mathematics Handbook by Frank R Spellman & Nancy E Whiting. CRC Publication<br>14. Biology of wastewater treatment by N F Gray; Imperial College Press. |

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<tr><td colspan="8">Department of Biotechnology</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2">Title of the course</td><td rowspan="2">Program Core (PCR) / Electives (PEL)</td><td colspan="4">Total Number of contact hours</td><td rowspan="2">Credit</td></tr>
<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT9143</td><td>Industrial Microbiology</td><td>PEL</td><td>3</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td colspan="2">Pre-requisites</td><td colspan="6">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="2">NA</td><td colspan="6">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">Students will be able to:<br>• CO1: Describe the main steps and processes used to produce biological products in industry.<br>• CO2: Discover new useful microorganisms and store them reliably for later use.<br>• CO3: Evaluate which molecular techniques are applicable to improve production.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">Characteristics of microbes: Introduction to Microbiology and Microbes, Morphology, Structure and Growth, Bacterial and other Microbial growth curves.<br>Isolation of microbes from nature and screening of biological activities: Actinomycetes, Bacteria, Fungi, Developing and Semi-automating Screening Tests.<br>Culture preservation and inoculum development: Culture Preservation, Cryopreservation, Inoculum Development.<br>Small scale liquid fermentation: Introduction and Scope, Fermentation Vessels, Shakers, Media /Composition and Gas Exchange, Sampling and Analysis.<br>Small scale solid state fermentation: Advantages/Disadvantages of Solid State Fermentation, Growth and Production of Enzymes, Small Scale Process Control.<br>Experimental designs for improvement of fermentation: Sequential Nature of Design Experiments, Screening Designs, Optimization Designs and Verification of Models.<br>Cell and enzyme immobilization: Different types of Immobilizations (entrapment, cross linking, covalent etc.), Performance and case studies.<br>Strain improvements by recombinant and non-recombinant methods: Recombinant Methods, Non recombinant (Mutagenesis, fusion, recombination etc.), Operational Conditions, Statistical analysis.<br>Culture and analysis using gel microdrops: GMD’s for Culture and Assays, Open GMD’s, Closed GMD’s.<br>Culture of extremophiles: Culture strategies and Challenges, Preservation, Batch and Continuous cultivation etc.</td></tr>
<tr><td>Text Books, and/or reference material</td><td colspan="7">Text Books:<br>1. M.T. Madigan and J.M. Martinko, (2006), Brock Biology of Microorganisms, 11th Ed, Pearson Prentice-Hall.<br>2. J. M. Willey, L. Sherwood, C.J. Woolverton, L.M. Prescott, (2011), Prescott’s Microbiology, McGraw Hill, New-york.<br>3. A.L. Demain and J. Davies, (2004), Manual of Industrial Microbiology and Biotechnology, 2nd Ed.ASM Press.</td></tr>
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**Elective basket for Plant & Animal Biotechnology:**
**(For Elective I, II, III, and IV)**

| Department of Biotechnology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Code | Title of the course | Program Core (PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| **BT9111** | Cancer Biology | PEL | 3 | 0 | 0 | 3 | 3 |
| Pre-requisites | | Course Assessment methods (Continuous (CT) and end assessment (EA)) | | | | | |
| NA | | CT+EA | | | | | |
| Course Outcomes | • CO1: To gain knowledge about the classification of cancer, types and phenotypic characteristics.<br>• CO2: To understand differentiation and apoptosis, Biology of metastasis, Carcinogenesis, Cancer genetics.<br>• CO3: To understand the Host tumor interactions, Gene rearrangements, detecting oncogene abnormalities in clinical specimens.<br>• CO4: To learn about Principles of chemotherapy, Concepts in cancer therapy - Mechanisms of cytotoxic drug action, Cancer Immunotherapy. | | | | | | |
| Topics Covered | Cancer incidence and mortality; origin of neoplastic cells; cancer as cellular disease; tumor cell growth kinetics. Oncogenes and tumor suppressor genes. Environmental carcinogens; carcinogen metabolism. Chemical carcinogenesis; initiation, promotion and progression. Mechanism of ultraviolet radiation carcinogenesis (melanoma and non melanoma skin cancer). Animal models of cancer research; athymic nude mice model; syngeneic mouse model, transgenic mouse model etc. Heredity and cancer; genetic basis of carcinogenesis (e.g. APC mutation and colon cancer). Viral carcinogenesis mechanism. Immunological aspects of cancer; leukemia. Deregulated cell cycle progression in cancer.<br>Aberrant cell signaling in cancer. Antiapoptotic mechanisms for the survival of cancer cells. Tumor angiogenesis and its molecular mechanisms. Mechanisms of cancer invasion and metastasis. Cancer therapeutics: surgery, radiation and chemotherapy. Chemoprevention of cancer. Immunotherapy of cancer. | | | | | | |
| Text Books, and/or reference material | Text Books:<br>1. Molecular Biology of Cancer by F. Macdonald, C.H.J. Ford, and A.G. Casson; Garland Science / Bios Scientific Publishers<br>2. Molecular Biology of Human Cancers by Wolfgang Arthur Schulz Springer. | | | | | | |

| Department of Biotechnology | | | | | | | |
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| Course Code | Title of the course | Program Core (PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| **BT9114** | Protein Folding Misfolding and Diseases | PEL | 3 | 0 | 0 | 3 | 3 |
| Pre-requisites | | Course Assessment methods (Continuous (CT) and end assessment (EA)) | | | | | |
| NA | | CT+EA | | | | | |
| Course Outcomes | • CO1: To learn about protein structures and its classification into structural groups.<br>• CO2: To understand protein-DNA interactions and the origin of selectivity | | | | | | |

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| | and specificity in this process.<br>• CO3: Understanding of protein folding mechanism and how protein misfolding is related to several human diseases. |
| Topics Covered | Basic structural principles - The building blocks, motifs of protein structure, alpha domain structures, alpha/beta structures, beta structures, fibrous proteins.<br>DNA structures. DNA recognition in prokaryotes by helix-turn-helix motifs. DNA recognition by eukaryotic transcription factors, specific transcription factors.<br>Structural feature of common proteins involved in enzyme catalysis, signal transduction and immunity.<br>Protein Structure determination.<br>Protein folding: thermodynamics, kinetics and chaperones.<br>Protein misfolding and Diseases. |
| Text Books, and/or reference material | Text Books:<br>Introduction to Protein Structure: Second Edition by Carl IV Branden, Routledge.<br>Reference book:<br>Structure and Mechanism in Protein Science A Guide to Enzyme Catalysis and Protein Folding: Alan Fersht. |

| Department of Biotechnology | | | | | | | |
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| Course Code | Title of the course | Program Core (PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| **BT9122** | Molecular Virology | PEL | 3 | 0 | 0 | 3 | 3 |
| Pre-requisites | | Course Assessment methods (Continuous (CT) and end assessment (EA)) | | | | | |
| NA | | CT+EA | | | | | |
| Course Outcomes | • CO1: To acquire an understanding of virus life cycle and host-virus interactions.<br>• CO2: To acquire an idea about detection, prevention and treatment of virus infections.<br>• CO3: To learn about the use of virus in biotechnology. | | | | | | |
| Topics Covered | Brief history and principles of virology. (1)<br>Principles of virus classification. (2)<br>General structure of viruses; Viroids, Virusoids, Satellite viruses, and Prions. (2)<br>Genome of plant and animal viruses. Mobile genetic elements. (4)<br>Replications of RNA viruses. (5)<br>Replication of DNA viruses. (5)<br>Virus-cell interactions: cytopathology; virus entry and egress; host cell shut off and IRES; viral persistence and latency. (6)<br>Methods to diagnose virus infections. (3)<br>Antiviral vaccines. (3)<br>Antivirals: interferons and its mechanisms of action. (2)<br>Gene silencing. (2)<br>Culture and purification of viruses. (2)<br>Viral vectors and gene therapy. (2)<br>New and emerging viruses (3) | | | | | | |
| Text Books, and/or reference material | Text Books<br>Principles of Virology: 4th Edition. By S. Jane Flint, Vincent R. Racaniello, Glenn F. Rall, Anna Marie Skalka, and Lynn W. Enquist.<br>Reference Books:<br>Fields Virology by Lippincott Williams and Wilkins. | | | | | | |

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<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT9123</td><td>Host – Pathogen Interactions</td><td>PEL</td><td>3</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td colspan="2">Pre-requisites</td><td colspan="6">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="2">NA</td><td colspan="6">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">• CO1: Account for structure and function of infectious viruses, bacteria and parasites.<br>• CO2: Explain the interplay between pathogen functions and host immune responses.<br>• CO3: Account for the most common diagnostic methods and treatments within infection biology and for the mechanisms of antibiotic resistance<br>• CO4: Analyse infection biological research data, draw conclusions, and propose testable<br>• hypotheses from the analysed data.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">The fundamental structure of bacteria, especially structures and mechanisms important for pathogenicity and virulence.<br>Components and structures of viral particles and the basis of virus classification.<br>General and specific properties of infectious protozoa and worms.<br>Adaptive and innate immunity. Virulence factors: Description of the most common<br>virulence mechanisms.<br>Bacterial, viral and parasitological infections and host immune modulation.<br>Diagnostics and vaccination: Basal principles for diagnosis and vaccination. The basis for PCR, RT-PCR, immunofluorescence, ELISA, FACS and Western blotting.<br>Antibiotics and antibiotics resistance: Principles of antibiotic mechanisms. Mechanisms of the origin of antibiotics resistance.</td></tr>
<tr><td>Text Books, and/or reference material</td><td colspan="7">Text Books<br>1. Roitt’s Essential Immunology 2. Immunobiology: The immune system in health and disease by Charles Janeway et al 3. Kuby Immunology 4. Relevant review articles/research papers/handouts provided in the course.<br><br>Reference:<br>Fields Virology by Lippincott Williams and Wilkins.</td></tr>
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<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT9124</td><td>Infection Biology</td><td>PEL</td><td>3</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td colspan="2">Pre-requisites</td><td colspan="6">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="2">NA</td><td colspan="6">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">CO1: To understand about the spread of infectious diseases, the social impact and means of infection control.<br>CO2: To learn about bacterial infections and ways to tackle different bacterial diseases.<br>CO3: To learn the viral infections, vaccine development and challenges.<br>CO4: To learn about the protozoan and fungal infections and methods to combat them.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">Origin of Infection; Evolution of infectious diseases; Concept of Infection: Immunity, Immune surveillance, Virulence, Pathogenesis.<br>Introduction to pathogenic and non-pathogenic bacteria; Common bacterial diseases in humans; Basic mechanism of Bacterial pathogenesis; Bacterial survival in host cells-Quorum sensing; Bacterial virulence factors: Microbial structures and Toxins; infection; Bacterial immune evasion: Molecular Mimicry; Strategies for antibacterial therapy:<br>Antibiotics, Other antibacterial compounds, and Antibiotic resistance- MDR and XDR strains. Bacterial vaccines. Case study: E. coli infection and diarrhoea.<br>History of viral infections; Different viral diseases; Viral pathogenesis; Viral life cycle; Virus genomes and structure; Host –virus interactions; Host Immune reaction against viruses; Viral evasion of host immune surveillance; Antiviral pathways; Mutations in viral genome; Viral diseases and antibody response; Vaccine against viral diseases; Antivirals compounds for viral infections; Challenges in vaccine production against certain virtues;<br>Case study: Influenza.<br>Introduction to Protozoan Diseases; Different protozoan diseases, General mode of action of protozoa; Pathogenesis of protozoan diseases; Host response to Protozoans; Molecular signalling against Protozoa; Hypersensitivity and autoimmunity associated with Protozoan infections; Antimalarial drug development; Case study: Plasmodium.<br>General fungal diseases; Mode of action of fungal diseases; Immune response against fungal infection; Case study: Candidiasis; Infection caused by Yeast; Mode of action of Yeast infection; Case study: Ring worm; Infection and life style-Concepts of Microbiome; Neglected diseases.<br>Spread of Infectious diseases; Disease epidemiology, Steps involved in epidemiology and epidemiological case studies; Purpose of infection control, Regulations, policy and practice; Roles and responsibilities in infection control; Risk assessments; Principles of infection control procedures.</td></tr>
<tr><td>Text Books, and/or reference material</td><td colspan="7">Text Books:<br>1. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases-8thEdition; Volume I and II. By John E. Bennett, Raphael Dolin, Martin J. Blaser. Sauders Publication.<br>2. Immunology of Infectious Diseases. Edited by Stephan Kaufmann, Alan Sher, and Rafi Ahmed. American Society for Microbiology.<br>Reference Books:<br>1. Principles of Virology: 4th Edition. By S. Jane Flint, Vincent R. Racaniello, Glenn F. Rall, Anna Marie Skalka, and Lynn W. Enquist.<br>2. American Society for Microbiology Practical Healthcare Epidemiology, 4th Edition. By Ebbing Lautenbach. Cambridge University press.<br>3. Principles and practice of clinical bacteriology-2nd Edition. By Stephen</td></tr>
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| | Gillespie, Peter M. Hawkey. John Wiley & Sons. |

| Department of Biotechnology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Code | Title of the course | Program Core (PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| **BT9145** | Animal Biotechnology | PEL | 3 | 0 | 0 | 0 | 3 |
| Pre-requisites | | Course Assessment methods (Continuous (CT) and end assessment (EA)) | | | | | |
| Genetics and Molecular Biology | | CT+EA | | | | | |

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| Course Outcomes | 1. Learn about animal cell culture technique in laboratory scale.<br>2. Learn about technique for animal in large scale.<br>3. Learn about various techniques in animal biotechnology.<br>4. Learn about transgenic and knock animal techniques and its application.<br>5. Learn about techniques and importance of gene therapy<br>6. Learn about IVF technique and its importance.<br>7. Learn about stem cells and its applications. |
| Topics Covered | 1. History scope and prospect of animal cell culture: History of animal cell culture and development, Development of primary culture, Development of cell line by enzymatic disaggregation, Culture media and growth conditions.Cell type and characterization, origin of animal cell line, maintenance and characterization of different cell lines, Marker gene characterization.<br>2. Growth and scale up: Cell growth characteristics and kinetics, Micro-carrier attached growth, Cell culture in continuous, perfusion and hollow fiber reactor, Mass transfer in mammalian cell culture.<br>3. Technology – Present and future: Hybridoma technology/Monoclonal antibody technology, Vaccine production, Organ culture, Transfection of animal cells, Future tissue engineering.<br>4. Transgenic and Konck out Animals: Methodology, Embryonic Stem Cell method,<br>5. Microinjection method, Retroviral vector method, Applications of transgenic animals<br>6. Gene Therapy: Ex-vivo gene therapy, In vivo gene therapy, Viral gene delivery system,Retrovirus vector system, Adenovirus vector system, Adeno-Associated virus vectorsystem, Herpex simplex virus vector system, Non-viral gene delivery system, Prodrug activation therapy, Nucleic acid therapeutic agents.<br>7. In Vitro Fertilization and Embryo Transfer:Composition of IVF media, Steps involved in IVF, Fertilization by means of micro insemination, PZD, ICSI, SUZI, MESA.<br>8. Stem cells: Classification and types, Sources, Markers, Differentiation signals, application, IPSC |
| Text/ References | 1. Animal Cell Culture by John R.W. Masters; Oxford University Press<br>2. Introduction to Cell and Tissue Culture by Jennie P. Mather and Penelope E. Roberts Plenum Press, New York and London<br>3. Molecular Biotechnology: Primrose.<br>4. Animal Cell Biotechnology: R.E. Spier and J.B. Griffiths (1988), Academic press.<br>5. Balasubramanian, Bryce, Dharmalingam, Green and Jayaraman (Eds.), Concepts in Biotechnology, University Press, 1996<br>6. Hood L.E., Weissman I., Wood W.B. and Wilson J.H. Immunology, Benjamin Cummings, 1989<br>7. Biotol Series – Butterworth and Heineman, Oxford, 1992 |

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<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT9146</td><td>Regenerative Medicine and Translational Research</td><td>PEL</td><td>3</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td colspan="2">Pre-requisites</td><td colspan="6">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="2">Cell Biology, Biochemistry, Genetics, Molecular Biology</td><td colspan="6">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">CO1: To understand the basic mechanisms of how cells differentiate into specific tissues in response to a variety of biologic signaling molecules and the use of such factors for tissue production in-vitro.<br>CO2: To acquire knowledge on the molecular basis of cellular and functional changes of different organs that occur in disease and treatments that cause tissue remodeling to correct these changes<br>CO3: To gather insights on how studies of the developmental, cellular and molecular biology of regeneration have led to the discovery of new drugs/therapy for regenerative therapy.<br>CO4: To understand the recent advances on application the regenerative therapy from well characterized case studies.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">1. An Introduction to Stem Cells(2)<br>2. Adult Stem Cells (1)<br>3. Embryonic Stem Cells (1)<br>4. Induced Pluripotent Stem Cells (1)<br>5. Hematopoietic Stem Cells (1)<br>6. Mesenchymal stem cells , cord blood cells, Lessons from Medipost company products like Neurostem, Cardiostem, Cartistem, Pneumostem (4)<br>7. Molecular and Cellular Bases of Organ Development (6)<br>8. Cloning of Somatic Cells by Nuclear Transfer, iPSC based cloning, Production of chimera animals(4)<br>9. Molecular Bases of degenerative disease (1)<br>10. Therapeutic Uses of Stem Cells with examples (2)<br>11. In vivo Regeneration of Tissues by Cell Transplantation (2)<br>12. IPS Cells as Experimental Models of Neurodegenerative Disorders: use of them as disease modelling platform, novel drug testing and tissue regenerative therapy and implantation studies(2)<br>13. Studies of Patients Treated with Stem Cells, The modalities of treatment, Preparation of cells/tissues/scaffolds and Transplantation procedure(3)<br>14. Tissue Regeneration Driven by Growth Hormones (2)<br>15. Organ of dish, Orgnoid culture, Tissue Bioprinting to develop transplantation quality organs, Bioartificial Organs(8)<br>16. Biobanking of stem cells and the ethical considerations in regenerative medicine. (2)</td></tr>
<tr><td>Text Books, and/or reference material</td><td colspan="7">Text Books:<br>1. Stem Cells, Tissue Engineering And Regenerative MedicineBy: David Warburton 1st Edition.<br>2. Principles of Regenerative Medicine by AnthonyAtala Robert Lanza Tony Mikos Robert Nerem,3rd Edition.<br>3. Translational Regenerative Medicine byAnthony Atala and Julie G. Allickson<br>Reference Books:<br>1. The Developping Human, Keith L. Moore/T.V.N. Persaud /Mark G. 10th Ed.</td></tr>
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| | 2. Encyclopedia of Tissue Engg. and Regenerative Medicine, Rui Reis, 1st Ed. |

| Department of Biotechnology | | | | | | | |
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| Course Code | Title of the course | Program Core (PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| **BT9147** | Drug Discovery and Development | PEL | 3 | 0 | 0 | 3 | 3 |
| Pre-requisites | | Course Assessment methods (Continuous (CT) and end assessment (EA)) | | | | | |
| NA | | CT+EA | | | | | |
| Course Outcomes | On completion of this course, students should be able to understand basics of R&D in drug discovery and should be able to apply knowledge gained in respective fields of pharmaceutical industry. | | | | | | |
| Topics Covered | **Target identification and molecular modelling**<br>Identification of target or drug leads associated with a particular disease by a number of different techniques including combinations of molecular modeling, combinatorial libraries and high-throughput screening (HTS); Conceptualizing the automation of the HTS process and the importance of bioinformatics and data processing in identification of lead compounds; Rational drug design, based on understanding the three-dimensional structures and physicochemical properties of drugs and receptors; Modelling drug/receptor interactions with the emphasis on molecular mechanisms, molecular dynamics simulations and homology modelling; Conformational sampling, macromolecular folding, structural bioinformatics, receptor-based and ligand-based design and docking methods, in silico screening of libraries, semi-empirical and ab-initio methods, QSAR methods, molecular diversity, design of combinatorial libraries of drug-like molecules, macromolecular and chemical databases.<br>**Lead optimization**<br>Identification of relevant groups on a molecule that interact with a receptor and are responsible for biological activity; Understanding structure activity relationship; Structure modification to increase potency and therapeutic index; Concept of quantitative drug design using Quantitative structure–activity relationship models (QSAR models) based on the fact that the biological properties of a compound are a function of its physicochemical parameters such as solubility, lipophilicity, electronic effects, ionization, stereochemistry, etc.; Bioanalytical assay development in support of in vitro and in vivo studies (LC/MS/MS, GC/MS and ELISA).<br>**Preclinical development**<br>Principles of drug absorption, drug metabolism and distribution - intestinal absorption, metabolic stability, drug-drug interactions, plasma protein binding assays, metabolite profile studies, Principles of toxicology, Experimental design for preclinical and clinical PK/PD/TK studies, Selection of animal model; Regulatory guidelines for preclinical PK/PD/TK studies; Scope of GLP, SOP for conduct of clinical & non clinical testing, control on animal house, report preparation and documentation Integration of non-clinical and preclinical data to aid design of clinical studies.<br>**Drug manufacturing**<br>Requirements of GMP implementation, Documentation of GMP practices, CoA, Regulatory certification of GMP, Quality control and Quality assurance, concept and philosophy of TQM, ICH and ISO 9000; ICH guidelines for Manufacturing, Understanding Impurity Qualification Data, Stability Studies. | | | | | | |

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| | **Clinical trial design**<br>Objectives of Phase I, II, III and IV clinical studies, Clinical study design, enrolment, sites and documentation, Clinical safety studies: Adverse events and adverse drug reactions, Clinical PK, pharmacology, drug-drug interaction studies, Statistical analysis and documentation.<br>**Fundamentals of regulatory affairs and bioethics**<br>Global Regulatory Affairs and different steps involved, Regulatory Objectives, Regulatory Agencies; FDA guidelines on IND and NDA submissions, Studies required for IND and NDA submissions for oncology, HIV, cardiovascular indications, On-label vs. off-label drug use GCP and Requirements of GCP Compliance, Ethical issues and Compliance to current ethical guidelines, Ethical Committees and their set up, Animal Ethical issues and compliance. |
| Text Books, and/or reference material | Text Books:<br>1. Krogsgaard-Larsen et al. Textbook of Drug Design and Discovery. 4th Edition. CRC Press.<br>2. Kuhse, H. (2010). Bioethics: an Anthology. Malden, MA: Blackwell.<br>3. Nally, J. D. (2006) GMP for Pharmaceuticals. 6th edition. CRC Press<br>4. Brody, T. (2016) Clinical Trials: Study Design, Endpoints and Biomarkers, Drug Safety, and FDA and ICH Guidelines. Academic Press. |

| Department of Biotechnology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Code | Title of the course | Program Core (PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| **BT9148** | Vaccine Technology | PEL | 3 | 0 | 0 | 3 | 3 |
| Pre-requisites | | Course Assessment methods (Continuous (CT) and end assessment (EA)) | | | | | |
| Immunology | | CT+EA | | | | | |
| Course Outcomes | CO1: To understand the factors that influence vaccine design and development<br>CO2: To understand how research based discovery has driven vaccine development<br>CO3: To know about the different types of vaccines<br>CO4: To learn about the quality control and regulation in the vaccine production<br>CO5: To understand the importance of vaccination as a public health strategy | | | | | | |
| Topics Covered | History of vaccine development- Importance of vaccines (2)<br>Immunological response to vaccines (2)<br>Vaccine design and development: Epitope identification; Vaccine efficacy, Adjuvants (6)<br>Different types of vaccines: Inactivated toxins, Inactivated whole bacteria or viruses, Live attenuated bacteria or viruses; Subunit vaccines, Polysaccharide vaccines, Conjugated vaccines ; Recombinant DNA vaccines, Edible vaccines, Virus like particles (8)<br>Next-generation vaccines: Human Immunome project; Human antibodies as vaccines (4)<br>Production techniques used for vaccines (4)<br>Storage and preservation of vaccines (4)<br>Delivery methods: microspheres, nanoparticles; ISCOMS and immunomodulators (6)<br>Regulatory issues in vaccine production: OIE guidelines for production and seed lot management; Manufacturing recommendation; Final product release tests (5)<br>Vaccine safety-the debate (1) | | | | | | |

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| Text Books, and/or reference material | Text Books:<br>1. New Vaccine Technologies: Ronald W. Ellis (Landes Bioscience), 2001.<br>2. Vaccines: Stanley A. Plotkin, Walter A. Orenstein, Paul A. Offit(Elsevier), 6th Edition<br>Reference Books:<br>2. Medical Microbiology : Samuel Baron , 4th Edition (University of Texas)<br>3. Advances in Vaccine Technology and Delivery: Cheryl Barton, Espicom Business Intelligence.<br>4. "Vaccine manual: The production and quality control of veterinary vaccines for use in developing countries": Noel Mowat ,Daya books. |

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| **BT9149** | Plant Biotechnology | PEL | 3 | 0 | 0 | 3 | 3 |
| Pre-requisites | | Course Assessment methods (Continuous (CT) and end assessment (EA)) | | | | | |
| Biochemistry, Cell Biology, Genetics, Molecular Biology & rDNA Technology | | CT+EA | | | | | |
| Course Outcomes | CO1: To understand the concepts and techniques of plant tissue culture.<br>CO2: To understand the basic methods of mapping and cloning plant genes.<br>CO3: To learn the methodologies of genetic transformation of plants.<br>CO4: To generate the ability to create genetically modified plants by means of plant breeding and genetic engineering with improved quality traits. | | | | | | |
| Topics Covered | • History of Plant Tissue Culture (1)<br>• Lab requirements and general techniques (1)<br>• Tissue Culture Media (1)<br>• Hormones in plant tissue culture (4)<br>• Cellular Totipotency (1)<br>• Somatic embryogenesis (1)<br>• Cell Suspension Culture (1)<br>• Haploid Production, (1)<br>• Somaclonal variation (1)<br>• Protoplast Isolation and Culture (1)<br>• Micropropagation in plants(1)<br>• Morphological Markers, Biochemical Markers, (1)<br>• molecular markers (DNA / protein) – RFLP, RAPD,AFLP, SSLPs, ESTs, SNPs etc., (6)<br>• Molecular mapping, Map-based cloning, (2)<br>• marker-assisted selection, marker-aided breeding, (1)<br>• Cloning of plant genes using activation tagging, transposon tagging etc. (2)<br>• Direct and indirect methods of genetic transformation of plants, (2) *Agrobacterium* mediated gene transfer, Ti Plasmid, (3)<br>• vectors for plant transformation, selectable and screenable markers, (1)<br>• gene constructs, strategies for genetic transformation of plants,(2) gene silencing, RNA interference, (1)<br>• genome editing in plants, (1)<br>• resistance to biotic stresses, tolerance to abiotic stresses, genetically modified crops (5) | | | | | | |
| Text Books, and/or reference material | **Text Books:**<br>• H.S.Chawla, Introduction to Plant Biotechnology, Oxford &IBH Publishing co. Pvt..Ltd Slater.A.,Nigel W.S, Flower R.Mark<br>• Plant Biotechnology: The Genetic Manipulation of Plants, 2003, Oxford Univesity Press.<br>• Buchaman, Gursam, Jones, Biochemistry and Molecular Biology of Plants, | | | | | | |

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| | 1ed, 2000, L.K.International.<br>• Bhojwani and Razdan –PlantTissue Culture: Theory and Practice 1996 Elsevier<br>**Reference Books:**<br>• Butterworth & Heineman, Invitro Cultivation of Plant Cells, Biotol Series.<br>• H.E Street(ed): Tissue culture and Plant science, Academic press, London, 1974 GamborgO.L.,.Phillips G.C, Plant Cell, Tissue and Organ Culture, Narosa Publishing House |

| Department of Biotechnology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Code | Title of the course | Program Core (PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| **BT9150** | Plant Developmental Biology | PCR | 3 | 0 | 0 | 3 | 3 |
| Pre-requisites<br>Plant Molecular Biology and Genetics | | Course Assessment methods (Continuous (CT) and end assessment (EA) | | | | | |
| NIL | | CT+EA | | | | | |
| Course Outcomes | CO1: Students will Learn about the roles of light and various phytohormones in plant growth and development.<br>CO2: Students will acquire knowledge about soot and root apical meristems.<br>CO3: Students will Learn about the effect of different environmental factors on plant growth and development.<br>CO4: Students will be able to apply the acquired knowledge in understanding and solving biotechnology issues in a societal context. | | | | | | |
| Topics Covered | Embryogenesis and Organogenesis (4)<br>Soot and root apical meristem (2)<br>Growth of seedlings (5)<br>Environmental Factor (2)<br>Totipotency (4)<br>Phototropism and gravitropism (3)<br>Plant morphology (2)<br>Photomorphogenesis (6)<br>Phytohormones (4) | | | | | | |
| Text Books, and/or reference material | 1.Lewin B: Genes (VI and above Edition).<br>2. Albert, B: Molecular Biology of the Cell (any Edition).<br>3. Research articles will be given by the teacher. | | | | | | |

<table>
<tr><th colspan="8">Department of Biotechnology</th></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2">Title of the course</td><td rowspan="2">Program Core (PCR) / Electives (PEL)</td><td colspan="4">Total Number of contact hours</td><td rowspan="2">Credit</td></tr>
<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT9151</td><td>Genetic Engineering of Crop Plants</td><td>PEL</td><td>3</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td colspan="2">Pre-requisites</td><td colspan="6">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="2">BTC402 (Cell & Tissue Culture of Animals & Plants)</td><td colspan="6">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">CO1: Development of knowledge of natural resistance / tolerance to various biotic and abiotic stress to plants.<br>CO2: Development of ability to design strategy to genetically modify crop plants for quality improvement.<br>CO3: Learning about the strategies toward generating environment friendly GM crops.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">Introduction [2]<br>Methods of genetic transformation [4]<br>Genetic engineering of resistance to biotic stress [6]<br>Genetic engineering of tolerance to abiotic stress [6]<br>Genetic engineering for removal of environmental pollutants [4]<br>Genetic engineering for quality nutrition and health [4]<br>Genetic engineering for molecular farming [4]<br>Biosafety concerns [4]<br>Removal of selectable markers from GM crops [4]<br>Modern tools of genetic manipulation of plants [4]</td></tr>
<tr><td>Text Books, and/or reference material</td><td colspan="7">Text Books:<br>1. H.S.Chawla, Introduction to Plant Biotechnology, Oxford & IBH Publishing co. Pvt..Ltd<br>2. Slater.A.,NigelW.S,Flower.R.Mark , Plant Biotechnology: The Genetic Manipulation of Plants, 2003, Oxford Univesity Press.<br>Reference Book:<br>3. Buchaman, Gursam, Jones, Biochemistry and Molecular Biology of Plants, 1ed, 2000, L.K.International.<br>4. Bhojwani and Razdan –Plant Tissue Culture: Theory and Practice 1996 Elsevier</td></tr>
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<tr><td colspan="8">Department of Biotechnology</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2">Title of the course</td><td rowspan="2">Program Core (PCR) / Electives (PEL)</td><td colspan="4">Total Number of contact hours</td><td rowspan="2">Credit</td></tr>
<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>BT9152</td><td>Molecular Plant Pathogen Interactions</td><td>PEL</td><td>3</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td colspan="2">Pre-requisites</td><td colspan="6">Course Assessment methods (Continuous (CT) and end assessment (EA))</td></tr>
<tr><td colspan="2">Molecular Biology & rDNA Technology</td><td colspan="6">CT+EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">CO1: Development of basic concept of plant diseases and contribution of environment toward plant disease development.<br>CO2: Understanding the genetics of plant pathogen interactions.<br>CO3: Learning about mechanisms of host defense & pathogenesis.<br>CO4: Development of knowledge toward developing control measures against phytopathogens.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">Introduction to molecular plant pathology, Plant diseases, (4)<br>Plant disease development and environment, (3)<br>Effects of pathogen on plant physiology, (2)<br>Biochemistry of plant defense reactions, (3) Plant-pathogen interactions, (3)<br>Genetic regulation of resistance in host plants, (4)<br>Genetic regulation of virulence in pathogen, (4)<br>Mechanisms of host defense, (3)<br>Mechanisms of pathogenesis, (3)<br>Hormone signaling pathways, (7)<br>Biotechnological approach for plant protection; (3)<br>Genetically modified plants to protect against pathogens. (3)</td></tr>
<tr><td>Text Books, and/or reference material</td><td colspan="7">Text Books:<br>Plant Pathology; Fifth Edition, Elsevier; By Geroge N. Agrios.<br>Biochemistry and Molecular Biology of Plants; American Society of Plant Biologists; By Bob Buchanon, Wilhelm Gruissem and Russel Jones.<br>Reference Books:<br>Plant Immunity; Methods in Molecular Biology, 2011, 712, Springer.<br>Plant-Pathogen Interactions; Methods in Molecular Biology; By Pamela Ronald, 2007, 354, Springer.<br>Plant-Pathogen Interactions; Annual Plant Reviews; By Nick Talbot, 2004, 11, Blackwell Publishing.</td></tr>
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# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

**MAHATMA GANDHI AVENUE**
**DURGAPUR 713 209, WEST BENGAL, INDIA**
**Website: www.nitdgp.ac.in**

## Admission to M. Tech. (Self-Sponsored) Programme (2023-2025) (without scholarship)

## ADVANCE ADVERTISEMENT

Based on the availability of vacant seats (category wise) after the conclusion of CCMT 2022, the Institute will admit students without scholarship in the M. Tech. (Self-Sponsored) Programme.

The expected date of uploading the available seat matrix and full detail of advertisement on this web page is **August 17, 2023.** Notification will only be made against the M. Tech. programs, which will have any vacancy.

**Tentative Timeline:**

| | |
|---|---|
| Publication of detailed advertisement with vacancy (tentative) | August 17, 2023 |
| Written Test by respective department (in walk-in mode) | August 21, 2023<br>• Dept. of BT, CE, EC & ME = 10 AM to 11 AM<br>• Dept. of CH, EE, OR & PHY = 12 Noon to 1 PM<br>• Dept. of CSE, EES, MM = 3 PM to 4 PM |
| Uploading of the name of selected candidates on the Institute Website | August 21, 2023 |
| Admission and enrolment of selected candidates | August 22, 2023 |
| Commencement of Classes | August 23, 2023 |

Application Processing Fee: **₹ 1000** (Demand Draft in favour of "National Institute of Technology Durgapur" Payable at Canara Bank, NIT Campus, Durgapur).

**ELIGIBILITY:**

| **Category** | **10 + 2** | **Percentage Marks / CGPA** | |
|---|---|---|---|
| | | **GATE Qualified, but not allotted a seat through CCMT 2022** | **Non-GATE Qualified** |
| OPEN/OBC-NCL/OPEN-EWS | 60% | 60% or 6.5 CGPA | • 7.5 CGPA (on a 10-point scale) or 70% for B. Tech. or equivalent.<br>• 6.5 CGPA (on a 10-point scale) or 60% for M. Sc. |
| SC/ST | 55% | 55% or 6.0 CGPA | • 7.0 CGPA (on a 10-point scale) or 65% for B. Tech. or equivalent.<br>• 6.0 CGPA (on a 10-point scale) or 55% for M. Sc. |

Conversion from CGPA to percentage or vice versa given by individual Institute will not be considered. Candidates will have to mention CGPA/Percentage as awarded by their University/Institute in the application form.

**Intersted candidates may submit their willingness at https://forms.gle/KVL2RaPa3jyZji8x7.**

**QUALIFYING DEGREES**

| Department | Program Name | Eligibile Degrees |
|---|---|---|
| Department of Biotechnology (BT) | Biotechnology | B.E./B.Tech. In Agriculture Engineering |
| | | B.E./B.Tech. In Agriculture and Food Engineering |
| | | B.E./B.Tech. In Biochemical and Biotechnology Engineering |
| | | B.E./B.Tech. In Biochemical Engineering |
| | | B.E./B.Tech. In Biochemical Engineering and Biotechnology |
| | | B.E./B.Tech. In Bioengineering |
| | | B.E./B.Tech. In Bioinformatics |
| | | B.E./B.Tech. In Biological Sciences and Bioengineering |
| | | B.E./B.Tech. In Bioprocess Engineering |
| | | B.E./B.Tech. In Bioscience and Bioengineering |
| | | B.E./B.Tech. In Biotech Engineering |
| | | B.E./B.Tech. In Biotechnology |
| | | B.E./B.Tech. In Biotechnology & Biochemical Engineering |
| | | B.E./B.Tech. In Chemical and Bio Engineering |
| | | B.E./B.Tech. In Chemical Engineering |
| | | B.E./B.Tech. In Chemical Technology |
| | | B.E./B.Tech. In Food Engineering |
| | | B.E./B.Tech. In Food Process Engineering |
| | | B.E./B.Tech. In Food Technology |
| | | B.E./B.Tech. In Food Technology & Biochemical Engineering |
| | | B.E./B.Tech. In Genetic Engineering |
| | | B.E./B.Tech. In Industrial Biotechnology |
| | | B.E./B.Tech. In Pharmaceutical Science |
| | | B.E./B.Tech. In Pharmaceutical Technology |
| | | M.Sc. in Bio-Sciences |
| | | M.Sc. in Biotechnology |
| | | M.Sc. in Life Sciences |
| Department Of Chemical Engineering (CH) | Chemical Engineering | B.E./B.Tech. In Agriculture Engineering |
| | | B.E./B.Tech. In Biochemical Engineering |
| | | B.E./B.Tech. In Biotechnology |
| | | B.E./B.Tech. In Ceramic Engineering |
| | | B.E./B.Tech. In Ceramic Technology |
| | | B.E./B.Tech. In Chemical Engineering |
| | | B.E./B.Tech. In Chemical Technology |
| | | B.E./B.Tech. In Civil Engineering |
| | | B.E./B.Tech. In Energy Engineering |
| | | B.E./B.Tech. In Environmental Engineering |
| | | B.E./B.Tech. In Environment and Pollution Control |
| | | B.E./B.Tech. In Environmental Science and Engineering |
| | | B.E./B.Tech. In Food Engineering |

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|---|---|---|
| | | B.E./B.Tech. In Food Engineering and Technology |
| | | B.E./B.Tech. In Food Process Engineering |
| | | B.E./B.Tech. In Food Process Technology |
| | | B.E./B.Tech. In Food Technology |
| | | B.E./B.Tech. In Material Science and Engineering |
| | | B.E./B.Tech. In Mechanical Engineering |
| | | B.E./B.Tech. In Metallurgical and Materials Engineering |
| | | B.E./B.Tech. In Nanotechnology |
| | | B.E./B.Tech. In Oil Technology |
| | | B.E./B.Tech. In Petrochemical Engineering |
| | | B.E./B.Tech. In Petrochemical Technology |
| | | B.E./B.Tech. In Petrochem and Petroleum Refinery Engineering |
| | | B.E./B.Tech. In Petroleum Engineering |
| | | B.E./B.Tech. In Petroleum Technology |
| | | B.E./B.Tech. In Pharmaceutical Technology |
| | | B.E./B.Tech. In Plastic Engineering |
| | | B.E./B.Tech. In Polymer Science and Technology |
| | | B.E./B.Tech. In Polymer Science and Chemical Technology |
| | | Including Polymer And Environmental Group (IIChemE) |
| | | The Institution Of Engineers (India) (IE) |
| Department Of Chemical Engineering (CH) | Chemical Engineering (Energy Resources And Sustainable Environmental Engineering) | B.E./B.Tech. In Agriculture Engineering |
| | | B.E./B.Tech. In Biochemical Engineering |
| | | B.E./B.Tech. In Bioengineering |
| | | B.E./B.Tech. In Biotechnology |
| | | B.E./B.Tech. In Ceramic Engineering |
| | | B.E./B.Tech. In Ceramic Technology |
| | | B.E./B.Tech. In Chemical And Polymer Engineering |
| | | B.E./B.Tech. In Chemical Engineering |
| | | B.E./B.Tech. In Chemical Technology |
| | | B.E./B.Tech. In Civil Engineering |
| | | B.E./B.Tech. In Civil Technology |
| | | B.E./B.Tech. In Civil Engg. Environment And Pollution Control |
| | | B.E./B.Tech. In Civil Environmental Engineering |
| | | B.E./B.Tech. In Energy Engineering |
| | | B.E./B.Tech. In Environment And Pollution Control |
| | | B.E./B.Tech. In Environmental Engineering |
| | | B.E./B.Tech. In Environmental Science And Engineering |
| | | B.E./B.Tech. In Environmental Science And Technology |
| | | B.E./B.Tech. In Food Engineering |
| | | B.E./B.Tech. In Food Technology |
| | | B.E./B.Tech. In Food Technology And Biochemical Engineering |
| | | B.E./B.Tech. In Food Engineering And Technology |

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|---|---|---|
| | | B.E./B.Tech. In Food Process Engineering |
| | | B.E./B.Tech. In Food Process Technology |
| | | B.E./B.Tech. In Leather Technology |
| | | B.E./B.Tech. In Material Science And Engineering |
| | | B.E./B.Tech. In Material Science And Technology |
| | | B.E./B.Tech. In Material Science And Metallurgical Engineering |
| | | B.E./B.Tech. In Mechanical Engineering |
| | | B.E./B.Tech. In Metallurgical And Materials Engineering |
| | | B.E./B.Tech. In Metallurgical And Materials Technology |
| | | B.E./B.Tech. In Nanotechnology |
| | | B.E./B.Tech. In Oil Technology |
| | | B.E./B.Tech. In Petrochemical Engineering |
| | | B.E./B.Tech. In Petrochemical Technology |
| | | B.E./B.Tech. In Petroleum Engineering |
| | | B.E./B.Tech. In Petroleum Technology |
| | | B.E./B.Tech. In Pharmaceutical Technology |
| | | B.E./B.Tech. In Plastics Engineering |
| | | B.E./B.Tech. In Plastics Technology |
| | | B.E./B.Tech. In Polymer Engineering And Technology |
| | | B.E./B.Tech. In Polymer Science And Chemical Technology |
| | | B.E./B.Tech. In Polymer Science And Rubber Technology |
| | | B.E./B.Tech. In Power Engineering |
| | | B.E./B.Tech. In Production Engineering |
| | | M.Sc. In Analytical Chemistry |
| | | M.Sc. In Applied Chemistry |
| | | M.Sc. In Applied Physics |
| | | M.Sc. In Biotechnology |
| | | M.Sc. In Chemistry |
| | | M.Sc. In Environmental Science |
| | | M.Sc. In Physical Chemistry |
| | | M.Sc. In Physics |
| | | Including Polymer And Environmental Group (IIChemE) |
| Department Of Computer Science & Engineering (CSE) | Computer Science & Engineering | B.E./B.Tech. In Computer Engineering |
| | | B.E./B.Tech. In Computer Science |
| | | B.E./B.Tech. In Computer Science And Engineering |
| | | B.E./B.Tech. In Computer Science And Information Technology |
| | | B.E./B.Tech. In Computer Science And Technology |
| | | B.E./B.Tech. In Computer Technology |
| | | B.E./B.Tech. In Information Technology |
| | | MCA |
| | | M.Sc. in Computer Science and Engineering |
| Department of Civil Engineering (CE) | Geotechnical Engineering | B.E./B.Tech. In Civil Engineering |
| | | B.E./B.Tech. In Civil Technology |

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| | | B.E./B.Tech. In Construction Engineering |
| | | B.E./B.Tech. In Construction Technology |
| | | The Institution of Civil Engineers (ICE) |
| | | The Institution of Engineers (India) (IE) |
| Department of Civil Engineering (CE) | Structural Engineering | B.E./B.Tech. In Civil Engineering |
| | | B.E./B.Tech. In Civil Technology |
| | | B.E./B.Tech. In Construction Engineering |
| | | B.E./B.Tech. In Construction Technology |
| | | The Institution of Civil Engineers (ICE) |
| | | The Institution of Engineers (India) (IE) |
| Department Of Earth & Environmental Studies (EES) | Environmental Science & Technology | B.E./B.Tech. In Biotech Engineering |
| | | B.E./B.Tech. In Biotechnology |
| | | B.E./B.Tech. In Chemical Engineering |
| | | B.E./B.Tech. In Chemical Technology |
| | | B.E./B.Tech. In Civil and Water Management |
| | | B.E./B.Tech. In Civil Engineering |
| | | B.E./B.Tech. In Civil Engineering (Public Health Engineering) |
| | | B.E./B.Tech. In Civil Environmental Engineering |
| | | B.E./B.Tech. In Civil and Environmental Engineering |
| | | B.E./B.Tech. In Civil Engineering (Environmental Engineering) |
| | | B.E./B.Tech. In Civil Technology |
| | | B.E./B.Tech. In Civil Engineering Environment and Pollution Control |
| | | B.E./B.Tech. In Environment And Pollution Control |
| | | B.E./B.Tech. In Environmental Engineering |
| | | B.E./B.Tech. In Environmental Science And Engineering |
| | | B.E./B.Tech. In Environmental Science And Technology |
| | | M.Sc. In Agricultural Science |
| | | M.Sc. In Biotechnology |
| | | M.Sc. In Chemistry |
| | | M.Sc. In Earth Science |
| | | M.Sc. In Environmental Science |
| | | M.Sc. In Geology |
| Department Of Electronics & Communication Engineering (ECE) | Microelectronics & VLSI | B.E./B.Tech. In Computer Science And Engineering |
| | | B.E./B.Tech. In Electrical And Electronics Engineering |
| | | B.E./B.Tech. In Electrical Engineering |
| | | B.E./B.Tech. In Electronics And Communication Engineering |
| | | B.E./B.Tech. In Electronics And Computer Engineering |
| | | B.E./B.Tech. In Electronics And Electrical Communication Engg |
| | | B.E./B.Tech. In Electronics And Electrical Engineering |
| | | B.E./B.Tech. In Electronics And Instrumentation Engineering |
| | | B.E./B.Tech. In Electronics And Telecommunication Engineering |

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|---|---|---|
| | | B.E./B.Tech. In Electronics Communication And Instrumentation Engineering |
| | | B.E./B.Tech. In Electronics Engineering |
| | | B.E./B.Tech. In Electronics Science And Engineering |
| | | B.E./B.Tech. In Electronics Technology |
| | | B.E./B.Tech. In Nanotechnology |
| | | B.E./B.Tech. In Radio Physics And Electronics |
| | | M.Sc. In Electronics and Communication |
| | | M. Sc. In Computer Science |
| | | M.Sc. In Electronics |
| | | M.Sc. In Radio Physics And Electronics |
| Department Of Electronics & Communication Engineering (ECE) | Next Generation Communication and Networks | B.E./B.Tech. In Communication Engineering |
| | | B.E./B.Tech. In Computer Science And Engineering |
| | | B.E./B.Tech. In Electrical And Electronics Engineering |
| | | B.E./B.Tech. In Electrical Engineering |
| | | B.E./B.Tech. In Electronics And Communication Engineering |
| | | B.E./B.Tech. In Electronics And Computer Engineering |
| | | B.E./B.Tech. In Electronics And Electrical Communication Engg |
| | | B.E./B.Tech. In Electronics And Electrical Engineering |
| | | B.E./B.Tech. In Electronics And Instrumentation Engineering |
| | | B.E./B.Tech. In Electronics And Telecommunication Engineering |
| | | B.E./B.Tech. In Electronics Communication & Instrumentation Engg |
| | | B.E./B.Tech. In Electronics Engineering |
| | | B.E./B.Tech. In Electronics Technology |
| | | B.E./B.Tech. In Radio Physics And Electronics |
| | | B.E./B.Tech. In Telecommunication Engineering |
| | | M.Sc. In Electronics and Communication Engineering |
| | | M.Sc. In Electronics |
| | | M.Sc. In Radio Physics And Electronics |
| Department Of Electrical Engineering (EE) | Power System | B.E./B.Tech. In Electrical And Electronics Engineering |
| | | B.E./B.Tech. In Electrical And Power Engineering |
| | | B.E./B.Tech. In Electrical Engineering |
| | | B.E./B.Tech. In Electrical Power Engineering |
| | | B.E./B.Tech. In Power Engineering |
| | | B.E./B.Tech. in Control and Electrical Engineering |
| | | B.E./B.Tech. in Electrical and Computer Engineering |
| | | B.E./B.Tech. in Electrical and Electronics |
| | | B.E./B.Tech. in Electrical and Electronics (Power System) |
| | | B.E./B.Tech. in Electrical and Instrumentation Engineering |
| | | B.E./B.Tech. in Electrical and Renewable Energy Engineering |

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|---|---|---|
| | | B.E./B.Tech. in Electrical Engineering (Electronics and Power) |
| | | B.E./B.Tech. in Electrical Engineering (Power) |
| | | B.E./B.Tech. in Electrical, Electronics and Power Engineering |
| | | B.E./B.Tech. in Energy Science and Engineering |
| | | B.E./B.Tech. in Power and Energy Systems Engineering |
| | | B.E./B.Tech. in Renewable Energy |
| | | The Institution Of Engineers (India) (IE) |
| Department Of Electrical Engineering (EE) | Power Electronics & Machine Drives | B.E./B.Tech. In Electrical And Electronics Engineering |
| | | B.E./B.Tech. In Electrical Engineering |
| | | B.E./B.Tech. in Control and Electrical Engineering |
| | | B.E./B.Tech. in Electrical and Computer Engineering |
| | | B.E./B.Tech. in Electrical and Electronics (Power System) |
| | | B.E./B.Tech. in Electrical and Power Engineering |
| | | B.E./B.Tech. in Electrical and Renewable Energy Engineering |
| | | B.E./B.Tech. in Electrical Engineering (Electronics and Power) |
| | | B.E./B.Tech. in Electrical Engineering (Power) |
| | | B.E./B.Tech. in Electrical Engineering and Industrial Control |
| | | B.E./B.Tech. in Electrical Power Engineering |
| | | B.E./B.Tech. in Electrical, Electronics and Power Engineering |
| | | B.E./B.Tech. in Electronics and Electrical Engineering |
| | | B.E./B.Tech. in Power and Energy Systems Engineering |
| | | B.E./B.Tech. in Power Control and Drives |
| | | B.E./B.Tech. in Power Electronics |
| | | B.E./B.Tech. in Power Electronics and Instrumentation Engineering |
| | | B.E./B.Tech. in Power Engineering |
| | | The Institution Of Engineers (India) (IE) |
| Department Of Electrical Engineering (EE) | Electrical Engineering (Instrumentation And Control) | B.E./B.Tech. In Applied Electronics And Instrumentation |
| | | B.E./B.Tech. In Applied Electronics And Instrumentation Engg |
| | | B.E./B.Tech. In Control & Industrial Automation |
| | | B.E./B.Tech. In Control And Electrical Engineering |
| | | B.E./B.Tech. In Control And Instrumentation |
| | | B.E./B.Tech. In Control Engineering |
| | | B.E./B.Tech. In Control System Engineering |
| | | B.E./B.Tech. In Electrical And Computer Engineering |
| | | B.E./B.Tech. In Electrical And Electronics |
| | | B.E./B.Tech. In Electrical And Electronics (Power System) |
| | | B.E./B.Tech. In Electrical And Electronics Engineering |
| | | B.E./B.Tech. In Electrical And Instrumentation Engineering |
| | | B.E./B.Tech. In Electrical And Mechanical Engineering |
| | | B.E./B.Tech. In Electrical And Power Engineering |
| | | B.E./B.Tech. In Electrical And Renewable Energy Engineering |
| | | B.E./B.Tech. In Electrical Engineering |

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|---|---|---|
| | | B.E./B.Tech. In Electrical Engineering (Power) |
| | | B.E./B.Tech. In Electrical Engineering And Industrial Control |
| | | B.E./B.Tech. In Electrical Instrumentation And Control Engg |
| | | B.E./B.Tech. In Electrical Power Engineering |
| | | B.E./B.Tech. In Electronics And Power Engineering |
| | | B.E./B.Tech. In Electronic Instrumentation And Control Engg |
| | | B.E./B.Tech. In Electronics And Control Systems |
| | | B.E./B.Tech. In Electronics And Electrical Communication Engg |
| | | B.E./B.Tech. In Electronics And Electrical Engineering |
| | | B.E./B.Tech. In Electronics And Information Systems |
| | | B.E./B.Tech. In Electronics And Instrumentation |
| | | B.E./B.Tech. In Electronics And Instrumentation Engineering |
| | | B.E./B.Tech. In Electronics And Power Engineering |
| | | B.E./B.Tech. In Electronics And Telematics Engineering |
| | | B.E./B.Tech. In Electronics Communication And Instrumentation Engineering |
| | | B.E./B.Tech. In Electronics Design Technology |
| | | B.E./B.Tech. In Electronics Engineering |
| | | B.E./B.Tech. In Electronics Engg (Design And Manufacturing) |
| | | B.E./B.Tech. In Electronics Engg (Specialization In System Engg) |
| | | B.E./B.Tech. In Electronics Engg With Minor In System Engg |
| | | B.E./B.Tech. In Electronics Instrument And Control |
| | | B.E./B.Tech. In Electronics Science And Engineering |
| | | B.E./B.Tech. In Electronics System Engineering |
| | | B.E./B.Tech. In Electronics Technology |
| | | B.E./B.Tech. In Industrial Electronics |
| | | B.E./B.Tech. In Instrumentation |
| | | B.E./B.Tech. In Instrumentation And Control Engineering |
| | | B.E./B.Tech. In Instrumentation And Control System |
| | | B.E./B.Tech. In Instrumentation And Electronics Engineering |
| | | B.E./B.Tech. In Instrumentation And Process Control |
| | | B.E./B.Tech. In Instrumentation Engineering |
| | | B.E./B.Tech. In Instrumentation Technology |
| | | B.E./B.Tech. In Medical Instrumentation |
| | | B.E./B.Tech. In Power And Energy Systems Engineering |
| | | B.E./B.Tech. In Power Control And Drives |
| | | B.E./B.Tech. In Power Electronics |
| | | B.E./B.Tech. In Power Electronics And Instrumentation Engg |
| | | B.E./B.Tech. In Power Engineering |
| | | B.E./B.Tech. In Power System Engineering |
| | | B.E./B.Tech. In Radio Physics And Electronics |
| | | B.E./B.Tech. in Control and Instrumentation |
| | | B.E./B.Tech. in Instrumentation and Control Engineering |

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| | | B.E./B.Tech. in Instrumentation Technology |
| | | B.E./B.Tech. in Biomedical Instrumentation |
| | | B.E./B.Tech. in Electronic Instrumentation and Control Engineering |
| | | B.E./B.Tech. in Electronics and Control Systems |
| | | B.E./B.Tech. in Electronics Instrument and Control |
| | | B.E./B.Tech. in Instrumentation and Process Control |
| | | B.E./B.Tech. in Medical Instrumentation |
| | | B.E./B.Tech. in Instrumentation and Control System |
| | | B.E./B.Tech. in Instrumentation |
| | | B.E./B.Tech. in Instrumentation and Electronics Engineering |
| | | The Institution Of Engineers (India) (IE) |
| Department of Mathematics, Computer Science & Engineering, Management Studies (OR) | Operations Research | B.E./B.Tech. In Any Disciplines |
| | | M.Sc. In Mathematics And Computing |
| | | M.Sc. In Operations Research |
| | | M.Sc. In Statistics |
| | | MCA |
| Department of Mechanical Engineering (ME) | Fluid Mechanics And Heat Transfer | B.E./B.Tech. In Aerospace Engineering |
| | | B.E./B.Tech. In Mechanical Engineering |
| | | B.E./B.Tech. In Power Engineering |
| Department Of Mechanical Engineering (ME) | Machine Design | B.E./B.Tech. In Applied Mechanics |
| | | B.E./B.Tech. In Mechanical Engineering |
| | | B.E./B.Tech. in Automobile Engineering |
| | | B.E./B.Tech. in Automotive Design Engineering |
| | | The Institution Of Engineers (India) (IE) |
| Department Of Mechanical Engineering (ME) | Thermal Engineering | B.E./B.Tech. In Aerospace Engineering |
| | | B.E./B.Tech. In Mechanical Engineering |
| | | B.E./B.Tech. In Power Engineering |
| Department Of Metallurgical & Materials Engineering (MME) | Metallurgy And Materials Technology | B.E./B.Tech. In Aerospace Engineering |
| | | B.E./B.Tech. In Ceramic Engineering |
| | | B.E./B.Tech. In Ceramic Technology |
| | | B.E./B.Tech. In Chemical Engineering |
| | | B.E./B.Tech. In Chemical Technology |
| | | B.E./B.Tech. In Electronics and Communication Engineering |
| | | B.E./B.Tech. In Industrial Metallurgy |
| | | B.E./B.Tech. In Manufacturing Engineering |
| | | B.E./B.Tech. In Manufacturing Science And Engineering |
| | | B.E./B.Tech. In Manufacturing Technology |
| | | B.E./B.Tech. In Material Science And Engineering |
| | | B.E./B.Tech. In Material Science And Metallurgical Engineering |
| | | B.E./B.Tech. In Material Science And Technology |

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|---|---|---|
| | | B.E./B.Tech. In Materials And Metallurgical Engineering |
| | | B.E./B.Tech. In Mechanical Engineering |
| | | B.E./B.Tech. In Metallurgical And Materials Engineering |
| | | B.E./B.Tech. In Metallurgical And Materials Technology |
| | | B.E./B.Tech. In Metallurgical Engineering |
| | | B.E./B.Tech. In Metallurgical Engineering And Material Science |
| | | B.E./B.Tech. In Metallurgy |
| | | B.E./B.Tech. In Metallurgy And Material Technology |
| | | B.E./B.Tech. In Metallurgy And Materials |
| | | B.E./B.Tech. In Metallurgy And Materials Engineering |
| | | B.E./B.Tech. In Mining Engineering |
| | | B.E./B.Tech. In Mining Technology |
| | | B.E./B.Tech. In Nanotechnology |
| | | B.E./B.Tech. In Production And Industrial Engineering |
| | | B.E./B.Tech. In Production Engineering |
| | | B.E./B.Tech. In Production Engineering And Management |
| | | B.E./B.Tech. in Mining Engineering |
| | | B.E./B.Tech. in Mining Technology |
| | | B.E./B.Tech. in Mining Technology |
| | | B.E./B.Tech. in Mineral Dressing |
| | | B.E./B.Tech. in Mineral Engineering |
| | | B.E./B.Tech. in Aeronautical Engineering |
| | | B.E./B.Tech. in Mining and Machinery Engineering |
| | | M.Sc. In Applied Physics |
| | | M.Sc. In Chemistry |
| | | M.Sc. In Engineering Physics |
| | | M.Sc. In Physics |
| | | Including Polymer And Environmental Group (IIChemE) |
| | | The Indian Institute Of Metals (IIM) |
| | | The Institution Of Engineers (India) (IE) |
| Department Of Physics (PHY) | Advanced Material Science & Technology | B.E./B.Tech. In Applied Electronics And Instrumentation |
| | | B.E./B.Tech. In Applied Electronics And Instrumentation Engg |
| | | B.E./B.Tech. In Chemical And Polymer Engineering |
| | | B.E./B.Tech. In Chemical Engineering |
| | | B.E./B.Tech. In Chemical Technology |
| | | B.E./B.Tech. In Electronics And Communication Engineering |
| | | B.E./B.Tech. In Electronics And Instrumentation Engineering |
| | | B.E./B.Tech. In Electronics Engineering |
| | | B.E./B.Tech. In Electronics Science And Engineering |
| | | B.E./B.Tech. In Engineering Physics |
| | | B.E./B.Tech. In Instrumentation Engineering |
| | | B.E./B.Tech. In Instrumentation Technology |
| | | B.E./B.Tech. In Material Science And Engineering |

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|---|---|---|
| | | B.E./B.Tech. In Material Science And Metallurgical Engineering |
| | | B.E./B.Tech. In Material Science And Technology |
| | | B.E./B.Tech. In Materials And Metallurgical Engineering |
| | | B.E./B.Tech. In Mechanical Engineering |
| | | B.E./B.Tech. In Metallurgical And Materials Engineering |
| | | B.E./B.Tech. In Metallurgical And Materials Technology |
| | | B.E./B.Tech. In Metallurgical Engineering And Material Science |
| | | B.E./B.Tech. In Nanotechnology |
| | | B.E./B.Tech. In Polymer Science And Chemical Technology |
| | | B.E./B.Tech. In Polymer Science And Rubber Technology |
| | | B.E./B.Tech. In Polymer Science And Technology |
| | | M.Sc. In Analytical Chemistry |
| | | M.Sc. In Applied Chemistry |
| | | M.Sc. In Physics |
| | | M.Sc. In Applied Physics |
| | | M.Sc. In Applied Science |
| | | M.Sc. In Chemistry |
| | | M.Sc. In Electronics |
| | | M.Sc. In Engineering Physics |
| | | M.Sc. In Engineering Physics And Instrumentation |
| | | M.Sc. In Materials Science |
| | | M.Sc. In Nano Science And Technology |
| | | M.Sc. In Physical Chemistry |
| | | M.Sc. In Radio Physics |
| | | M.Sc. In Radio Physics And Electronics |

**SPECIAL ELIGIBILITY CRITERIA:**

Candidates willing to apply for M. Tech. program in Environmental Science and Technology must have passed in 10+2 examination with Mathematics.

**APPLICATION CHECKLIST**

**Applicants need to be personally present on 21st August 2023 in the respective department for the selection examination. The following documents shall be brought along with the filled-in application form. An application without the copies of the required documents will be rejected.**

(i) Signed photo copy of marks sheet / Grade card of the secondary, higher secondary and other university examinations.
(ii) Signed photo copy of the certificate / provisional certificate of the qualifying examination
(iii) Signed photo copy of proof of date of birth
(iv) Draft of **₹1000** as an application processing fee
(v) Category certificate (OBC-NCL/EWS/SC/ST) from a competent authority. For OBC-NCL and EWS candidates the certificate must be issued on or after 01/04/2023 by the competent authority.

**ADMISSION PROCEDURE FOR M.TECH PROGRAMMES (SELF-SPONSORED)**

**Mere eligibility will not ensure a call for admission test.** The selection will be made by the respective department based on 30% weightage in Class XII marks, 30% weightage on the qualifying degree marks and

40% weightage on the written admission test. The minimum eligibility marks for selection shall be 40% in the written admission test.

## HOSTEL

The Institute is essentially a residential one and every student shall be required to reside on campus and be a boarder of the Hall of Residence to which he/she is assigned. However, no family accommodation will be provided inside the campus.

## FEES

The fee structure is available in the Institute website (https://nitdgp.ac.in/p/fees-1).

**SCHOLARSHIP**

This category students are not entitled for any scholarship from the Institute.

**Dean (Academic Courses)**
**Dated: 27-06-2023**

**FORMAT FOR OBC [NCL] CERTIFICATE**

TO BE PRODUCED BY OTHER BACKWARD CLASSES APPLYING FOR ADMISSION

*[This certificate must be issued on or after 1st April, 2023]*

This is to certify that Shri/Smt./Kum._____Son/Daughter of Shri/Smt. _____of Village/Town _____ District/Division_____in the_____State/UT belongs to the_____Community which is recognized as a backward class under:

(i) Resolution No. 12011/68/93-BCC(C), dated 10/09/93 published in the Gazette of India Extraordinary Part I Section I No. 186, dated 13/09/93.

(ii) Resolution No. 12011/9/94-BCC, dated 19/10/94 published in the Gazette of India Extraordinary Part I Section I No. 163, dated 20/10/94.

(iii) Resolution No. 12011/7/95-BCC, dated 24/05/95 published in the Gazette of India Extraordinary Part I Section I No. 88, dated 25/05/95.

(iv) Resolution No. 12011/96/94-BCC, dated 9/03/96.

(v) Resolution No. 12011/44/96-BCC, dated 6/12/96 published in the Gazette of India Extraordinary Part I Section I No. 210, dated 11/12/96.

(vi) Resolution No. 12011/13/97-BCC, dated 03/12/97.

(vii) Resolution No. 12011/99/94-BCC, dated 11/12/97.

(viii) Resolution No. 12011/68/98-BCC, dated 27/10/99.

(ix) Resolution No. 12011/88/98-BCC, dated 6/12/99 published in the Gazette of India Extraordinary Part I Section I No. 270, dated 06/12/99.

(x) Resolution No. 12011/36/99-BCC, dated 04/04/2000 published in the Gazette of India Extraordinary Part I Section I No. 71, dated 04/04/2000.

(xi) Resolution No. 12011/44/99-BCC, dated 21/09/2000 published in the Gazette of India Extraordinary Part I Section I No. 210, dated 21/09/2000.

(xii) Resolution No. 12016/9/2000-BCC, dated 06/09/2001.

(xiii) Resolution No. 12011/1/2001-BCC, dated 19/06/2003.

(xiv) Resolution No. 12011/4/2002-BCC, dated 13/01/2004.

(xv) Resolution No. 12011/9/2004-BCC, dated 16/01/2006 published in the Gazette of India Extraordinary Part I Section I No. 210, dated 16/01/2006.

(xvi) Resolution No. 12015/2/2007-BCC, dated 18/08/2010.

(xvii) Resolution No. 12015/2/2007-BCC, dated 11/10/2010.

(xviii) Resolution No. 12015/13/2010-BC-II, dated 08/12/2011.

(xix) Resolution No. 12015/05/2011-BC-II, dated 17/02/2014.

(xx) Resolution No. 12011/6/2014-BC-II, dated 07/12/2016.

(xxi) Resolution No. 12011/13/2016-BC-II, dated 22/12/2016

(xxii) Resolution No. 20012/1/2017-BC-II, dated 19/01/2017

(xxiii) Resolution No. 12011/7/2017-BC-II, dated 31/07/2017

Shri/Smt./Kum._____and/or his family ordinarily reside(s) in the

_____District/Division of_____State/UT. This is also to certify that he/she **does not belong to the persons/sections (Creamy Layer)** mentioned in Column 3 of the Schedule to the Government of India, Department of Personnel & Training O.M. No. 36 012/22/93-Estt.(SCT), dated 08/09/93 which is modified vide OM No. 36033/3/2004 Estt.(Res.), dated 09/03/2004, further modified vide OM No. 36033/3/2004-Estt. (Res) dated 14/10/2008, again further modified vide OM No. 36036/2/2013-Estt (Res) dated 30/05/2014.

*Place*_____ *Signature* _____

**Date**_____ **Designation** _____

(with seal of office)

NOTE:

(a) The term 'Ordinarily' used here will have the same meaning as in Section 20 of the Representation of the People Act, 1950.

(b) ^The authorities competent to issue Caste Certificates are indicated below:

(i) District Magistrate / Additional Magistrate / Collector / Deputy Commissioner / Additional Deputy Commissioner / Deputy Collector / First Class Stipendiary Magistrate/ Sub-Divisional magistrate / Taluka Magistrate / Executive Magistrate / Extra Assistant Commissioner (not below the rank of 1$^{ST}$ Class Stipendiary Magistrate).

(ii) Chief Presidency Magistrate / Additional Chief Presidency Magistrate / Presidency Magistrate.

(iii) Revenue Officer not below the rank of Tehsildar.

(iv) Sub-Divisional Officer of the area where the candidate and / or his family resides.

# FORMAT FOR EWS CERTIFICATE

*INCOME & ASSEST CERTIFICATE TO BE PRODUCED BY ECONOMICALLY WEAKER SECTIONS*

Government of ……..

(Name & Address of the authority issuing the certificate)

*[This certificate must be issued on or after 1st April 2023]*

Certificate No ._____ Date:_____

VALID FOR THE YEAR_____

1. *This is to certify that Shri /Smt. / Kumari_____, son / daughter / wife of* **_____Permanent resident of_____, Village / Street _____Post Office_____District in the State / Union Territory _____Pin Code_____whose photograph is attested below belongs to Economically Weaker Sections, since the gross annual income* of his / her family** is below Rs. 8 lakh (Rupees Eight Lakh only) for the financial year____. His / her family does not own or possess any of the following assets***:**

   I. 5 acres of agricultural land and above;
   II. Residential flat of 1000 sq. ft. and above;
   III. Residential plot of 100 sq. yards and above in notified municipalities;
   IV. Residential plot of 200 sq. yards and above in. areas other than the notified municipalities.

2. *Shri / Smt. / Kumari_____belongs to_____the caste which is not recognized as a Scheduled Caste, Scheduled Tribe and Other Backward Classes (Central List).s*

Signature with seal of Office_____

Name_____

Designation_____

Recent Passport size attested photograph of the applicant

**The income and assets of the families as mentioned would be required to be certified by an officer not below the rank of Tehsildar in the States/UTs.**

Note:

* Income covered all sources i.e. salary, agriculture, business, profession,etc.

** The term "Family" for this purpose includes the person, who seeks benefit of reservation, his/her parents and siblings below the age of 18 years as also his/her spouse and children below the age of I8 years.

*** The property held by a "Family' in different locations or different places/cities have been clubbed while applying the land or property holding test to determine EWS status.

# FORMAT FOR SC/ST CERTIFICATE

A candidate who claims to belong to one of the Scheduled Castes or the Scheduled Tribes should submit in support of his claim an attested / self-certified copy of a certificate in the form given below, from the District Officer or the Sub-Divisional Officer or any other officer as indicated below of the District in which his parents (or surviving parent) ordinarily reside who has been designated by the State Government concerned as competent to issue such a certificate. If both his parents are dead, the officer signing the certificate should be of the district in which the candidate himself ordinarily resides otherwise than for the purpose of his own education. Wherever photograph his integral part of the certificate, the NIT Durgapur would accept only attested/self-certified photocopies of such certificates and not any other copy.

*This is to certify that Shri / Shrimati / Kumari** _____

**_____ Son / daughter of _____**

**_____ of village /t own/* _____ in**

**District/Division* _____ of the State /Union Territory* _____**

**_____ belongs to the**

**_____ Caste/ Tribe* which is recognized as a Scheduled Castes [SC]* / Scheduled Tribes [ST]* under: The Constitution (Scheduled Castes) Order, 1950 The Constitution (Scheduled Tribes) Order, 1950. The Constitution (Scheduled Castes) Union Territories Order, 1951 The Constitution (Scheduled Tribes) Union Territories Order, 1951**

As amended by the Scheduled Castes and Scheduled Tribes Lists (Modification) Order, 1956, the Bombay Reorganization Act, 1960 & the Punjab Reorganization Act, 1966, the State of Himachal Pradesh Act 1970, the North-Eastern Area (Reorganization) Act, 1971 and the Scheduled Castes and Scheduled Tribes Order (Amendment) Act, 1976. [**%]**

The Constitution (Jammu & Kashmir) Scheduled Castes Order, 1956. The Constitution (Andaman and Nicobar Islands) Scheduled Tribes Order, 1959 as amended by the Scheduled Castes and Scheduled Tribes Order (Amendment Act), 1976. The Constitution (Dadra and Nagar Haveli) Scheduled Castes Order, 1962. The Constitution (Dadra and Nagar Haveli) Scheduled Tribes Order 1962**. The Constitution (Pondicherry) Scheduled Castes Order, 1964**. The Constitution (Scheduled Tribes) (Uttar Pradesh) Order, 1967**.The Constitution (Goa, Daman & Diu)ScheduledCastesOrder,1968**. The Constitution (Goa, Daman & Diu) Scheduled Tribes Order, 1968**. The Constitution (Nagaland) Scheduled Tribes Order,1970**. The Constitution (Sikkim) Scheduled Castes Order, 1978**.[%]

The Constitution (Sikkim) Scheduled Tribes Order, 1978**. The Constitution (Jammu & Kashmir) Scheduled Tribes Order 1989**. The Constitution (SC) Orders (Amendment) Act, 1990**. The Constitution (ST) Orders (Amendment) Ordinance, 1991**. The Constitution (ST) Orders (Second Amendment) Act,1991**.The Constitution (ST) orders (Amendment) Ordinance,1996. The Scheduled Caste and Scheduled Tribe Orders (Amendment) Act. 2002. The Constitution (Scheduled Caste) Orders (Amendment) Act, 2002. The Constitution (Scheduled Caste and Scheduled Tribe) Orders (Amendment) Act, 2002. The Constitution (Scheduled Caste) Order (Amendment) Act, 2007.[**%]**

***2.*** *Applicable in the case of Scheduled Castes, Scheduled Tribes persons who have migrated from one State / Union Territory Administration.*

This certificate is issued on the basis of the Scheduled Castes / Scheduled Tribes certificate issued to Shri / Shrimati_____, Father / Mother of Shri/ Srimati/ Kumari* ---------- ---------- of village / town* in the District/ Division*_____ of the State/ Union Territory* ---------- who belong to the Caste / Tribe* which is recognized as a Scheduled Caste*Scheduled Tribe* in the State / Union Territory* issued bythe dated ***

**3.** Shri / Shrimati / Kumari*_____and/or* his/her* family ordinarily reside(s) in the village/town*_____of _____District / Division* of the State / Union Territory of _____.

*Place*_____ *Signature*_____

**Date**_____ **Designation**_____

(with seal of office)

** Please delete the words which are not applicable*

**** Please quote specific presidential order**

***** please delete the paragraph which is not applicable.**

**^ List of authorities empowered to issue Schedule Caste / Schedule Tribe Certificates:**

1) District Magistrate / Additional District Magistrate / Collector / Deputy Commissioner / Additional Deputy Commissioner / Deputy Collector / 1st Class Stipendiary Magistrate / Sub-Divisional Magistrate / Addl. Assistant Commissioner / Taluka Magistrate / Executive Magistrate and equivalent as per GOI orders.
2) Chief Presidency Magistrate / Additional Chief Presidency Magistrate / Presidency Magistrate.
3) Revenue Officers not below the rank of Tehsildar.
4) Sub-Divisional Officers of the area where the candidate and /or his/her family normally resides.

NOTES:
1) The term ordinarily reside(s) used here will have the same meaning as in Section 20 of the Representation of the People Act, 1950.
2) ST candidates belonging to Tamil Nadu state should submit caste certificate only from the Revenue Divisional Officer.

## *DISABILITY CERTIFICATE FORMAT- II*

**{In cases of amputation or complete permanent paralysis of limbs and in cases of blindness}**

**(NAME AND ADDRESS OF THE MEDICAL AUTHORITY ISSUING THE CERTIFICATE)**

**No.-**_____ **Date-**_____/_____/_____

Signature /LTI / RTI of the Candidate

Passport size photograph of the candidate

This is to certify that I have carefully examined Shri /Smt./Kum._____,

Son / wife / daughter of Shri_____Date of Birth_____/_____/_____

[Age-_____years], male/female._____permanent resident of

House No.- _____, Ward/Village/Street _____Post Office

_____District_____State_____,whose

photograph is affixed above, and am satisfied that

1. he/she is a case of (Please tick as applicable):
   a. locomotor disability
   b. blindness
2. The diagnosis in his/her case is _____.
3. He / She has_____% (in figure)_____percent (in words) permanent physical impairment / blindness in relation to his / her _____ (part of body) as per guidelines (to bespecified).
4. The applicant has submitted the following document as proof of residence:-

| Nature of Document | Date of Issue | Details of authority issuing the certificate |
|---|---|---|
| | | |

**Official Seal:**

**[Authorized Signatory of notified Medical Authority]**

**Name:** _____

## DISABILITY CERTIFICATE FORMAT - III

**{In cases of multiple disabilities}**

**(NAME AND ADDRESS OF THE MEDICAL AUTHORITY ISSUING THE CERTIFICATE)**

**No.-**_____ **Date-**_____/_____/_____

Signature / LTI / RTI of the Candidate

Passport size photograph of the candidate

This is to certify that I have carefully examined Shri / Smt./ Kum._____,

Son /wife/daughter of Shri_____Date of Birth_____/_____/_____

[Age-_____years], male / female_____Permanent resident of

House No.- _____, Ward / Village / Street _____Post Office

_____District_____State_____,whose

photograph is affixed above, and am satisfied that

1. He/she is a Case of **Multiple Disability.** His/her extent of permanent physical impairment/ disability has been evaluated as per guidelines (to be specified) for the disabilities ticked below, and shown against the relevant disability in the table below:

| S. No. | Disability | Affected Part of Body | Diagnosis | Permanent physical impairment/mental disability (in percentage) |
|---|---|---|---|---|
| 1 | Locomotor disability | @ | | |
| 2 | Low vision | # | | |
| 3 | Blindness | Both Eyes | | |
| 4 | Hearing impairment | £ | | |
| 5 | Mental retardation | X | | |
| 6 | Mental-illness | X | | |

Contd.

2. In the light of the above, his / her overall permanent physical impairment as per guidelines (to be specified), is as follows:

   In figures:_____%

   In words:_____percent

3. The above condition is progressive / non-progressive / likely to improve / not likely to improve.

4. Reassessment of disabilityis:

   (i) Not Necessary **[or]**

   (ii) Is recommended / after_____years_____months, and therefore this certificate shall be valid till (DD/MM/YY)_____.

**@ - e.g. Left / Right/both arms/ l**
**arms/legs # - e.g. single eye / both eyes**
**£- e.g. Left / Right / both ears**

5. The applicant has submitted the following document as proof of residence:

| Nature of Document | Date of Issue | Details of authority issuing the certificate |
|---|---|---|
| | | |

6. Signature and seal of the Medical Authority:

| | | |
|---|---|---|
| **Name and Seal of Member** | **Name of Seal of Member** | **Name and Seal of the Chairperson** |

## *DISABILITY CERTIFICATE FORMAT - IV*

**{In cases of any other case not covered in Format – II & III}**

**(NAME AND ADDRESS OF THE MEDICAL AUTHORITY ISSUING THE CERTIFICATE)**

**No.-**_____ **Date-**_____/_____/_____

Signature/LTI/RTI of the Candidate

Passport size photograph of the candidate

This is to certify that I have carefully examined Shri/Smt./Kum._____,

Son /wife/daughter of Shri_____Date of Birth_____/_____/_____

[Age-_____years], male / female_____permanent resident of

House No.- _____, Ward / Village / Street _____Post Office

_____District_____State_____,whose

photograph is affixed above, and am satisfied that

1. He/she is a Case of **Multiple Disability.** His / her extent of permanent physical impairment/ disability has been evaluated as per guidelines (to be specified) for the disabilities ticked below, and shown against the relevant disability in the table below:

| S. No. | Disability | Affected Part of Body | Diagnosis | Permanent physical impairment/mental disability (in percentage) |
|---|---|---|---|---|
| 1 | Locomotor disability | @ | | |
| 2 | Low vision | # | | |
| 3 | Blindness | Both Eyes | | |
| 4 | Hearing impairment | £ | | |
| 5 | Mental retardation | X | | |
| 6 | Mental-illness | X | | |

Contd.

2. In the light of the above, his/her overall permanent physical impairment as per guidelines (to be specified), is as follows:

In figures:_____%

In words:_____percent

3. The above condition is progressive / non-progressive / likely to improve /not likely to improve.

4. Reassessment of disability is:

(i) Not Necessary **[or]**

(ii) Is recommended/after_____years_____months, and therefore this certificate shall be valid till (DD/MM/YY)_____.

**@ - e.g. Left / Right/both arms/ l arms/legs**
**# - e.g. single eye / both eyes**
**£- e.g. Left / Right / both ears**

5. The applicant has submitted the following document as proof of residence:

| Nature of Document | Date of Issue | Details of authority issuing the certificate |
|---|---|---|
| | | |

**Official Seal:**

**[Authorized Signatory of notified Medical Authority*]**

**Name:**_____

* In case this certificate is issued by a medical authority who is not a government servant, it shall be valid only if countersigned by the Chief Medical Officer of the District. Note: The principal rules were published in the Gazette of India vide notification number S.O. 908(E), dated the 31st December,1996.

**Countersigned**

**Official Seal:**

**[CMO / Medical Superintendent / Head of Govt. Hospital]**

**Name:**_____

^ Counter signature and seal of the CMO/Medical Superintendent / Head of Government Hospital is essential in case the certificate is issued by a medical authority who is not a government servant.

## *FORMAT FOR DYSLEXIA CERTIFICATE - I*

### *MEDICAL CERTIFICATE TO BE PRODUCED BY DYSLEXIC CANDIDATES*

{Psycho-Education Evaluation Report - To be obtained from any Dyslexia Association*}

**No.-**_____ **Date-**_____/_____/_____

Name of the candidate:_____

Date of Birth:_____/_____/_____

Passport size photograph of the Candidate

Name of the Father / Mother/ Guardian_____

Registration in the Dyslexia Association: No_____

Date-_____/_____/_____

Name & Address of the Dyslexia Association:_____

_____

Registration No. of the Dyslexia Association:_____

Physical & Neurologic Assessment: [ ]

Psychological Assessment: [ ]

WISC Verbal IQ:

Performance IQ:

Full Scale IQ:

Interpretation: [ ]

Educational Assessment: [

Certified that

The condition of handicap is: MILD / MODERATE / SEVERE (tick whichever is applicable)**
The disability is **PERMANENT** in nature.

*Some Dyslexia Associations:

1) Dyslexia Trust of Kolkatta, Divya Jalan, Aruna Bhaskar 3, Dover Park, Kolkata –700019
2) Dyslexia Association Of Andhra Pradesh( DAAP), 34494/1, 1st Floor, Macherla Gastrology Hospital, Reddy College Road, Barkatpura,Hyderabad,Telangana,500027
3) Madras Dyslexia Association,94 Park View, 1st Floor,G.N.ChettyRoad,T.Nagar,Chennai–600017, Maharashtra Dyslexia Association, 003, Amit Park Bldg, L J Road, Deonar, Mumbai 400088
4) The Dyslexia Association of India,MZ-47,TheCenter Stage Mall, Plot No 01, Block L, Sector 18,NOIDA201303

**Learning Disability is a permanent developmental disorder. Currently there are no standard approved methods to quantify the disorder. However the method of diagnosis is based on significant impairment in academic achievement. To avail the benefit of relaxed norm under PwD category, the candidate must come under SEVERE category.

**Official Seal:**

**[Signature]**

**Name of the certifying official:**_____

***FORMAT FOR DYSLEXIA CERTIFICATE - II***

***TESTIMONIAL TO BE PRODUCED BY DYSLEXIC CANDIDATES***

{Testimonial - To be obtained from the Principal of the school/college last attended*}

**No.-**_____ **Date-**_____/_____/_____

Name of the candidate:_____

Date of Birth:_____/_____/_____

Name of the Father/ Mother/Guardian_____

Registration in the Dyslexia Association: No_____

Date-_____/_____/_____

Passport size photograph of the Candidate

Name & Address of the School/College:_____

_____

Certified that

Shri /Shrimati / Kumari_____

Son / daughter of_____of

_____Village / Town passed his/her Class X from this school and as per

records, he / she has availed concession under dyslexic category.

**Official Seal:**

**[Signature]**

**Name of the Principal:**_____

*A candidate passing Class X or equivalent through open school system or in private mode may submit the certificate to this effect from the competent authority in the board certifying the concessions availed under dyslexia.

## FORMAT OF COURSE COMPLETION CERIFICATE

[TO BE ISSUED IN THE OFFICIAL LETER HEAD OF THE INSTITUTE/UNIVERSITY]

This is to certify that

1. Mr./Ms._____(full name) bearing Roll No._____is a registered student of_____(course / program) in our institute/university.
2. He / She has completed all requirements of the course / program and all of his/her examinations likely to be completed by August 15, 2023.
3. His / Her final result is awaited and will be published on or before September 30, 2023.

_____

Signature (with Seal) of the
Authorised Signatory of
the Institute/University

*Date-* _____

# FORMAT OF SELF DECLARATION ABOUT COURSE COMPLETION

I……D/o / S/o Shri ……..…… R/o …… do hereby declare on oath as under:

1. That I am a registered student of ..... Course/Programme in Institute/University……..……with Enrollment no…….
2. That I am in final year of the aforesaid course/programme and have completed all the requirements of the course / programme which was to be completed upto .....2023. But due to COVID-19 Pandemic, the Institute /University could not conduct the final examination of said course / programme which is likely to be completed by .....2023.
3. That I will submit my degree/provisional certificate issued by the Institute/University upto 30th September, 2023 / 15 days after result declaration of the institute where I am studying / the date as given by the admitting institute/Govt. of India notification, failing which I understand that my admission in PG Programme may be cancelled.
4. That I further understand that if I am unable to qualify the minimum eligibility criterion for admission to PG Programme, my admission will stand cancelled and the admitting Institution shall have no liability for the same.

**Signature of the Candidate:**

**Name:**

**Date:**

**FORMAT OF SELF DECLARATION ABOUT NON AVAIBILITY OF PREFINAL YEAR / SEMESTER MARKSHEET**

I……D/o / S/o Shri ……..…… R/o …….

do hereby declare on oath as under:

1. That I am a registered student of..... Course/ Programme in Institute / University……..……with Enrollment no……...

2. That I have completed all the requirements of the courses of pre final year and do not have any backlogs. But due to COVID-19 Pandemic, the mark sheet of pre final year / semester has not been issued by the Institute/University.

3. I undertake that I will submit my mark sheet(s) of all years/semesters along with provisional/degree certificate issued by the Institute/University within the time limit specified by my finally allotted institute, failing which I understand that my admission in PG Programme may be cancelled.

4. That I further understand that if I am unable to qualify the minimum eligibility criterion for admission to PG Programme, my admission will stand cancelled and the admitting Institution shall have no liability for the same.

5. Any misinformation/ wrong information furnished will lead to cancellation of admission and fees deposited will be forfeited.

**Signature of the Candidate in full:**

**Name:**

**Date:**

**FORMAT OF SELF DECLARATION ABOUT NON AVAIBILITY OF PROVISIONAL / DEGREE CERTIFICATE**

I……D/o / S/o Shri ……..…… R/o ……

do hereby declare on oath as under:

1. That I am a registered student of ……Course/Programme in Institute / University……..……with Enrollment no…….

2. That I have completed all the requirements of the course/programme for the award of degree and do not have any backlogs. But due to COVID-19 Pandemic, the provisional/degree certificate has not been issued by the Institute/University.

3. I undertake that I will submit my degree/provisional certificate issued by the Institute/University within the time limit specified by my admitting institute, failing which I understand that my admission in PG Programme may be cancelled.

4. That I further understand that if I am unable to qualify the minimum eligibility criterion for admission to PG Programme, my admission will stand cancelled and the admitting Institution shall have no liability for the same.

5. Any misinformation/ wrong information furnished will lead to cancellation of admission and fees deposited will be forfeited.

*Signature of the Candidate:*

*Name:*

**Date:**

Annexure 70.3.4

# Resolutions of the UGAC & PGAC meeting held on 30.05.2023

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# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

**MAHATMA GANDHI AVENUE, DURGAPUR – 713209 WEST BENGAL, INDIA**

**ACADEMIC SECTION**

Date: 30.05.2023

**Minutes of the meeting of UGAC and PGAC held jointly on 30.05.2023 (Tuesday) at 11.00 am at the meeting room of the academic section.**

The Chairman welcomed the members to the meeting.

The agenda items were placed for discussion.

**Item # 1** **To confirm the minutes of the meeting of the UGAC and PGAC held on 17.05.2023.**

The minutes of the meeting of the UGAC and PGAC held on 17.05.2023 are confirmed.

**Item # 2** **To consider the matter regarding correction of answer scripts of five students in the first semester supplementary examinations 2022-2023, who were declared as failed in the 1st Sem. regular examinations.**

Resolved that the said students are to be declared as failed in 1st semester regular examinations 2022-2023.

**Item # 3** **To consider the matter regarding the publication of provisional results for the students of**

a) **Even semester regular / backlog examinations 2022 – 2023 (except 2nd semester UG examinations) including results for minor programs.**
b) **First semester UG supplementary / backlog examinations 2022-2023**

The provisional results are recommended for publication with the approval from the competent authority.

**Item # 4** **To consider the matter regarding the best project awards of programs 2022 – 2023.**

As per the evaluation made by the best project assessment committee, Mr. Sagnik Dutta (Roll No. 19CE8012) and Mr. Sumitro Dey (Roll No. 21PH4105) are selected for best project award UG and PG, respectively. This is recommended for necessary approval by the Senate.

**Item # 5** **To consider the matter of student who could not appear in the even semester regular examinations 2022 - 2023 due to medical reasons – of Madhulika Gautam (M. Tech 2nd semester CSE Department Roll no. 22CS4127).**

The matter is approved as per the clauses of PG regulations.

**Item # 6** **To consider the matter regarding re-admission of Rahul Tamang (Roll no. 19ME8080 Regn no. 19U10349) in 6th semester.**

The matter is approved as per the provisions laid down in the regulations of UG Program

# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

**MAHATMA GANDHI AVENUE, DURGAPUR – 713209 WEST BENGAL, INDIA**

**ACADEMIC SECTION**

**Item # 7 To consider the matter of modifying some of the clauses of UG and PG Regulations.**

**a) Appendix – VI: Rules regarding adopting unfair means in examination**

**b) Clause of 12.3 (b) and (c) – Rules regarding examinations on medical ground**

**c) Appendix – III, point nos. 2 & 6, relative grading**

The matter as discussed and recommended as follows:

| Clause No. | Existing | Suggested Revision |
|---|---|---|
| Appendix III, point no. 6 | There is no provision for supplementary examination/backlog in the sessional courses. If the student cannot clear the sessional courses, he/she will be declared 'Failed' and has to repeat the semester. | There is no provision for supplementary examination in the sessional courses. If the student cannot clear one sessional course in a semester, s/he will be awarded 'Failed' grade in that subject and has to re-register the subject as a backlog sessional subject with the next batch of students. However, if s/he cannot clear more than one sessional subjects, s/he will be declared "Failed" and has to repeat the semester taking re-admission with the next batch of students. |
| Clause 12.5 | For the course(s) having 2 Lecture hours per week, the end-term examination will be of 2 hours duration; while course(s) having more than 2 Lecture and Tutorial contact hours per week, the end-term examination will be of 3 hours duration. | For all the theory course(s), the end-term examination will be of 3 hours duration. |
| Clause 12.2 | A student will be allowed for appearing in an end- term examination only if he/she has:<br>a) Passed in the sessional/ laboratory course(s)<br>b) Paid all Institute dues of the semester<br>c) Paid all Hall dues of the semester. Warden, Hall of Residences shall forward the list of defaulters at least one week before the commencement of examination.<br>d) Not been debarred from appearing the examination due to the result of any disciplinary proceeding. | A student will be allowed for appearing in an end- term examination only if he/she has:<br>a) ~~Passed in the sessional/ laboratory course(s)~~<br>b) Paid all Institute dues of the semester<br>c) Paid all Hall dues of the semester. Warden, Hall of Residences shall forward the list of defaulters at least one week before the commencement of examination.<br>d) Not been debarred from appearing the examination due to the result of any disciplinary proceeding. |
| Appendix – III, point nos. 2 | Conversion from marks to grade shall be done using the table given below. However, the teacher may on his / her perception of difficulty level of assessment process undertaken, alter the boundary / cut off marks by ± 2 marks. | Conversion from marks to grade shall be done using the table given below. ~~However, the teacher may on his / her perception of difficulty level of assessment process undertaken, alter the boundary / cut off marks by ± 2 marks.~~ |
| 11.2 a) | The evaluation system shall be based on relative grading. The concerned teacher shall assign the marks based on statistical distribution (to be decided by the | ~~The evaluation system shall be based on relative grading. The concerned teacher shall assign the marks based on statistical distribution (to be decided by the~~ |

Dean (Academic Courses)
National Institute of Technology
Durgapur, (W.B.), India

| | | |
|---|---|---|
| | concerned faculty), and upload it in the academic module of Institute automation system. A signed copy of the same shall be submitted to the Academic Section for record. | ~~concerned faculty), and upload it in the academic module of Institute automation system. A signed copy of the same shall be submitted to the Academic Section for record.~~ |
| Clause 12.3 (b) and (c) | If a student fails …… | Following two lines are appended in addition to what is existing<br>Students shall be permitted to appear in alternate mid-term / supplementary examinations with full credit<br>• If s/he suddenly fall sick during examination.<br>• If s/he has prolonged history of depression, anxiety disorder, mental health problems. |
| Appendix VI: | The punishment for adopting unfair means in examinations may range from cancellation of the examination paper to back paper with a decrease of two letter grades but not below 'P' in the successful attempt to clear the course. The academic disciplinary committee was empowered to take a decision based on their discretion. | The academic disciplinary committee is empowered to take a decision based on their discretion. Following may be used as general guideline for punishment.<br>(a) **Nature:** Impersonation of a student such as appearing in exam for others, tampering with official documents like answer booklets, grade sheets, medical certificates etc., forging signatures of invigilators → **Punishment:** In such a case, if reported, student has to repeat the semester with the next batch of students<br>(b) **Nature:** Copying in Mid-term / End-term Examinations, communicating with other students during exams, carrying un-authorised material (mobile phones, pagers, programmable calculators, smart watches, headphones, electronic gadgets, etc.) during exams, detection of copying during evaluation of answer script, making changes in evaluated answer books, communicating with others outside the examination hall during exams → **Punishment:** corresponding exam paper shall be cancelled, s/he shall be allowed to sit in alternate / supplementary / backlog examination with a decrease of two letter grades but not below 'P' in the successful attempt to clear the course. |

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Durgapur-713209 India

# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

**MAHATMA GANDHI AVENUE, DURGAPUR – 713209 WEST BENGAL, INDIA**

**ACADEMIC SECTION**

**Item # 8** **To consider the matter regarding NEP 2020 implementations – policy making related to**

**a) Lateral entry at different stages & Multiple exit options**

**b) Utilization of previously earned credits available at Academic Bank of Credit, validity period**

**c) Restructuring of course credits according to National Credit Framework Policy**

d) **promoting multilingualism in teaching and learning**

In principle it has been decided to adopt NEP 2020 guidelines and recommended to Senate for further discussions / possible ways of implementations. All degree awarding departments / centers are also requested to discuss in their DAC / DPAC, respectively, in this regard.

The meeting ended with vote of thanks to the Chairman.

Dean (Academic Courses)
National Institute of Technology
Durgapur-713209 India

**Dean (Academic Courses)**
**Date: 30.05.2023**

Annexure 70.3.5

# Resolutions of the UGAC & PGAC meeting held on 27.06.2023

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# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

**MAHATMA GANDHI AVENUE**
**DURGAPUR 713 209, WEST BENGAL, INDIA**
**Website: www.nitdgp.ac.in**

## ACADEMIC SECTION

Date: 27.06.2023

**Minutes of the meeting of UGAC and PGAC held jointly on 27.06.2023 (Tuesday) at 03.30 pm at the meeting room of the academic section.**

The Chairman welcomed the members to the meeting.

The agenda items were placed for discussion.

**Item # 1** **To confirm the minutes of the meeting of the UGAC and PGAC held on 30.05.2023.**

The minutes of the meeting of the UGAC and PGAC held on 30.05.2023 are confirmed with following rider.

(a) Minor modifications in the Item No. 7, Appendix VI (in page no. 3) as presented below.

| | | |
|---|---|---|
| Appendix VI: | The punishment for adopting unfair means in examinations may range from cancellation of the examination paper to back paper with a decrease of two letter grades but not below 'P' in the successful attempt to clear the course. The academic disciplinary committee was empowered to take a decision based on their discretion. | The academic disciplinary committee is empowered to take a decision based on their discretion. Following may be used as general guideline for punishment.<br>(a) **Nature:** Impersonation of a student such as appearing in exam for others, tampering with official documents like answer booklets, grade sheets, medical certificates etc., forging signatures of invigilators → **Punishment:** In such a case, if reported, student has to repeat the semester with the next batch of students<br>(b) **Nature:** Unfair means adopted in examination premises e.g. copying in Examinations, communicating with other students during exams, carrying un-authorised material (mobile phones, pagers, programmable calculators, smart watches, headphones, electronic gadgets, etc.) during exams, detection of copying during evaluation of answer script, making changes in evaluated answer books, communicating with others outside the examination hall during exams, etc. → **Punishment:** corresponding exam paper shall be cancelled, s/he shall be allowed to sit in alternate / supplementary / backlog examination with a decrease of two letter grades but not below 'P' in the successful attempt to clear the course. |

(b) Inclusion of schedule of supplementary and special back-log examinations for final year UG and PG students under Item No. 9 and is presented below.

| Event | Dates of Examinations | Marks Submission | Result Publications |
|---|---|---|---|
| Supplementary Examinations | June 01 – 07, 2023 | June 08, 2023 | June 09, 2023 |
| Special Backlog Examinations | July 03 – 07, 2023 | July 10, 2023 | July 11, 2023 |

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National Institute of Technology
Durgapur-713209 India

**Item # 2** **To ratify the published results of 8th semester B.Tech. Supplementary examinations 2022-23.**

The matter is recommended for approval.

**Item # 3** **To consider the publication of results of second semester regular / backlog examinations 2022-2023.**

The matter is recommended for publication with the approval from the competent authority.

**Item # 4** **To consider the minutes of the meeting of examination disciplinary committee held on 09/06/2023.**

The matter is recommended for approval. (Annexure I)

**Item # 5** **To consider the matter of student who could not appear in the second semester regular examinations 2022 - 2023 due to medical reasons –**

| Sl.No | Reg No | Roll No | Name | Subject Code |
|---|---|---|---|---|
| 1 | 22U10670 | 22A80168 | ARUNADITYA LAL | ECC01, CSC01, BTC01 |
| 2 | 22U10698 | 22A80175 | ERRA VAMSI | XXC01, MAC02, EEC01, ECC01, CSC01, BTC01 |
| 3 | 22U10006 | 22B80002 | GOPAL ROY CHOWDHURY | EEC01 |
| 4 | 22U10191 | 22C80048 | DHRITISHREE SAHA | XXC01, MAC02, ESC01, PHC01 |
| 5 | 22U10136 | 22D80034 | SUNRIT SINGHA | XXC01, MAC02, ESC01, PHC01 |
| 6 | 22U10400 | 22D80100 | SOUMYA RAJ | MAC02, PHC01, CYC01 |
| 7 | 22U10529 | 22D80132 | AVINANDAN CHHATUI | CYC01 |

The matter is recommended as per the clauses of the regulations.

**Item # 6** **To consider the matter regarding re-admission of Neelmani Saran(Roll no. 22B80205 Regn no. 22U10815) in 1stsemester and Dyuti Biswas (Roll no. 21CE8012 Regn no. 21U10163) in 4$^{th}$ semester.**

The matter is recommended for approval.

**Item # 7** **To consider the matter regarding defined – class-timings and class routine.**

The matter as presented below is recommended for approval.

| **Category 1:** Theory (before Lunch) and Laboratories (Post Lunch) | | | | |
|---|---|---|---|---|
| 1st Period | 2nd Period | 3rd Period | 4th Period | 5th Period |
| 08.00 - 08.55 | 09.00 - 09.55 | 10.00 - 10.55 | 11.00 - 11.55 | 12.00 - 12.55 |
| Lunch Break | 6th Period | 7th Period | 8th Period | 9th Period |
| 13.00-14.00 | 14.00 - 14.55 | 15.00 - 15.55 | 16.00 - 16.55 | 17.00 - 17.55 |

| **Category 2:** Theory (after Lunch) and Laboratories (Before Lunch) | | | | |
|---|---|---|---|---|
| 1st Period | 2nd Period | 3rd Period | 4th Period | Lunch Break |
| 08.00 - 08.55 | 09.00 - 09.55 | 10.00 - 10.55 | 11.00 - 11.55 | 12.00-13.00 |
| 5th Period | 6th Period | 7th Period | 8th Period | 9th Period |
| 13.00 - 13.55 | 14.00 - 14.55 | 15.00 - 15.55 | 16.00 - 16.55 | 17.00 - 17.55 |

**Item # 8** **To consider the matter regarding number of first year sections / sub-sections.**

There will be 8 sections (A to H) with 2 subsections in each section.

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**Item # 9** **To consider the revision in academic calendar 2023-24 (due to delay in first year admission).**

The matter is recommended for approval. (Annexure II)

**Item # 10** **To consider the matter on finalization of advertisement for the Self-sponsored M. Tech. Program and modalities to be followed.**

The matter is recommended for approval. (Annexure III)

**Item # 11** **To consider the matter regarding introduction of few elective subjects from academic session 2023-2024**

| Subject Code | Subject Name | Offered By | For the Students |
|---|---|---|---|
| MS9121 | Industrial Relations and Labour Laws | Department of Management Studies | Elective Subject for MBA |
| ME726 | Introduction to Fracture Mechanics | Department of Mechanical Engineering | Elective Subject for 7th Semester BTECH-ME |
| ME9027 | Fracture, Fatigure and Failure Analysis | Department of Mechanical Engineering | Elective Subject for MTECH – Machine Design Program |
| MMO741 | Advanced Materials | Department of Metallurgical and Materials Engineering | Open Elective Subject for 7th Semester Students |

The matter is recommended for approval.

The meeting ended with vote of thanks to the Chairman.

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**Dean (Academic Courses)**
**Date: 27.06.2023**

**NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR**
**INDIA**
**ACADEMIC SECTION**

Annexure I

**Minutes of the meeting of Examination Disciplinary Committee held on 09.06.2023 (Friday) at 11.30 am at the meeting room of the Academic Section.**

The Chairman welcomed the members in the meeting.

The matter of adoption of malpractice by the following students in the end term examination even semester 2022-2023 was discussed and resolved that –

| Sl No | Roll No | Name of Student | Paper Code | Date of Exam | Remarks |
|---|---|---|---|---|---|
| 1 | 22B80119 | SINGAMPALLI KURMARAO | XXC01 | 01.06.2023 | TWO CHIT PAPER FOUND |
| 2 | 22A80001 | NIRDESH REGMI | EEC01 | 03.06.2023 | COPYING FROM MOBILE PHONE |
| 3 | 22A80013 | ASHUTOSH RANJAN | EEC01 | 03.06.2023 | FOUND CHIT SHEET |
| 4 | 22A80164 | GAINI ANGELICA JOAN SERENA | EEC01 | 03.06.2023 | EARPOD CARRYING WITH HER DURING EXAM |
| 5 | 22A80169 | VELPULA MANASA | EEC01 | 03.06.2023 | EARPOD CARRYING WITH HER DURING EXAM |
| 6 | 22B80186 | DEEPSHIKHA BISHOYE | EEC01 | 03.06.2023 | EARPOD CARRYING WITH HER DURING EXAM |
| 7 | 22B80208 | KOMATI CHARITHASRI | EEC01 | 03.06.2023 | FOUND EARPOD & MOBILE |
| 8 | 22B80047 | KOYYA KARTHIKEYA | ECC01 | 05.06.2023 | FOUND CHIT PAPER |
| 9 | 22B80094 | SHREYA GUPTA | CSC01 | 06.06.2023 | SOME PAPER WITH NOTES |
| 10 | 22B80126 | DINI MURMU | CSC01 | 06.06.2023 | PENCIL WRITTEN BACK COVER OF CALCULATOR |
| 11 | 22B80200 | SHABNAM PARWEEN | CSC01 | 06.06.2023 | PENCIL WRITTEN CALCULATOR |
| 12 | 22C80093 | DAKSH MANOHAR | PHC01 | 06.06.2023 | FOUND CHIT INSIDE POCKET |
| 13 | 22C80197 | PRITAM DAS | PHC01 | 06.06.2023 | UNAUTHORISED WRITTEN PAPER |
| 14 | 22D80174 | ROHAN DUTTA | PHC01 | 06.06.2023 | CAUGHT WITH MOBILE |
| 15 | 22B80224 | AMAN KASHYAP | BTC01 | 07.06.2023 | COPYING FROM MOBILE PHONE |
| 16 | 22C80201 | MANISH CHAUDHARY | CYC01 | 07.06.2023 | COPYING FROM BACK SIDE OF THE CALCULATOR |

1. The respective examination paper of the individual student is treated as cancelled and the student may be allowed to appear for back paper.
2. There will be a reduction of two letter grades but not below P in the successful attempt to clear the course.

The meeting ended with a vote of thanks to the Chair.

Dean (Academic Courses)
National Institute of Technology
Durgapur-713209 India

**Dean (Academic Courses)**
**Date: 09.06.2023**

# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

**ACADEMIC CALENDAR** - 2023-2024

**Annexure - II**

| DAYS | JULY' 23 | | AUG' 23 | | SEPT' 23 | | OCT' 23 | | NOV' 23 | | DEC' 23 | | JAN' 24 | | FEB' 24 | | MARCH' 24 | | APRIL' 24 | | MAY' 24 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ODD SEMESTER | | | | | | | | | | | | EVEN SEMESTER | | | | | | | | | |
| SUN | | | | | | | 1 | Gandhi's Birthday | | | | | | | | | | | | | | |
| MON | | | | | | | 2 | | | | | | 1 | Even Semester Begins | | | | | 1 | | | |
| TUE | | | 1 | Supp. Exam, Even Sem. 2022-23 | | | 3 | | | | | | 2 | | | | | | 2 | | | |
| WED | | | 2 | | | | 4 | | 1 | | | | 3 | | | | | | 3 | | 1 | |
| THU | | | 3 | | | | 5 | | 2 | | | | 4 | | 1 | | | | 4 | | 2 | |
| FRI | | | 4 | | 1 | | 6 | | 3 | | 1 | | 5 | | 2 | | 1 | | 5 | | 3 | |
| SAT | 1 | | 5 | | 2 | | 7 | | 4 | | 2 | | 6 | | 3 | | 2 | | 6 | | 4 | |
| SUN | 2 | | 6 | | 3 | | 8 | | 5 | | 3 | | 7 | | 4 | | 3 | | 7 | | 5 | |
| MON | 3 | | 7 | | 4 | | 9 | | 6 | | 4 | END-TERM EXAM (THEORY) ODD SEMESTER 2023-24 (First Year UG & PG) | 8 | Pub of First Sem. UG & PG Results & Corrigendum Results, Other than First Year UG, PG | 5 | # Marks Submission (Supply Exam) | 4 | | 8 | | 6 | UG Project Evaluation |
| TUE | 4 | | 8 | | 5 | | 10 | | 7 | | 5 | | 9 | | 6 | | 5 | | 9 | | 7 | |
| WED | 5 | | 9 | | 6 | | 11 | | 8 | | 6 | | 10 | | 7 | | 6 | | 10 | Idul-Fitr | 8 | |
| THU | 6 | | 10 | # Marks Submission (Supply Exam) | 7 | Janmasthami | 12 | | 9 | | 7 | | 11 | | 8 | Pub. of Supp. Result, Odd Sem, 2023-24 | 7 | | 11 | | 9 | |
| FRI | 7 | | 11 | | 8 | MID-TERM EXAM (THEORY) ODD SEMESTER 2023-24 (Other than First Year UG & PG) | 13 | MID-TERM EXAM (THEORY) ODD SEMESTER 2023-24 (First Year UG & PG) | 10 | | 8 | | 12 | | 9 | | 8 | | 12 | | 10 | |
| SAT | 8 | | 12 | | 9 | | 14 | | 11 | | 9 | | 13 | | 10 | | 9 | | 13 | | 11 | |
| SUN | 9 | | 13 | | 10 | | 15 | | 12 | Diwali | 10 | | 14 | | 11 | | 10 | | 14 | | 12 | |
| MON | 10 | | 14 | | 11 | | 16 | | 13 | | 11 | | 15 | Supp. Examination, Odd Sem 2023-24 | 12 | | 11 | | 15 | | 13 | PG Project Evaluation |
| TUE | 11 | | 15 | Independence Day | 12 | | 17 | | 14 | Pub. of Attendance Defaulter List | 12 | | 16 | | 13 | | 12 | | 16 | | 14 | |
| WED | 12 | | 16 | | 13 | | 18 | | 15 | | 13 | | 17 | | 14 | | 13 | | 17 | | 15 | |
| THU | 13 | | 17 | | 14 | | 19 | | 16 | | 14 | | 18 | | 15 | | 14 | | 18 | | 16 | |
| FRI | 14 | | 18 | Closing date of Odd Semester Registration | 15 | | 20 | | 17 | END-TERM EXAM (THEORY) ODD SEMESTER 2023-24 (Other than First Year UG & PG) | 15 | # Marks Submission (Regular Exam) | 19 | | 16 | | 15 | | 19 | Pub. Of Attendance Defaulter List | 17 | |
| SAT | 15 | | 19 | | 16 | | 21 | | 18 | | 16 | | 20 | | 17 | | 16 | | 20 | | 18 | |
| SUN | 16 | | 20 | | 17 | | 22 | Mahaasthami | 19 | | 17 | | 21 | | 18 | | 17 | | 21 | | 19 | |
| MON | 17 | Odd Semester Begins | 21 | Pub. of Supp. Result, Even Sem, 2021-22 | 18 | | 23 | | 20 | | 18 | | 22 | | 19 | MID-TERM EXAM (THEORY) EVEN SEMESTER 2023-24 | 18 | | 22 | | 20 | # Marks Submission (Regular Exam) |
| TUE | 18 | | 22 | | 19 | | 24 | Dussehrra | 21 | | 19 | | 23 | | 20 | | 19 | | 23 | END-TERM EXAM (THEORY) EVEN SEMESTER 2023-24 | 21 | |
| WED | 19 | | 23 | | 20 | | 25 | | 22 | | 20 | | 24 | | 21 | | 20 | | 24 | | 22 | |
| THU | 20 | | 24 | | 21 | | 26 | | 23 | | 21 | Pub. of Result, Odd Sem, 2023-24 | 25 | | 22 | | 21 | | 25 | | 23 | Buddha Purnima |
| FRI | 21 | | 25 | | 22 | | 27 | | 24 | | 22 | | 26 | Republic Day | 23 | | 22 | | 26 | | 24 | |
| SAT | 22 | | 26 | | 23 | | 28 | | 25 | | 23 | | 27 | Sports Day | 24 | | 23 | | 27 | | 25 | |
| SUN | 23 | | 27 | | 24 | | 29 | | 26 | | 24 | | 28 | | 25 | | 24 | | 28 | | 26 | |
| MON | 24 | | 28 | | 25 | | 30 | | 27 | Guru Nanak's Birthday | 25 | Chirstmas Day | 29 | | 26 | | 25 | Holi / Dolyatra | 29 | | 27 | |
| TUE | 25 | Corrigendum Results, Even Sem. 2022-23 | 29 | | 26 | | 31 | | 28 | | 26 | # Marks Submission (First Year) | 30 | Closing date of Even Semester Registration | 27 | | 26 | | 30 | | 28 | Pub. of Result, Even Sem, 2023-24 |
| WED | 26 | | 30 | | 27 | | | | 29 | | 27 | | 31 | | 28 | | 27 | | | | 29 | |
| THU | 27 | | 31 | | 28 | Id-e-Milad | | | 30 | | 28 | | | | 29 | | 28 | | | | 30 | |
| FRI | 28 | | | | 29 | | | | | | 29 | | | | | | 29 | Good Friday | | | 31 | |
| SAT | 29 | Muhharram | | | 30 | | | | | | 30 | | | | | | 30 | | | | | |
| SUN | 30 | | | | | | | | | | 31 | | | | | | 31 | | | | | |
| MON | 31 | Supp. Exam, Even Sem. 2022-23 | | | | | | | | | | | | | | | | | | | | |

Festival Break (Students, Faculty): October 23 - 27, 2023

Winter Break (Students): November 27 - December 31, 2023

Winter Break (Faculty): December 18 - 29, 2023

Summer Break (Students): May 01 - July 14, 2024

Summer Break (Faculty): May 27 - July 12, 2024

# Last date of Marks submission by the teachers in Chanakya

Academic Year 2024-25 begins : July 15, 2024

**Date: 28/04/2023**

Dean (Academic Courses)

Registrar

# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

**MAHATMA GANDHI AVENUE**
**DURGAPUR 713 209, WEST BENGAL, INDIA**
**Website: www.nitdgp.ac.in**

## Admission to M. Tech. (Self-Sponsored) Programme (2023-2025) (without scholarship)

## ADVANCE ADVERTISEMENT

Based on the availability of vacant seats (category wise) after the conclusion of CCMT 2022, the Institute will admit students without scholarship in the M. Tech. (Self-Sponsored) Programme.

The expected date of uploading the available seat matrix and full detail of advertisement on this web page is **August 17, 2023.** Notification will only be made against the M. Tech. programs, which will have any vacancy.

**Tentative Timeline:**

| | |
|---|---|
| Publication of detailed advertisement with vacancy (tentative) | August 17, 2023 |
| Written Test by respective department (in walk-in mode) | August 21, 2023<br>• Dept. of BT, CE, EC & ME = 10 AM to 11 AM<br>• Dept. of CH, EE, OR & PHY = 12 Noon to 1 PM<br>• Dept. of CSE, EES, MM = 3 PM to 4 PM |
| Uploading of the name of selected candidates on the Institute Website | August 21, 2023 |
| Admission and enrolment of selected candidates | August 22, 2023 |
| Commencement of Classes | August 23, 2023 |

Application Processing Fee: **₹ 1000** (Demand Draft in favour of "National Institute of Technology Durgapur" Payable at Canara Bank, NIT Campus, Durgapur).

**ELIGIBILITY:**

| **Category** | **10 + 2** | **Percentage Marks / CGPA** | |
|---|---|---|---|
| | | **GATE Qualified, but not allotted a seat through CCMT 2022** | **Non-GATE Qualified** |
| OPEN/OBC-NCL/OPEN-EWS | 60% | 60% or 6.5 CGPA | • 7.5 CGPA (on a 10-point scale) or 70% for B. Tech. or equivalent.<br>• 6.5 CGPA (on a 10-point scale) or 60% for M. Sc. |
| SC/ST | 55% | 55% or 6.0 CGPA | • 7.0 CGPA (on a 10-point scale) or 65% for B. Tech. or equivalent.<br>• 6.0 CGPA (on a 10-point scale) or 55% for M. Sc. |

Conversion from CGPA to percentage or vice versa given by individual Institute will not be considered. Candidates will have to mention CGPA/Percentage as awarded by their University/Institute in the application form.

**Intersted candidates may submit their willingness at https://forms.gle/KVL2RaPa3jyZji8x7.**

**QUALIFYING DEGREES**

| Department | Program Name | Eligibile Degrees |
|---|---|---|
| Department of Biotechnology (BT) | Biotechnology | B.E./B.Tech. In Agriculture Engineering |
| | | B.E./B.Tech. In Agriculture and Food Engineering |
| | | B.E./B.Tech. In Biochemical and Biotechnology Engineering |
| | | B.E./B.Tech. In Biochemical Engineering |
| | | B.E./B.Tech. In Biochemical Engineering and Biotechnology |
| | | B.E./B.Tech. In Bioengineering |
| | | B.E./B.Tech. In Bioinformatics |
| | | B.E./B.Tech. In Biological Sciences and Bioengineering |
| | | B.E./B.Tech. In Bioprocess Engineering |
| | | B.E./B.Tech. In Bioscience and Bioengineering |
| | | B.E./B.Tech. In Biotech Engineering |
| | | B.E./B.Tech. In Biotechnology |
| | | B.E./B.Tech. In Biotechnology & Biochemical Engineering |
| | | B.E./B.Tech. In Chemical and Bio Engineering |
| | | B.E./B.Tech. In Chemical Engineering |
| | | B.E./B.Tech. In Chemical Technology |
| | | B.E./B.Tech. In Food Engineering |
| | | B.E./B.Tech. In Food Process Engineering |
| | | B.E./B.Tech. In Food Technology |
| | | B.E./B.Tech. In Food Technology & Biochemical Engineering |
| | | B.E./B.Tech. In Genetic Engineering |
| | | B.E./B.Tech. In Industrial Biotechnology |
| | | B.E./B.Tech. In Pharmaceutical Science |
| | | B.E./B.Tech. In Pharmaceutical Technology |
| | | M.Sc. in Bio-Sciences |
| | | M.Sc. in Biotechnology |
| | | M.Sc. in Life Sciences |
| Department Of Chemical Engineering (CH) | Chemical Engineering | B.E./B.Tech. In Agriculture Engineering |
| | | B.E./B.Tech. In Biochemical Engineering |
| | | B.E./B.Tech. In Biotechnology |
| | | B.E./B.Tech. In Ceramic Engineering |
| | | B.E./B.Tech. In Ceramic Technology |
| | | B.E./B.Tech. In Chemical Engineering |
| | | B.E./B.Tech. In Chemical Technology |
| | | B.E./B.Tech. In Civil Engineering |
| | | B.E./B.Tech. In Energy Engineering |
| | | B.E./B.Tech. In Environmental Engineering |
| | | B.E./B.Tech. In Environment and Pollution Control |
| | | B.E./B.Tech. In Environmental Science and Engineering |
| | | B.E./B.Tech. In Food Engineering |

| | | |
|---|---|---|
| | | B.E./B.Tech. In Food Engineering and Technology |
| | | B.E./B.Tech. In Food Process Engineering |
| | | B.E./B.Tech. In Food Process Technology |
| | | B.E./B.Tech. In Food Technology |
| | | B.E./B.Tech. In Material Science and Engineering |
| | | B.E./B.Tech. In Mechanical Engineering |
| | | B.E./B.Tech. In Metallurgical and Materials Engineering |
| | | B.E./B.Tech. In Nanotechnology |
| | | B.E./B.Tech. In Oil Technology |
| | | B.E./B.Tech. In Petrochemical Engineering |
| | | B.E./B.Tech. In Petrochemical Technology |
| | | B.E./B.Tech. In Petrochem and Petroleum Refinery Engineering |
| | | B.E./B.Tech. In Petroleum Engineering |
| | | B.E./B.Tech. In Petroleum Technology |
| | | B.E./B.Tech. In Pharmaceutical Technology |
| | | B.E./B.Tech. In Plastic Engineering |
| | | B.E./B.Tech. In Polymer Science and Technology |
| | | B.E./B.Tech. In Polymer Science and Chemical Technology |
| | | Including Polymer And Environmental Group (IIChemE) |
| | | The Institution Of Engineers (India) (IE) |
| Department Of Chemical Engineering (CH) | Chemical Engineering (Energy Resources And Sustainable Environmental Engineering) | B.E./B.Tech. In Agriculture Engineering |
| | | B.E./B.Tech. In Biochemical Engineering |
| | | B.E./B.Tech. In Bioengineering |
| | | B.E./B.Tech. In Biotechnology |
| | | B.E./B.Tech. In Ceramic Engineering |
| | | B.E./B.Tech. In Ceramic Technology |
| | | B.E./B.Tech. In Chemical And Polymer Engineering |
| | | B.E./B.Tech. In Chemical Engineering |
| | | B.E./B.Tech. In Chemical Technology |
| | | B.E./B.Tech. In Civil Engineering |
| | | B.E./B.Tech. In Civil Technology |
| | | B.E./B.Tech. In Civil Engg. Environment And Pollution Control |
| | | B.E./B.Tech. In Civil Environmental Engineering |
| | | B.E./B.Tech. In Energy Engineering |
| | | B.E./B.Tech. In Environment And Pollution Control |
| | | B.E./B.Tech. In Environmental Engineering |
| | | B.E./B.Tech. In Environmental Science And Engineering |
| | | B.E./B.Tech. In Environmental Science And Technology |
| | | B.E./B.Tech. In Food Engineering |
| | | B.E./B.Tech. In Food Technology |
| | | B.E./B.Tech. In Food Technology And Biochemical Engineering |
| | | B.E./B.Tech. In Food Engineering And Technology |

| | | |
|---|---|---|
| | | B.E./B.Tech. In Food Process Engineering |
| | | B.E./B.Tech. In Food Process Technology |
| | | B.E./B.Tech. In Leather Technology |
| | | B.E./B.Tech. In Material Science And Engineering |
| | | B.E./B.Tech. In Material Science And Technology |
| | | B.E./B.Tech. In Material Science And Metallurgical Engineering |
| | | B.E./B.Tech. In Mechanical Engineering |
| | | B.E./B.Tech. In Metallurgical And Materials Engineering |
| | | B.E./B.Tech. In Metallurgical And Materials Technology |
| | | B.E./B.Tech. In Nanotechnology |
| | | B.E./B.Tech. In Oil Technology |
| | | B.E./B.Tech. In Petrochemical Engineering |
| | | B.E./B.Tech. In Petrochemical Technology |
| | | B.E./B.Tech. In Petroleum Engineering |
| | | B.E./B.Tech. In Petroleum Technology |
| | | B.E./B.Tech. In Pharmaceutical Technology |
| | | B.E./B.Tech. In Plastics Engineering |
| | | B.E./B.Tech. In Plastics Technology |
| | | B.E./B.Tech. In Polymer Engineering And Technology |
| | | B.E./B.Tech. In Polymer Science And Chemical Technology |
| | | B.E./B.Tech. In Polymer Science And Rubber Technology |
| | | B.E./B.Tech. In Power Engineering |
| | | B.E./B.Tech. In Production Engineering |
| | | M.Sc. In Analytical Chemistry |
| | | M.Sc. In Applied Chemistry |
| | | M.Sc. In Applied Physics |
| | | M.Sc. In Biotechnology |
| | | M.Sc. In Chemistry |
| | | M.Sc. In Environmental Science |
| | | M.Sc. In Physical Chemistry |
| | | M.Sc. In Physics |
| | | Including Polymer And Environmental Group (IIChemE) |
| Department Of Computer Science & Engineering (CSE) | Computer Science & Engineering | B.E./B.Tech. In Computer Engineering |
| | | B.E./B.Tech. In Computer Science |
| | | B.E./B.Tech. In Computer Science And Engineering |
| | | B.E./B.Tech. In Computer Science And Information Technology |
| | | B.E./B.Tech. In Computer Science And Technology |
| | | B.E./B.Tech. In Computer Technology |
| | | B.E./B.Tech. In Information Technology |
| | | MCA |
| | | M.Sc. in Computer Science and Engineering |
| Department of Civil Engineering (CE) | Geotechnical Engineering | B.E./B.Tech. In Civil Engineering |
| | | B.E./B.Tech. In Civil Technology |

| | | |
|---|---|---|
| | | B.E./B.Tech. In Construction Engineering |
| | | B.E./B.Tech. In Construction Technology |
| | | The Institution of Civil Engineers (ICE) |
| | | The Institution of Engineers (India) (IE) |
| Department of Civil Engineering (CE) | Structural Engineering | B.E./B.Tech. In Civil Engineering |
| | | B.E./B.Tech. In Civil Technology |
| | | B.E./B.Tech. In Construction Engineering |
| | | B.E./B.Tech. In Construction Technology |
| | | The Institution of Civil Engineers (ICE) |
| | | The Institution of Engineers (India) (IE) |
| Department Of Earth & Environmental Studies (EES) | Environmental Science & Technology | B.E./B.Tech. In Biotech Engineering |
| | | B.E./B.Tech. In Biotechnology |
| | | B.E./B.Tech. In Chemical Engineering |
| | | B.E./B.Tech. In Chemical Technology |
| | | B.E./B.Tech. In Civil and Water Management |
| | | B.E./B.Tech. In Civil Engineering |
| | | B.E./B.Tech. In Civil Engineering (Public Health Engineering) |
| | | B.E./B.Tech. In Civil Environmental Engineering |
| | | B.E./B.Tech. In Civil and Environmental Engineering |
| | | B.E./B.Tech. In Civil Engineering (Environmental Engineering) |
| | | B.E./B.Tech. In Civil Technology |
| | | B.E./B.Tech. In Civil Engineering Environment and Pollution Control |
| | | B.E./B.Tech. In Environment And Pollution Control |
| | | B.E./B.Tech. In Environmental Engineering |
| | | B.E./B.Tech. In Environmental Science And Engineering |
| | | B.E./B.Tech. In Environmental Science And Technology |
| | | M.Sc. In Agricultural Science |
| | | M.Sc. In Biotechnology |
| | | M.Sc. In Chemistry |
| | | M.Sc. In Earth Science |
| | | M.Sc. In Environmental Science |
| | | M.Sc. In Geology |
| Department Of Electronics & Communication Engineering (ECE) | Microelectronics & VLSI | B.E./B.Tech. In Computer Science And Engineering |
| | | B.E./B.Tech. In Electrical And Electronics Engineering |
| | | B.E./B.Tech. In Electrical Engineering |
| | | B.E./B.Tech. In Electronics And Communication Engineering |
| | | B.E./B.Tech. In Electronics And Computer Engineering |
| | | B.E./B.Tech. In Electronics And Electrical Communication Engg |
| | | B.E./B.Tech. In Electronics And Electrical Engineering |
| | | B.E./B.Tech. In Electronics And Instrumentation Engineering |
| | | B.E./B.Tech. In Electronics And Telecommunication Engineering |

| | | |
|---|---|---|
| | | B.E./B.Tech. In Electronics Communication And Instrumentation Engineering |
| | | B.E./B.Tech. In Electronics Engineering |
| | | B.E./B.Tech. In Electronics Science And Engineering |
| | | B.E./B.Tech. In Electronics Technology |
| | | B.E./B.Tech. In Nanotechnology |
| | | B.E./B.Tech. In Radio Physics And Electronics |
| | | M.Sc. In Electronics and Communication |
| | | M. Sc. In Computer Science |
| | | M.Sc. In Electronics |
| | | M.Sc. In Radio Physics And Electronics |
| Department Of Electronics & Communication Engineering (ECE) | Next Generation Communication and Networks | B.E./B.Tech. In Communication Engineering |
| | | B.E./B.Tech. In Computer Science And Engineering |
| | | B.E./B.Tech. In Electrical And Electronics Engineering |
| | | B.E./B.Tech. In Electrical Engineering |
| | | B.E./B.Tech. In Electronics And Communication Engineering |
| | | B.E./B.Tech. In Electronics And Computer Engineering |
| | | B.E./B.Tech. In Electronics And Electrical Communication Engg |
| | | B.E./B.Tech. In Electronics And Electrical Engineering |
| | | B.E./B.Tech. In Electronics And Instrumentation Engineering |
| | | B.E./B.Tech. In Electronics And Telecommunication Engineering |
| | | B.E./B.Tech. In Electronics Communication & Instrumentation Engg |
| | | B.E./B.Tech. In Electronics Engineering |
| | | B.E./B.Tech. In Electronics Technology |
| | | B.E./B.Tech. In Radio Physics And Electronics |
| | | B.E./B.Tech. In Telecommunication Engineering |
| | | M.Sc. In Electronics and Communication Engineering |
| | | M.Sc. In Electronics |
| | | M.Sc. In Radio Physics And Electronics |
| Department Of Electrical Engineering (EE) | Power System | B.E./B.Tech. In Electrical And Electronics Engineering |
| | | B.E./B.Tech. In Electrical And Power Engineering |
| | | B.E./B.Tech. In Electrical Engineering |
| | | B.E./B.Tech. In Electrical Power Engineering |
| | | B.E./B.Tech. In Power Engineering |
| | | B.E./B.Tech. in Control and Electrical Engineering |
| | | B.E./B.Tech. in Electrical and Computer Engineering |
| | | B.E./B.Tech. in Electrical and Electronics |
| | | B.E./B.Tech. in Electrical and Electronics (Power System) |
| | | B.E./B.Tech. in Electrical and Instrumentation Engineering |
| | | B.E./B.Tech. in Electrical and Renewable Energy Engineering |

| | | |
|---|---|---|
| | | B.E./B.Tech. in Electrical Engineering (Electronics and Power) |
| | | B.E./B.Tech. in Electrical Engineering (Power) |
| | | B.E./B.Tech. in Electrical, Electronics and Power Engineering |
| | | B.E./B.Tech. in Energy Science and Engineering |
| | | B.E./B.Tech. in Power and Energy Systems Engineering |
| | | B.E./B.Tech. in Renewable Energy |
| | | The Institution Of Engineers (India) (IE) |
| Department Of Electrical Engineering (EE) | Power Electronics & Machine Drives | B.E./B.Tech. In Electrical And Electronics Engineering |
| | | B.E./B.Tech. In Electrical Engineering |
| | | B.E./B.Tech. in Control and Electrical Engineering |
| | | B.E./B.Tech. in Electrical and Computer Engineering |
| | | B.E./B.Tech. in Electrical and Electronics (Power System) |
| | | B.E./B.Tech. in Electrical and Power Engineering |
| | | B.E./B.Tech. in Electrical and Renewable Energy Engineering |
| | | B.E./B.Tech. in Electrical Engineering (Electronics and Power) |
| | | B.E./B.Tech. in Electrical Engineering (Power) |
| | | B.E./B.Tech. in Electrical Engineering and Industrial Control |
| | | B.E./B.Tech. in Electrical Power Engineering |
| | | B.E./B.Tech. in Electrical, Electronics and Power Engineering |
| | | B.E./B.Tech. in Electronics and Electrical Engineering |
| | | B.E./B.Tech. in Power and Energy Systems Engineering |
| | | B.E./B.Tech. in Power Control and Drives |
| | | B.E./B.Tech. in Power Electronics |
| | | B.E./B.Tech. in Power Electronics and Instrumentation Engineering |
| | | B.E./B.Tech. in Power Engineering |
| | | The Institution Of Engineers (India) (IE) |
| Department Of Electrical Engineering (EE) | Electrical Engineering (Instrumentation And Control) | B.E./B.Tech. In Applied Electronics And Instrumentation |
| | | B.E./B.Tech. In Applied Electronics And Instrumentation Engg |
| | | B.E./B.Tech. In Control & Industrial Automation |
| | | B.E./B.Tech. In Control And Electrical Engineering |
| | | B.E./B.Tech. In Control And Instrumentation |
| | | B.E./B.Tech. In Control Engineering |
| | | B.E./B.Tech. In Control System Engineering |
| | | B.E./B.Tech. In Electrical And Computer Engineering |
| | | B.E./B.Tech. In Electrical And Electronics |
| | | B.E./B.Tech. In Electrical And Electronics (Power System) |
| | | B.E./B.Tech. In Electrical And Electronics Engineering |
| | | B.E./B.Tech. In Electrical And Instrumentation Engineering |
| | | B.E./B.Tech. In Electrical And Mechanical Engineering |
| | | B.E./B.Tech. In Electrical And Power Engineering |
| | | B.E./B.Tech. In Electrical And Renewable Energy Engineering |
| | | B.E./B.Tech. In Electrical Engineering |

| | | |
|---|---|---|
| | | B.E./B.Tech. In Electrical Engineering (Power) |
| | | B.E./B.Tech. In Electrical Engineering And Industrial Control |
| | | B.E./B.Tech. In Electrical Instrumentation And Control Engg |
| | | B.E./B.Tech. In Electrical Power Engineering |
| | | B.E./B.Tech. In Electronics And Power Engineering |
| | | B.E./B.Tech. In Electronic Instrumentation And Control Engg |
| | | B.E./B.Tech. In Electronics And Control Systems |
| | | B.E./B.Tech. In Electronics And Electrical Communication Engg |
| | | B.E./B.Tech. In Electronics And Electrical Engineering |
| | | B.E./B.Tech. In Electronics And Information Systems |
| | | B.E./B.Tech. In Electronics And Instrumentation |
| | | B.E./B.Tech. In Electronics And Instrumentation Engineering |
| | | B.E./B.Tech. In Electronics And Power Engineering |
| | | B.E./B.Tech. In Electronics And Telematics Engineering |
| | | B.E./B.Tech. In Electronics Communication And Instrumentation Engineering |
| | | B.E./B.Tech. In Electronics Design Technology |
| | | B.E./B.Tech. In Electronics Engineering |
| | | B.E./B.Tech. In Electronics Engg (Design And Manufacturing) |
| | | B.E./B.Tech. In Electronics Engg (Specialization In System Engg) |
| | | B.E./B.Tech. In Electronics Engg With Minor In System Engg |
| | | B.E./B.Tech. In Electronics Instrument And Control |
| | | B.E./B.Tech. In Electronics Science And Engineering |
| | | B.E./B.Tech. In Electronics System Engineering |
| | | B.E./B.Tech. In Electronics Technology |
| | | B.E./B.Tech. In Industrial Electronics |
| | | B.E./B.Tech. In Instrumentation |
| | | B.E./B.Tech. In Instrumentation And Control Engineering |
| | | B.E./B.Tech. In Instrumentation And Control System |
| | | B.E./B.Tech. In Instrumentation And Electronics Engineering |
| | | B.E./B.Tech. In Instrumentation And Process Control |
| | | B.E./B.Tech. In Instrumentation Engineering |
| | | B.E./B.Tech. In Instrumentation Technology |
| | | B.E./B.Tech. In Medical Instrumentation |
| | | B.E./B.Tech. In Power And Energy Systems Engineering |
| | | B.E./B.Tech. In Power Control And Drives |
| | | B.E./B.Tech. In Power Electronics |
| | | B.E./B.Tech. In Power Electronics And Instrumentation Engg |
| | | B.E./B.Tech. In Power Engineering |
| | | B.E./B.Tech. In Power System Engineering |
| | | B.E./B.Tech. In Radio Physics And Electronics |
| | | B.E./B.Tech. in Control and Instrumentation |
| | | B.E./B.Tech. in Instrumentation and Control Engineering |

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|---|---|---|
| | | B.E./B.Tech. in Instrumentation Technology |
| | | B.E./B.Tech. in Biomedical Instrumentation |
| | | B.E./B.Tech. in Electronic Instrumentation and Control Engineering |
| | | B.E./B.Tech. in Electronics and Control Systems |
| | | B.E./B.Tech. in Electronics Instrument and Control |
| | | B.E./B.Tech. in Instrumentation and Process Control |
| | | B.E./B.Tech. in Medical Instrumentation |
| | | B.E./B.Tech. in Instrumentation and Control System |
| | | B.E./B.Tech. in Instrumentation |
| | | B.E./B.Tech. in Instrumentation and Electronics Engineering |
| | | The Institution Of Engineers (India) (IE) |
| Department of Mathematics, Computer Science & Engineering, Management Studies (OR) | Operations Research | B.E./B.Tech. In Any Disciplines |
| | | M.Sc. In Mathematics And Computing |
| | | M.Sc. In Operations Research |
| | | M.Sc. In Statistics |
| | | MCA |
| Department of Mechanical Engineering (ME) | Fluid Mechanics And Heat Transfer | B.E./B.Tech. In Aerospace Engineering |
| | | B.E./B.Tech. In Mechanical Engineering |
| | | B.E./B.Tech. In Power Engineering |
| Department Of Mechanical Engineering (ME) | Machine Design | B.E./B.Tech. In Applied Mechanics |
| | | B.E./B.Tech. In Mechanical Engineering |
| | | B.E./B.Tech. in Automobile Engineering |
| | | B.E./B.Tech. in Automotive Design Engineering |
| | | The Institution Of Engineers (India) (IE) |
| Department Of Mechanical Engineering (ME) | Thermal Engineering | B.E./B.Tech. In Aerospace Engineering |
| | | B.E./B.Tech. In Mechanical Engineering |
| | | B.E./B.Tech. In Power Engineering |
| Department Of Metallurgical & Materials Engineering (MME) | Metallurgy And Materials Technology | B.E./B.Tech. In Aerospace Engineering |
| | | B.E./B.Tech. In Ceramic Engineering |
| | | B.E./B.Tech. In Ceramic Technology |
| | | B.E./B.Tech. In Chemical Engineering |
| | | B.E./B.Tech. In Chemical Technology |
| | | B.E./B.Tech. In Electronics and Communication Engineering |
| | | B.E./B.Tech. In Industrial Metallurgy |
| | | B.E./B.Tech. In Manufacturing Engineering |
| | | B.E./B.Tech. In Manufacturing Science And Engineering |
| | | B.E./B.Tech. In Manufacturing Technology |
| | | B.E./B.Tech. In Material Science And Engineering |
| | | B.E./B.Tech. In Material Science And Metallurgical Engineering |
| | | B.E./B.Tech. In Material Science And Technology |

| | | |
|---|---|---|
| | | B.E./B.Tech. In Materials And Metallurgical Engineering |
| | | B.E./B.Tech. In Mechanical Engineering |
| | | B.E./B.Tech. In Metallurgical And Materials Engineering |
| | | B.E./B.Tech. In Metallurgical And Materials Technology |
| | | B.E./B.Tech. In Metallurgical Engineering |
| | | B.E./B.Tech. In Metallurgical Engineering And Material Science |
| | | B.E./B.Tech. In Metallurgy |
| | | B.E./B.Tech. In Metallurgy And Material Technology |
| | | B.E./B.Tech. In Metallurgy And Materials |
| | | B.E./B.Tech. In Metallurgy And Materials Engineering |
| | | B.E./B.Tech. In Mining Engineering |
| | | B.E./B.Tech. In Mining Technology |
| | | B.E./B.Tech. In Nanotechnology |
| | | B.E./B.Tech. In Production And Industrial Engineering |
| | | B.E./B.Tech. In Production Engineering |
| | | B.E./B.Tech. In Production Engineering And Management |
| | | B.E./B.Tech. in Mining Engineering |
| | | B.E./B.Tech. in Mining Technology |
| | | B.E./B.Tech. in Mining Technology |
| | | B.E./B.Tech. in Mineral Dressing |
| | | B.E./B.Tech. in Mineral Engineering |
| | | B.E./B.Tech. in Aeronautical Engineering |
| | | B.E./B.Tech. in Mining and Machinery Engineering |
| | | M.Sc. In Applied Physics |
| | | M.Sc. In Chemistry |
| | | M.Sc. In Engineering Physics |
| | | M.Sc. In Physics |
| | | Including Polymer And Environmental Group (IIChemE) |
| | | The Indian Institute Of Metals (IIM) |
| | | The Institution Of Engineers (India) (IE) |
| Department Of Physics (PHY) | Advanced Material Science & Technology | B.E./B.Tech. In Applied Electronics And Instrumentation |
| | | B.E./B.Tech. In Applied Electronics And Instrumentation Engg |
| | | B.E./B.Tech. In Chemical And Polymer Engineering |
| | | B.E./B.Tech. In Chemical Engineering |
| | | B.E./B.Tech. In Chemical Technology |
| | | B.E./B.Tech. In Electronics And Communication Engineering |
| | | B.E./B.Tech. In Electronics And Instrumentation Engineering |
| | | B.E./B.Tech. In Electronics Engineering |
| | | B.E./B.Tech. In Electronics Science And Engineering |
| | | B.E./B.Tech. In Engineering Physics |
| | | B.E./B.Tech. In Instrumentation Engineering |
| | | B.E./B.Tech. In Instrumentation Technology |
| | | B.E./B.Tech. In Material Science And Engineering |

| | | |
|---|---|---|
| | | B.E./B.Tech. In Material Science And Metallurgical Engineering |
| | | B.E./B.Tech. In Material Science And Technology |
| | | B.E./B.Tech. In Materials And Metallurgical Engineering |
| | | B.E./B.Tech. In Mechanical Engineering |
| | | B.E./B.Tech. In Metallurgical And Materials Engineering |
| | | B.E./B.Tech. In Metallurgical And Materials Technology |
| | | B.E./B.Tech. In Metallurgical Engineering And Material Science |
| | | B.E./B.Tech. In Nanotechnology |
| | | B.E./B.Tech. In Polymer Science And Chemical Technology |
| | | B.E./B.Tech. In Polymer Science And Rubber Technology |
| | | B.E./B.Tech. In Polymer Science And Technology |
| | | M.Sc. In Analytical Chemistry |
| | | M.Sc. In Applied Chemistry |
| | | M.Sc. In Physics |
| | | M.Sc. In Applied Physics |
| | | M.Sc. In Applied Science |
| | | M.Sc. In Chemistry |
| | | M.Sc. In Electronics |
| | | M.Sc. In Engineering Physics |
| | | M.Sc. In Engineering Physics And Instrumentation |
| | | M.Sc. In Materials Science |
| | | M.Sc. In Nano Science And Technology |
| | | M.Sc. In Physical Chemistry |
| | | M.Sc. In Radio Physics |
| | | M.Sc. In Radio Physics And Electronics |

## SPECIAL ELIGIBILITY:

Candidates applying for M. Tech. program in Environmental Science and Technology must have passed 10+2 examinations with Mathematics.

## APPLICATION CHECKLIST

**Applicants need to be personally present on 21st August 2023 in the respective department for the selection examination. The following documents shall be brought along with the filled-in application form. An application without the copies of the required documents will be rejected.**

(i) Signed photo copy of marks sheet / Grade card of the secondary, higher secondary and other university examinations.
(ii) Signed photo copy of the certificate / provisional certificate of the qualifying examination
(iii) Signed photo copy of proof of date of birth
(iv) Draft of **₹1000** as an application processing fee
(v) Category certificate (OBC-NCL/EWS/SC/ST) from a competent authority. For OBC-NCL and EWS candidates the certificate must be issued on or after 01/04/2023 by the competent authority.

## ADMISSION PROCEDURE FOR M.TECH PROGRAMMES (SELF-SPONSORED)

**Mere eligibility will not ensure a call for admission test.** The selection will be made by the respective department based on 30% weightage in Class XII marks, 30% weightage on the qualifying degree marks and 40% weightage on the written admission test. The minimum eligibility marks for selection shall be 40% in the written admission test.

## HOSTEL

The Institute is essentially a residential one and every student shall be required to reside on campus and be a boarder of the Hall of Residence to which he/she is assigned. However, no family accommodation will be provided inside the campus.

## FEES

The fee structure is available in the Institute website (https://nitdgp.ac.in/p/fees-1).

**SCHOLARSHIP**

This category students are not entitled for any scholarship from the Institute.

**Dean (Academic Courses)**
**Dated: 27-06-2023**

**FORMAT FOR OBC [NCL] CERTIFICATE**

TO BE PRODUCED BY OTHER BACKWARD CLASSES APPLYING FOR ADMISSION

*[This certificate must be issued on or after 1st April, 2023]*

This is to certify that Shri/Smt./Kum._____Son/Daughter of Shri/Smt. _____of Village/Town _____

District/Division_____in the_____State/UT

belongs to the_____Community which is recognized as a backward class under:

(i) Resolution No. 12011/68/93-BCC(C), dated 10/09/93 published in the Gazette of India Extraordinary Part I Section I No. 186, dated 13/09/93.

(ii) Resolution No. 12011/9/94-BCC, dated 19/10/94 published in the Gazette of India Extraordinary Part I Section I No. 163, dated 20/10/94.

(iii) Resolution No. 12011/7/95-BCC, dated 24/05/95 published in the Gazette of India Extraordinary Part I Section I No. 88, dated 25/05/95.

(iv) Resolution No. 12011/96/94-BCC, dated 9/03/96.

(v) Resolution No. 12011/44/96-BCC, dated 6/12/96 published in the Gazette of India Extraordinary Part I Section I No. 210, dated 11/12/96.

(vi) Resolution No. 12011/13/97-BCC, dated 03/12/97.

(vii) Resolution No. 12011/99/94-BCC, dated 11/12/97.

(viii) Resolution No. 12011/68/98-BCC, dated 27/10/99.

(ix) Resolution No. 12011/88/98-BCC, dated 6/12/99 published in the Gazette of India Extraordinary Part I Section I No. 270, dated 06/12/99.

(x) Resolution No. 12011/36/99-BCC, dated 04/04/2000 published in the Gazette of India Extraordinary Part I Section I No. 71, dated 04/04/2000.

(xi) Resolution No. 12011/44/99-BCC, dated 21/09/2000 published in the Gazette of India Extraordinary Part I Section I No. 210, dated 21/09/2000.

(xii) Resolution No. 12016/9/2000-BCC, dated 06/09/2001.

(xiii) Resolution No. 12011/1/2001-BCC, dated 19/06/2003.

(xiv) Resolution No. 12011/4/2002-BCC, dated 13/01/2004.

(xv) Resolution No. 12011/9/2004-BCC, dated 16/01/2006 published in the Gazette of India Extraordinary Part I Section I No. 210, dated 16/01/2006.

(xvi) Resolution No. 12015/2/2007-BCC, dated 18/08/2010.

(xvii) Resolution No. 12015/2/2007-BCC, dated 11/10/2010.

(xviii) Resolution No. 12015/13/2010-BC-II, dated 08/12/2011.

(xix) Resolution No. 12015/05/2011-BC-II, dated 17/02/2014.

(xx) Resolution No. 12011/6/2014-BC-II, dated 07/12/2016.

(xxi) Resolution No. 12011/13/2016-BC-II, dated 22/12/2016

(xxii) Resolution No. 20012/1/2017-BC-II, dated 19/01/2017

(xxiii) Resolution No. 12011/7/2017-BC-II, dated 31/07/2017

Shri/Smt./Kum._____and/or his family ordinarily reside(s) in the

_____District/Division of_____State/UT. This is also to certify that he/she **does not belong to the persons/sections (Creamy Layer)** mentioned in Column 3 of the Schedule to the Government of India, Department of Personnel & Training O.M. No. 36 012/22/93-Estt.(SCT), dated 08/09/93 which is modified vide OM No. 36033/3/2004 Estt.(Res.), dated 09/03/2004, further modified vide OM No. 36033/3/2004-Estt. (Res) dated 14/10/2008, again further modified vide OM No. 36036/2/2013-Estt (Res) dated 30/05/2014.

*Place*_____ *Signature* _____

**Date**_____ **Designation** _____

(with seal of office)

NOTE:

(a) The term 'Ordinarily' used here will have the same meaning as in Section 20 of the Representation of the People Act, 1950.

(b) ^The authorities competent to issue Caste Certificates are indicated below:

(i) District Magistrate / Additional Magistrate / Collector / Deputy Commissioner / Additional Deputy Commissioner / Deputy Collector / First Class Stipendiary Magistrate/ Sub-Divisional magistrate / Taluka Magistrate / Executive Magistrate / Extra Assistant Commissioner (not below the rank of 1$^{ST}$ Class Stipendiary Magistrate).

(ii) Chief Presidency Magistrate / Additional Chief Presidency Magistrate / Presidency Magistrate.

(iii) Revenue Officer not below the rank of Tehsildar.

(iv) Sub-Divisional Officer of the area where the candidate and / or his family resides.

# FORMAT FOR EWS CERTIFICATE

*INCOME & ASSEST CERTIFICATE TO BE PRODUCED BY ECONOMICALLY WEAKER SECTIONS*

Government of ……..

(Name & Address of the authority issuing the certificate)

*[This certificate must be issued on or after 1st April 2023]*

Certificate No ._____ Date:_____

VALID FOR THE YEAR_____

1. *This is to certify that Shri /Smt. / Kumari_____, son / daughter / wife of* **_____Permanent resident of_____, Village / Street _____Post Office_____District in the State / Union Territory _____Pin Code_____whose photograph is attested below belongs to Economically Weaker Sections, since the gross annual income* of his / her family** is below Rs. 8 lakh (Rupees Eight Lakh only) for the financial year_____. His / her family does not own or possess any of the following assets***:**

   I. 5 acres of agricultural land and above;
   II. Residential flat of 1000 sq. ft. and above;
   III. Residential plot of 100 sq. yards and above in notified municipalities;
   IV. Residential plot of 200 sq. yards and above in. areas other than the notified municipalities.

2. *Shri / Smt. / Kumari_____belongs to_____the caste which is not recognized as a Scheduled Caste, Scheduled Tribe and Other Backward Classes (Central List).s*

Signature with seal of Office_____

Name_____

Designation_____

Recent Passport size attested photograph of the applicant

**The income and assets of the families as mentioned would be required to be certified by an officer not below the rank of Tehsildar in the States/UTs.**

Note:

* Income covered all sources i.e. salary, agriculture, business, profession,etc.

** The term "Family" for this purpose includes the person, who seeks benefit of reservation, his/her parents and siblings below the age of 18 years as also his/her spouse and children below the age of I8 years.

*** The property held by a "Family' in different locations or different places/cities have been clubbed while applying the land or property holding test to determine EWS status.

# FORMAT FOR SC/ST CERTIFICATE

A candidate who claims to belong to one of the Scheduled Castes or the Scheduled Tribes should submit in support of his claim an attested / self-certified copy of a certificate in the form given below, from the District Officer or the Sub-Divisional Officer or any other officer as indicated below of the District in which his parents (or surviving parent) ordinarily reside who has been designated by the State Government concerned as competent to issue such a certificate. If both his parents are dead, the officer signing the certificate should be of the district in which the candidate himself ordinarily resides otherwise than for the purpose of his own education. Wherever photograph his integral part of the certificate, the NIT Durgapur would accept only attested/self-certified photocopies of such certificates and not any other copy.

*This is to certify that Shri / Shrimati / Kumari**_____

**_____Son / daughter of_____**

**_____of village /t own/*_____in**

**District/Division*_____of the State /Union Territory* _____**

**_____belongs to the**

**_____Caste/ Tribe* which is recognized as a Scheduled Castes [SC]* / Scheduled Tribes [ST]* under: The Constitution (Scheduled Castes) Order, 1950 The Constitution (Scheduled Tribes) Order, 1950. The Constitution (Scheduled Castes) Union Territories Order, 1951 The Constitution (Scheduled Tribes) Union Territories Order, 1951**

As amended by the Scheduled Castes and Scheduled Tribes Lists (Modification) Order, 1956, the Bombay Reorganization Act, 1960 & the Punjab Reorganization Act, 1966, the State of Himachal Pradesh Act 1970, the North-Eastern Area (Reorganization) Act, 1971 and the Scheduled Castes and Scheduled Tribes Order (Amendment) Act, 1976. [**%]**

The Constitution (Jammu & Kashmir) Scheduled Castes Order, 1956. The Constitution (Andaman and Nicobar Islands) Scheduled Tribes Order, 1959 as amended by the Scheduled Castes and Scheduled Tribes Order (Amendment Act), 1976. The Constitution (Dadra and Nagar Haveli) Scheduled Castes Order, 1962. The Constitution (Dadra and Nagar Haveli) Scheduled Tribes Order 1962**. The Constitution (Pondicherry) Scheduled Castes Order, 1964**. The Constitution (Scheduled Tribes) (Uttar Pradesh) Order, 1967**.The Constitution (Goa, Daman & Diu)ScheduledCastesOrder,1968**. The Constitution (Goa, Daman & Diu) Scheduled Tribes Order, 1968**. The Constitution (Nagaland) Scheduled Tribes Order,1970**. The Constitution (Sikkim) Scheduled Castes Order, 1978**.[%]

The Constitution (Sikkim) Scheduled Tribes Order, 1978**. The Constitution (Jammu & Kashmir) Scheduled Tribes Order 1989**. The Constitution (SC) Orders (Amendment) Act, 1990**. The Constitution (ST) Orders (Amendment) Ordinance, 1991**. The Constitution (ST) Orders (Second Amendment) Act,1991**.The Constitution (ST) orders (Amendment) Ordinance,1996. The Scheduled Caste and Scheduled Tribe Orders (Amendment) Act. 2002. The Constitution (Scheduled Caste) Orders (Amendment) Act, 2002. The Constitution (Scheduled Caste and Scheduled Tribe) Orders (Amendment) Act, 2002. The Constitution (Scheduled Caste) Order (Amendment) Act, 2007.[**%]**

***2.*** *Applicable in the case of Scheduled Castes, Scheduled Tribes persons who have migrated from one State / Union Territory Administration.*

This certificate is issued on the basis of the Scheduled Castes / Scheduled Tribes certificate issued to Shri / Shrimati_____, Father / Mother of Shri/ Srimati/ Kumari* ---------- of village / town* in the District/ Division*_____ of the State/ Union Territory* ---------- who belong to the Caste / Tribe* which is recognized as a Scheduled Caste*Scheduled Tribe* in the State / Union Territory* issued bythe dated ***

**3.** Shri / Shrimati / Kumari*_____and/or* his/her* family ordinarily reside(s) in the village/town*_____of _____District / Division* of the State / Union Territory of _____.

*Place*_____ *Signature*_____

**Date**_____ **Designation**_____

(with seal of office)

** Please delete the words which are not applicable*

**** Please quote specific presidential order**

***** please delete the paragraph which is not applicable.**

**^ List of authorities empowered to issue Schedule Caste / Schedule Tribe Certificates:**

1) District Magistrate / Additional District Magistrate / Collector / Deputy Commissioner / Additional Deputy Commissioner / Deputy Collector / 1st Class Stipendiary Magistrate / Sub-Divisional Magistrate / Addl. Assistant Commissioner / Taluka Magistrate / Executive Magistrate and equivalent as per GOI orders.
2) Chief Presidency Magistrate / Additional Chief Presidency Magistrate / Presidency Magistrate.
3) Revenue Officers not below the rank of Tehsildar.
4) Sub-Divisional Officers of the area where the candidate and /or his/her family normally resides.

NOTES:
1) The term ordinarily reside(s) used here will have the same meaning as in Section 20 of the Representation of the People Act, 1950.
2) ST candidates belonging to Tamil Nadu state should submit caste certificate only from the Revenue Divisional Officer.

## *DISABILITY CERTIFICATE FORMAT- II*

**{In cases of amputation or complete permanent paralysis of limbs and in cases of blindness}**

**(NAME AND ADDRESS OF THE MEDICAL AUTHORITY ISSUING THE CERTIFICATE)**

**No.-**_____ **Date-**_____/_____/_____

Signature /LTI / RTI of the Candidate

Passport size photograph of the candidate

This is to certify that I have carefully examined Shri /Smt./Kum._____,

Son / wife / daughter of Shri_____Date of Birth_____/_____/_____

[Age-_____years], male/female._____permanent resident of

House No.- _____, Ward/Village/Street _____Post Office

_____District_____State_____,whose

photograph is affixed above, and am satisfied that

1. he/she is a case of (Please tick as applicable):
   a. locomotor disability
   b. blindness
2. The diagnosis in his/her case is _____.
3. He / She has_____% (in figure)_____percent (in words) permanent physical impairment / blindness in relation to his / her _____ (part of body) as per guidelines (to bespecified).
4. The applicant has submitted the following document as proof of residence:-

| Nature of Document | Date of Issue | Details of authority issuing the certificate |
|---|---|---|
| | | |

**Official Seal:**

**[Authorized Signatory of notified Medical Authority]**

**Name:** _____

## DISABILITY CERTIFICATE FORMAT - III

**{In cases of multiple disabilities}**

**(NAME AND ADDRESS OF THE MEDICAL AUTHORITY ISSUING THE CERTIFICATE)**

**No.-**_____ **Date-**_____/_____/_____

Signature / LTI / RTI of the Candidate

Passport size photograph of the candidate

This is to certify that I have carefully examined Shri / Smt./ Kum._____,

Son /wife/daughter of Shri_____Date of Birth_____/_____/_____

[Age-_____years], male / female_____Permanent resident of

House No.- _____, Ward / Village / Street _____Post Office

_____District_____State_____,whose

photograph is affixed above, and am satisfied that

1. He/she is a Case of **Multiple Disability.** His/her extent of permanent physical impairment/ disability has been evaluated as per guidelines (to be specified) for the disabilities ticked below, and shown against the relevant disability in the table below:

| S. No. | Disability | Affected Part of Body | Diagnosis | Permanent physical impairment/mental disability (in percentage) |
|---|---|---|---|---|
| 1 | Locomotor disability | @ | | |
| 2 | Low vision | # | | |
| 3 | Blindness | Both Eyes | | |
| 4 | Hearing impairment | £ | | |
| 5 | Mental retardation | X | | |
| 6 | Mental-illness | X | | |

Contd.

2. In the light of the above, his / her overall permanent physical impairment as per guidelines (to be specified), is as follows:

In figures:_____%

In words:_____percent

3. The above condition is progressive / non-progressive / likely to improve / not likely to improve.

4. Reassessment of disabilityis:

(i) Not Necessary **[or]**

(ii) Is recommended / after_____years_____months, and therefore this certificate shall be valid till (DD/MM/YY)_____.

**@ - e.g. Left / Right/both arms/ l**
**arms/legs # - e.g. single eye / both eyes**
**£- e.g. Left / Right / both ears**

5. The applicant has submitted the following document as proof of residence:

| Nature of Document | Date of Issue | Details of authority issuing the certificate |
|---|---|---|
| | | |

6. Signature and seal of the Medical Authority:

| | | |
|---|---|---|
| **Name and Seal of Member** | **Name of Seal of Member** | **Name and Seal of the Chairperson** |

## *DISABILITY CERTIFICATE FORMAT - IV*

**{In cases of any other case not covered in Format – II & III}**

**(NAME AND ADDRESS OF THE MEDICAL AUTHORITY ISSUING THE CERTIFICATE)**

**No.-**_____ **Date-**_____/_____/_____

Signature/LTI/RTI of the Candidate

Passport size photograph of the candidate

This is to certify that I have carefully examined Shri/Smt./Kum._____,

Son /wife/daughter of Shri_____Date of Birth_____/_____/_____

[Age-_____years], male / female_____permanent resident of

House No.- _____, Ward / Village / Street _____Post Office

_____District_____State_____,whose

photograph is affixed above, and am satisfied that

1. He/she is a Case of **Multiple Disability.** His / her extent of permanent physical impairment/ disability has been evaluated as per guidelines (to be specified) for the disabilities ticked below, and shown against the relevant disability in the table below:

| S. No. | Disability | Affected Part of Body | Diagnosis | Permanent physical impairment/mental disability (in percentage) |
|---|---|---|---|---|
| 1 | Locomotor disability | @ | | |
| 2 | Low vision | # | | |
| 3 | Blindness | Both Eyes | | |
| 4 | Hearing impairment | £ | | |
| 5 | Mental retardation | X | | |
| 6 | Mental-illness | X | | |

Contd.

2. In the light of the above, his/her overall permanent physical impairment as per guidelines (to be specified), is as follows:

In figures:_____%

In words:_____percent

3. The above condition is progressive / non-progressive / likely to improve /not likely to improve.

4. Reassessment of disability is:

(i) Not Necessary **[or]**

(ii) Is recommended/after_____years_____months, and therefore this certificate shall be valid till (DD/MM/YY)_____.

**@ - e.g. Left / Right/both arms/ l arms/legs**
**# - e.g. single eye / both eyes**
**£- e.g. Left / Right / both ears**

5. The applicant has submitted the following document as proof of residence:

| Nature of Document | Date of Issue | Details of authority issuing the certificate |
|---|---|---|
| | | |

**Official Seal:**

**[Authorized Signatory of notified Medical Authority*]**

**Name:**_____

* In case this certificate is issued by a medical authority who is not a government servant, it shall be valid only if countersigned by the Chief Medical Officer of the District. Note: The principal rules were published in the Gazette of India vide notification number S.O. 908(E), dated the 31st December,1996.

**Countersigned**

**Official Seal:**

**[CMO / Medical Superintendent / Head of Govt. Hospital]**

**Name:**_____

^ Counter signature and seal of the CMO/Medical Superintendent / Head of Government Hospital is essential in case the certificate is issued by a medical authority who is not a government servant.

## *FORMAT FOR DYSLEXIA CERTIFICATE - I*

### *MEDICAL CERTIFICATE TO BE PRODUCED BY DYSLEXIC CANDIDATES*

{Psycho-Education Evaluation Report - To be obtained from any Dyslexia Association*}

**No.-**_____ **Date-**_____/_____/_____

Name of the candidate:_____

Date of Birth:_____/_____/_____

Passport size photograph of the Candidate

Name of the Father / Mother/ Guardian_____

Registration in the Dyslexia Association: No_____

Date-_____/_____/_____

Name & Address of the Dyslexia Association:_____

_____

Registration No. of the Dyslexia Association:_____

Physical & Neurologic Assessment: [ ]

Psychological Assessment: [ ]

WISC Verbal IQ:

Performance IQ:

Full Scale IQ:

Interpretation: [ ]

Educational Assessment: [

Certified that

The condition of handicap is: MILD / MODERATE / SEVERE (tick whichever is applicable)**
The disability is **PERMANENT** in nature.

*Some Dyslexia Associations:

1) Dyslexia Trust of Kolkatta, Divya Jalan, Aruna Bhaskar 3, Dover Park, Kolkata –700019
2) Dyslexia Association Of Andhra Pradesh( DAAP), 34494/1, 1st Floor, Macherla Gastrology Hospital, Reddy College Road, Barkatpura,Hyderabad,Telangana,500027
3) Madras Dyslexia Association,94 Park View, 1st Floor,G.N.ChettyRoad,T.Nagar,Chennai–600017, Maharashtra Dyslexia Association, 003, Amit Park Bldg, L J Road, Deonar, Mumbai 400088
4) The Dyslexia Association of India,MZ-47,TheCenter Stage Mall, Plot No 01, Block L, Sector 18,NOIDA201303

**Learning Disability is a permanent developmental disorder. Currently there are no standard approved methods to quantify the disorder. However the method of diagnosis is based on significant impairment in academic achievement. To avail the benefit of relaxed norm under PwD category, the candidate must come under SEVERE category.

**Official Seal:**

**[Signature]**

**Name of the certifying official:**_____

***FORMAT FOR DYSLEXIA CERTIFICATE - II***

***TESTIMONIAL TO BE PRODUCED BY DYSLEXIC CANDIDATES***

{Testimonial - To be obtained from the Principal of the school/college last attended*}

**No.-**_____ **Date-**_____/_____/_____

Name of the candidate:_____

Date of Birth:_____/_____/_____

Name of the Father/ Mother/Guardian_____

Registration in the Dyslexia Association: No_____

Date-_____/_____/_____

Passport size photograph of the Candidate

Name & Address of the School/College:_____

_____

Certified that

Shri /Shrimati / Kumari_____

Son / daughter of_____of

_____Village / Town passed his/her Class X from this school and as per

records, he / she has availed concession under dyslexic category.

**Official Seal:**

**[Signature]**

**Name of the Principal:**_____

*A candidate passing Class X or equivalent through open school system or in private mode may submit the certificate to this effect from the competent authority in the board certifying the concessions availed under dyslexia.

## FORMAT OF COURSE COMPLETION CERIFICATE

[TO BE ISSUED IN THE OFFICIAL LETER HEAD OF THE INSTITUTE/UNIVERSITY]

This is to certify that

1. Mr./Ms._____(full name) bearing Roll No._____is a registered student of_____(course / program) in our institute/university.
2. He / She has completed all requirements of the course / program and all of his/her examinations likely to be completed by August 15, 2023.
3. His / Her final result is awaited and will be published on or before September 30, 2023.

_____

Signature (with Seal) of the
Authorised Signatory of
the Institute/University

*Date-* _____

# FORMAT OF SELF DECLARATION ABOUT COURSE COMPLETION

I……D/o / S/o Shri ……..…… R/o ……

do hereby declare on oath as under:

1. That I am a registered student of.....Course/Programme in Institute/University……..……with Enrollment no…….
2. That I am in final year of the aforesaid course/programme and have completed all the requirements of the course / programme which was to be completed upto.....2023. But due to COVID-19 Pandemic, the Institute /University could not conduct the final examination of said course / programme which is likely to be completed by..... 2023.
3. That I will submit my degree/provisional certificate issued by the Institute/University upto 30th September, 2023 / 15 days after result declaration of the institute where I am studying / the date as given by the admitting institute/Govt. of India notification, failing which I understand that my admission in PG Programme may be cancelled.
4. That I further understand that if I am unable to qualify the minimum eligibility criterion for admission to PG Programme, my admission will stand cancelled and the admitting Institution shall have no liability for the same.

**Signature of the Candidate:**

**Name:**

**Date:**

**FORMAT OF SELF DECLARATION ABOUT NON AVAIBILITY OF PREFINAL YEAR / SEMESTER MARKSHEET**

I……D/o / S/o Shri ……..…… R/o …….

do hereby declare on oath as under:

1. That I am a registered student of.....Course/ Programme in Institute / University……..……with Enrollment no……...

2. That I have completed all the requirements of the courses of pre final year and do not have any backlogs. But due to COVID-19 Pandemic, the mark sheet of pre final year / semester has not been issued by the Institute/University.

3. I undertake that I will submit my mark sheet(s) of all years/semesters along with provisional/degree certificate issued by the Institute/University within the time limit specified by my finally allotted institute, failing which I understand that my admission in PG Programme may be cancelled.

4. That I further understand that if I am unable to qualify the minimum eligibility criterion for admission to PG Programme, my admission will stand cancelled and the admitting Institution shall have no liability for the same.

5. Any misinformation/ wrong information furnished will lead to cancellation of admission and fees deposited will be forfeited.

**Signature of the Candidate in full:**

**Name:**

**Date:**

**FORMAT OF SELF DECLARATION ABOUT NON AVAIBILITY OF PROVISIONAL / DEGREE CERTIFICATE**

I……D/o / S/o Shri …….…… R/o ……

do hereby declare on oath as under:

1. That I am a registered student of ……Course/Programme in Institute / University……..……with Enrollment no…….

2. That I have completed all the requirements of the course/programme for the award of degree and do not have any backlogs. But due to COVID-19 Pandemic, the provisional/degree certificate has not been issued by the Institute/University.

3. I undertake that I will submit my degree/provisional certificate issued by the Institute/University within the time limit specified by my admitting institute, failing which I understand that my admission in PG Programme may be cancelled.

4. That I further understand that if I am unable to qualify the minimum eligibility criterion for admission to PG Programme, my admission will stand cancelled and the admitting Institution shall have no liability for the same.

5. Any misinformation/ wrong information furnished will lead to cancellation of admission and fees deposited will be forfeited.

*Signature of the Candidate:*

*Name:*

**Date:**

<table>
<tr><td colspan="8">Department of Mechanical Engineering</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2">Title of the course</td><td rowspan="2">Program Core (PCR) / Electives (PEL)</td><td colspan="4">Total Number of contact hours</td><td rowspan="2">Credit</td></tr>
<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>MEE 726</td><td>Introduction to Fracture Mechanics</td><td>PEL</td><td>3</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td colspan="2">Pre-requisites</td><td colspan="6">Course Assessment methods (Continuous (CT) and End Assessment (EA))</td></tr>
<tr><td colspan="2">Strength of Material<br>Theory of Elasticity and Plasticity</td><td colspan="6">CA + EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">CO1: Extend basic concept of strength of material, and theory of elasticity for fracture mechanics and fatigue characteristics to understand, assess and overcome failure.<br>CO2: Provide basic understanding between structural design with strength of materials approach and fracture mechanics approach, various historical structures fails.<br>CO3: Evaluate SIFs for different mode of fracture under various loading conditions.<br>CO4: Apply fracture mechanics parameters in failure analysis.<br>CO5: Apply advance knowledge for solving complex fracture and fatigue problems.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">Historical background of fracture mechanics and fatigue failure, Ductile and brittle fractures, Modes of fracture, Introduction to Griffith’s energy balance, Energy release rate, Irwin-Orowan theory of almost brittle materials, R-curves, Critical energy release rate. (08)<br><br>Stress intensity factors, Irwin’s SIFs, Westegaard’s and William’s stress functions, Relationship between K and G, Critical SIFs, SIF of complex cases, Fracture toughness, Crack-tip plasticity, Effects of length and thickness on fracture toughness, Plastic zone shape for plane stress and plane strain condition, Experimental methods of determining SIFs, Mixed mode fracture mechanics. (20)<br><br>Fatigue loading, High and low cycle fatigue, Mechanism of fatigue crack initiation and propagation, Factors influencing fatigue strength, Fatigue design philosophies (life prediction, prevention of fatigue failures, fail-safe design criteria), Fatigue crack growth. (06)<br><br>Investigation and analysis of failures, case studies in fracture mechanics and fatigue. (06)</td></tr>
<tr><td rowspan="2">Text Books, and/or reference material</td><td colspan="7">Text Books:<br>1. Prashant Kumar, Elements of Fracture Mechanics, McGraw Hill Education, 2009.<br>2. T.L. Anderson, Fracture Mechanics Fundamentals and Applications, Taylor & Francis, 4th Edition, 2017.<br>3. T. Kundu, Fundamentals of Fracture Mechanics, CRC Press, 2008.<br>4. C. Bathias, A. Pineau, (Eds.), Fatigue of Materials and Structures – Fundamentals, John Wiley & Sons, 2010.</td></tr>
<tr><td colspan="7">Reference Books:<br>1. H. Tada, P.C. Paris and G.R. Irwin, The Stress Analysis of Cracks Handbook, Del Research Corporation, Hellertown, Pennsylvania, USA, 1973<br>2. E.E. Gdoutos, Fracture Mechanics: An Introduction, Springer, 2005.<br>3. S.K. Maiti, Fracture Mechanics Fundamentals and Applications, Cambridge University Press, 2015.<br>4. J. Schijve, Fatigue of Structures and Materials, Springer, Second Edition, 2009.</td></tr>
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<tr><td>Lecture (L)</td><td>Tutorial (T)</td><td>Practical (P)</td><td>Total Hours</td></tr>
<tr><td>ME9027</td><td>Fracture, Fatigue and Failure Analysis</td><td>PEL</td><td>3</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td colspan="2">Pre-requisites</td><td colspan="6">Course Assessment methods (Continuous (CT) and End Assessment (EA))</td></tr>
<tr><td colspan="2">Strength of Material<br>Theory of Elasticity and Plasticity</td><td colspan="6">CA + EA</td></tr>
<tr><td>Course Outcomes</td><td colspan="7">CO1: Extend basic concept of strength of material, and theory of elasticity for fracture mechanics and fatigue characteristics to understand, assess and overcome failure.<br>CO2: Provide basic understanding between structural design with strength of materials approach and fracture mechanics approach, various historical structures fails.<br>CO3: Evaluate SIFs for different mode of fracture under various loading conditions.<br>CO4: Apply fracture mechanics parameters in failure analysis.<br>CO5: Apply advance knowledge for solving complex fracture and fatigue problems.</td></tr>
<tr><td>Topics Covered</td><td colspan="7">Historical background of fracture mechanics and fatigue failure, Ductile and brittle fractures, Modes of fracture, Introduction to Griffith’s energy balance, Energy release rate, Irwin-Orowan theory of almost brittle materials, R-curves, Critical energy release rate. (08)<br><br>Stress intensity factors, Irwin’s SIFs, Westegaard’s and William’s stress functions, Relationship between K and G, Critical SIFs, SIF of complex cases, Fracture toughness, Crack-tip plasticity, Effects of length and thickness on fracture toughness, Plastic zone shape for plane stress and plane strain condition, Experimental methods of determining SIFs, Mixed mode fracture mechanics. (18)<br><br>Small scale yielding, The J-Integral, Stationary crack tip fields, Engineering approach to plastic fracture, Ductile fracture criterion. J-controlled crack growth and stability. (04)<br><br>Fatigue loading, High and low cycle fatigue, Mechanism of fatigue crack initiation and propagation, Fatigue data representation, Factors influencing fatigue strength, Fatigue design philosophies, Fatigue crack growth. (05)<br><br>Investigation and analysis of failures, case studies in fracture mechanics and fatigue. (05)</td></tr>
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</table>

| Department of Metallurgical and Materials Engineering | | | | | | | |
|---|---|---|---|---|---|---|---|
| CourseCode | Title of the course | Program Core(PCR) / Electives (PEL) | Total Number of contact hours | | | | Credit |
| | | | Lecture (L) | Tutorial (T) | Practical (P) | Total Hours | |
| MMO741 | Advance Materials | Width elective | 3 | 0 | 0 | 3 | 3 |
| Pre-requisites | | Course Assessment methods (Continuous (CT) and end assessment (EA)) | | | | | |
| MMC-302: Introduction to Metallurgy and Materials<br>PHC01: Engineering Physics,<br>CYC01: Engineering Chemistry | | CT+MT+EA | | | | | |
| Developer | | Dr. B. Roy | | | | | |
| Course Outcomes | CO1: Learn the fundamentals of different kinds of Advance materials<br>CO2: Types and applications of different Advance materials<br>CO3: Tutorials, problems and solutions etc. | | | | | | |
| Topics Covered | Fundamentals of atomic structure- chemical bonding-crystal structure-property correlation;classification of different advance materials. [6 hours]<br>High temperature materials: Structure, Processing, mechanical behaviour and oxidation resistance of Stainless Steels, Ni- and Co- Based Superalloys, Aluminides and Silicides, Carbon-Carbon and Ceramic Composites. [6 hours]<br>Shape memory and Superelastic alloys: shape memory effect, thermodynamic aspects and micromechanism of martensitic transformation, Stress induced martensitic, transformation and superelasticity, Ni-Ti and Ni Al based alloys and their applications. [6 hours]<br>Bulk Metallic Glass: Criteria for glass formation and stability, Examples and mechanical behavior [2 hours]<br>Biomaterials: Concept and assessment of biocompatibility, materials for biomedical applications: Ti alloys, Stainless steel etc, alloys, stainless steel etc. [6 hours]<br>Magnetic materials: Soft and hard magnetic materials: Design and Processing; [2 hours]<br>Piezoelectric Materials: Processing and Properties [2 hours]<br>Nanomaterials, Smart materials, Metal foams, Nanofluids, Carbon nanotubes, Metal Hydride, Hybrid nanocomposites, Nanoporous materials, Nano coatings. [6 hours] | | | | | | | |
| Text Books, and/or reference material | Text Books:<br>1. Materials Science and Engineering An Introduction – William D. Callister, Jr., John Wiley & Sons, Inc., 2007<br>2. Materials; Engineering, Science, Processing and Design – Michael Ashby, Hugh Shercliff and David Cebon<br>3. Introduction to Magnetic Materials – B. D. Cullity and C. D. Graham | | | | | | |

**Mapping of CO (Course Outcome) and PO (Programme Outcome)**

| POs<br>COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | 3 | 2 | 2 | 1 | 3 | | 2 | 2 | 1 | 2 | 2 | |
| **CO2** | 3 | 1 | 1 | 2 | 3 | | 2 | 2 | 2 | 3 | 2 | |
| **CO3** | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 |

**Correlation levels 1, 2 or 3 as defined below:**

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

Annexure 70.5

# Rationalization of the Seat Matrix of Post Graduate Programs

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राष्ट्रीय प्रौद्योगिकी संस्थान दुर्गापुर
महात्मा गांधी एवेन्यू, दुर्गापुर- 713209, (पश्चिमबंगाल), भारत
**NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR**
**MAHATMA GANDHI AVENUE, DURGAPUR – 713 209, INDIA**

No.NITD/Reg/IDM-03/63rd BoG March 15, 2023

**Inter Departmental Memo**

**From: Registrar**

**To: 1. Dean (Academic Research)**
**2. Dean (Academic Courses)**
**3. Prof. Nilotpal Banerjee**
**Dept. of Mechanical Engineering**
**4. JR (Establishment)**

In its 63rd meeting held on February 8, 2023, the Board of Governors resolved that the proposal for increase of two additional seats in the M.Tech programme for the 2023 admission session be sent to MoE, GoI for approval. However, if no increment is permitted by the MoE, GoI, the seat matrix as approved by the 69th Senate Meeting is to be followed.

The Board of Governors ratified the i) award of PhD degrees as recommended by Senate and ii) signing MoUs with Institution and Universities in India as recommended by the 69th Meeting of the Senate held on 23rd January 2023.

Observing the not so satisfactory admission pattern in some of the Post-Graduate (PG) programmes, Hon'ble Chairperson, BoG advised that the Senate should analyze the admission pattern of all the PG programmes for suitable readjustment of seats in future in order to improve the reflection in NBA and NIRF parameters. (Item No. 63.6)

This is for your information and necessary action.

16.03.23

**Registrar**

राष्ट्रीय प्रौद्योगिकी संस्थान दुर्गापुर
महात्मा गांधी एवेन्यू, दुर्गापुर- 713209, (पश्चिम बंगाल), भारत
**NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR**
**MAHATMA GANDHI AVENUE, DURGAPUR – 713 209,**
**WEST BENGAL, INDIA**

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No.NITD/Reg/IDM-08/69th Senate February 23, 2023

**Inter-Departmental Memo**

**From: Registrar** **To: Dean (Academic Courses)**

In its 69th meeting of the Senate held on January 23, 2023, the Senate ratified the resolutions of PGAC meetings held on 17.11.2022, 15.12.2022, 27.12.2022 and 19.01.2023 with the following riders: (Item No. 69.4)

***Item No. # 2 of PGAC meeting held on 17/11/2022***: The punishment for adopting unfair means in mid-term examinations shall be decided in the same line as specified in Appendix V of PG regulations.

***Item No. # 7 of PGAC meeting held on 19/01/2023***: A student undergoing an internship shall submit an internship report and the evaluation sheet (marks out of 50) from the competent authority of the company in a sealed envelope. However, the evaluation of internship as a project shall be finalized by the departmental internship evaluation board with the marks submitted by the company being used as an indicator of the performance of the student in the internship.

***Item No. # 8 of PGAC meeting held on 19/01/2023***: Seat matrix of different PG programs for the AY 2023-24 was approved as was resolved in the Senate meeting.

The HoD, BT raised some objections in the change of the seat matrix for BT related programmes. The Senate resolved that the HoD, BT may discuss the issues in DAC and will send the resolution to the Chairman, Senate. The house empowered the Chairman, Senate to take the final decision on the seat matrix.

Further, the norms for the increase/reduction in seats in the PG programs were discussed, and it was decided that the same shall be taken up in the next Senate meeting as a separate agenda item.

***Item No. # 9 of PGAC meeting held on 19/01/2023***: Admission advertisements for MBA 2023 was approved with the inclusion of MAT in the eligibility criteria for the AY 2023-24. Online conduction of GD and PI as recommended by the PGAC for selection of students for the MBA program was approved.

Admission advertisements for MSW 2023 was approved as recommended by PGAC.

***Item No. # 10* of PGAC meeting held on 19/01/2023**: The Senate empowered the Chairman, Senate to endorse the fee structure as recommended by the committee constituted by the Senate. Subsequently, the revised fee structure shall be placed to the FC and BoG for approval. The revised fee structure shall be applicable for students getting admitted in AY 2023-24. The rest of the students shall follow the same Fee structure as was approved for AY 2022-23.

This is for your information and necessary action please.

23/2/23

**Registrar**

# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

**Academic Section**

Annexure 70.5

Date: 19.01.2023

**Minutes of the meeting of UGAC and PGAC held jointly on 19.01.2023 (Thursday) at 03.00 pm at the meeting room of the Academic Section.**

The Chairman welcomed the members to the meeting.
The agenda items were placed for discussion.

**Item # 1** **To confirm the minutes of online meeting of the UGAC and PGAC held on 27.12.2022.**

The minutes of the meeting of the UGAC and PGAC held on 27.12.2022 are confirmed. UGAC and PGAC meeting dated 15/12/2022, minor revision on the time slots & timing of classes to be followed from Even Semester 2022-23 was agreed, which is appended below.

**SLOT MATRIX & CLASS TIMINGS**

| Time | 08.15 - 09.05 | 09.05 - 09.55 | 09.55 - 10.45 | 10.45 - 11.35 | 11.35 - 12.25 | 12.25 - 13.00 | 13.00 - 13.50 | 13.50 - 14.40 | 14.40 - 15.30 | 15.30 - 16.20 | 16.20 - 17.10 | 17.10 - 18.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mon | F1(1) | E1(1) | A1(1) | D1(1) | G1(1) | Lunch Break | G2(1) | D2(1) | A2(1) | E2(1) | F2(1) | M2 |
| | P1 | | | | | | P2 | | | | | |
| | PA1 | | PB1 | | | | PB2 | | | PA2 | | |
| Tue | G1(2) | B1(1) | A1(2) | E1(2) | X1 | | X2 | E2(2) | A2(2) | B2(1) | G2(2) | M2 |
| | Q1 | | | | | | Q2 | | | | | |
| | QA1 | | QB1 | | | | QB2 | | | QA2 | | |
| Wed | F1(2) | C1(1) | B1(2) | A1(3) | Y1 | | Y2 | A2(3) | B2(2) | C2(1) | F2(2) | M2 |
| | R1 | | | | | | R2 | | | | | |
| | RA1 | | RB1 | | | | RB2 | | | RA2 | | |
| Th | G1(3) | D1(2) | C1(2) | B1(3) | F1(3) | | F2(3) | B2(3) | C2(2) | D2(2) | G2(3) | M2 |
| | S1 | | | | | | S2 | | | | | |
| | SA1 | | SB1 | | | | SB2 | | | SA2 | | |
| Fri | W1 | E1(3) | D1(3) | C1(3) | Z1 | | Z2 | C2(3) | D2(3) | E2(3) | W2 | M2 |
| | T1 | | | | | | T2 | | | | | |
| | TA1 | | TB1 | | | | TB2 | | | TA2 | | |

**Item # 2** **To consider the publication of corrigendum results for odd semester examinations 2022-2023 (other than first year UG program).**

The corrigendum results are recommended for publication.

**Item # 3** **To consider the matter of change of branch of Sharmistha Naskar (Roll No. 22C80006, Regn. No. 22U10023) for admission in UG programme NIT Durgapur in Electronics and Communications under MEA quota FY 2022-23 from Biotechnology.**

The matter is recommended for approval.

**Item # 4** **To consider the matter regarding Md. Musharraf Azam (Roll No. 22EC4305/ Regn. No. 22P10253) on appearing in five courses in odd semester supplementary examination 2022-2023.**

The matter is recommended for approval.

**Item # 5** **To consider the matter regarding Satrajit Guha (Roll No.: 18BT8022) for allowing him to appear for two first year back-log papers (ESC01 and CSC01).**

The matter is recommended for approval.

**Item # 6** **To consider the matter of Shivam Ladia, son of Krishna Kant Ladia regarding fictitious / falsified documentation for admission in B.Tech program 2022-2023.**

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The Institute may lodge a FIR with the police authority as the documents submitted by the candidate are false (Annexure 1).

**Item # 7** **To consider the matter related to evaluation of six months / one year internship.**

Following modality is decided.

(a) Companies offering Internship will be informed by the CDC about the dates of end-term examinations and project evaluation so that students are released during that period. Also, internship evaluation form (Annexure 2) will be mailed to the companies offering internships.
(b) Students went for internship shall sign declaration form as present in Annexure 3.
(c) Evaluation of Internship as project will have two components, companies offering internship will submit marks out of 50 and departmental internship evaluation board will evaluate out of 50. Both, these two evaluations shall be combined to calculate the grades.

**Item # 8** **To consider the seat matrix and eligibility criteria against different courses (UG and PG) in AY 2023-2024.**

The proposal regarding the seat matrix and eligibility criteria against different courses (UG and PG) in AY 2023-2024 is presented to the Senate for discussion and subsequent approval (Annexure 4).

Further following norms may be considered as recommended norms for revising the seat matrix.

(a) Statistics – Last five year's average admission percentage (FAAP)
(b) Increase in Seats – If FAAP >= 90, increase seat by 10%
(c) Decrease in Seats
    i. If 50 =< FAAP < 70, decrease by 10%
    ii. If 25 < FAAP < 50, decrease by 20%
(d) Closure of the programs
    i. If FAAP <= 25% or Sanctioned intake goes below 10 for consecutive 2 years

**Item # 9** **To consider the matter regarding admission of MBA program and MSW program in 2023-2024.**

The proposal is presented to the Senate for discussion and subsequent approval (Annexure 5a for MSW and Annexure 5b for MBA). However, MAT and online GD & PI may be incorporated in the advertisement (Annexure 5b) related to MBA program.

**Item # 10** **To consider the matter of fee structure in UG program and PG program for admission year 2023-2024.**

The matter is referred to the committee constituted for the purpose by the competent authority of the Institute.

**Item # 11** **To consider the matter regarding payment of fees for the students in idle semester as per the existing academic regulations.**

The matter is referred to the committee constituted for the purpose by the competent authority of the Institute.

**Item # 12** **To consider the appeal on cancellation of admission –**

| Sl No. | Reg. No. | Roll No. | Name | Programme |
|---|---|---|---|---|
| 1 | 22U10608 | 22C80152 | RAJIB ADDYA | B.TECH |

The matter of withdrawal by the student is accepted. The Institute fee and Hostel fee paid by the candidates/students will not be refunded.

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However, no refund will be admissible to the candidates, who do not take admission to the Institute after final allotment of seats through centralized counselling such as CCMT, CCMN, CSAB, JoSAA, etc. Entire amount paid by such candidates during the counselling process and admission process will not be refunded.

**Item # 13 To consider the matter of allotment of Minor program.**

The matter is recommended for approval (in CSE, ECE, DMS-FM, DMS-MM, and Mathematics). Tie breaking mechanism are formulated and recommended for approval (CGPA of particular semester – SGPA of that semester – CGPA of preceding semester – SGPA of preceding semester).
In the AY2022-23, 151 students were eligible for choosing different minor programs (whose CGPA at the end of third semester was 8.5 and above and cleared all semester examinations in their first attempt). However, 77 students applied for and 63 have been allotted, students allotted Minor in AY2022-23 are appended in Annexure 6.

Results of second semester examination will be considered for allotment of Minor from 2023-2024.

**Item # 14 To consider the matter of awarding best project for UG program and PG program.**

The assessment committee is recommended for constitution and time schedule to be followed are appended below. Modalities of evaluation shall be the same as followed in the AY 2021-22.

**Assessment Committee:**

(a) Dean (Academic Courses) - Chairman
(b) Dean (R &C) – Member
(c) Dean (Academic Research) – Member
(d) Dean (Students Welfare) – Member
(e) Members of Innovation and Incubation Cell (IIC) – Members
(f) Coordinator of IIC - Coordinator

| Sl. No. | Activity | Timeline – UG | Timeline - PG |
|---|---|---|---|
| 1 | Preliminary Selection at the Department | May 01-04, 2023 | May 15-16, 2023 |
| 2 | Nomination of students (2 @ UG program, 1 @ PG program) | May 08, 2023 | May 17, 2023 |
| 3 | Submission of reports by the nominated students | May 10, 2023 | May 18, 2023 |
| 4 | Evaluation by the Assessment Committee | May 15, 2023 | May 22, 2023 |

The meeting ended with vote of thanks to the Chairman.

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**Dean (Academic Courses)**
**Date: 19.01.2023**

Annexure 70.6.1

# Resolutions of the RAC meeting held on 17.04.2023

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# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

## Academic Section

**Date: 17.04.2023**

**Minutes of the meeting of Research Academic Committee (RAC) held on 17.04.2023 (Monday) at 3.00 pm at the meeting room of the Academic Section.**

The Chairman welcomed the members to the meeting and the agenda was placed for discussion.

**Item # 1** **To confirm the minutes of online meeting of the RAC held on 18.01.2023.**

The minutes of the online meeting of RAC held on 18.01.2023 are confirmed.

**Item # 2** **To consider registration for Ph.D. programme of the following Scholars:**

| Sl. No. | Roll No. | Name of the Scholar | Dept. | Course Work (Total Credit) | | | Name of the Supervisor(s) | Date of Registration |
|---|---|---|---|---|---|---|---|---|
| | | | | Asgn. by DSC | As per regulation | Completed | | |
| 1 | 20MM1503 | KashiNath Malik | MM | 16 | 16 | 16 | Dr. A. K. Mandal, Dr. S. Ghorai | **27.12.2022** |
| 2 | 20BT1108 | SandipMahato | BT | 16 | 12 | 16 | Dr. K. Aikat | 16.01.2023 |
| 3 | 21CY1501 | Pradeep Kumar Rout | CY | 21 | 20 | 21 | Dr. S. Ghosal | 16.01.2023 |
| 4 | 21CY1104 | SayonSatpati | CY | 21 | 20 | 21 | Dr. S. Ghosal | 16.01.2023 |
| 5 | 21CE1104 | Nisheeth Shekhar | CE | 16 | 12 | 16 | Dr. S. Pal | 17.01.2023 |
| 6 | 20MS1102 | Vikash Mandal | MS | 24 | 20 | 24 | Dr. D. Pal | 19.01.2023 |
| 7 | 21EC1103 | Satish Kumar | EC | 16 | 13 | 16 | Dr. D. Mandal, Dr. R. Kar& Dr. G. Ram, NIT Warangal | 27.01.2023 |
| 8 | 20BT1112 | SouravSaha | BT | 20 | 20 | 21 | Dr. S. Chaudhuri | 30.01.2023 |
| 9 | 21EE1102 | Ankur Yadav | EE | 16 | 13 | 16 | Dr. T. K. Bera | 03.02.2023 |
| 10 | 21ME1104 | GeetaVerma | ME | 15 | 13 | 15 | Dr. R. N. Barman | 06.02.2023 |
| 11 | 21CH1102 | Nabanita Ghosh | CH | 14 | 12 | 14 | Dr. G. Halder | 10.02.2023 |
| 12 | 21EE1101 | AnanthammagariBharathsimha Reddy | EE | 12 | 8 | 12 | Dr. S. N. Mahato | 14.02.2023 |
| 13 | 20MM1502 | Arijit Banerjee | MM | 20 | 20 | 20 | Dr. M. M. Ghosh, Dr. K. S. Ghosh | 17.02.2023 |
| 14 | 21ME1108 | Meghnath Sen | ME | 13 | 13 | 13 | Dr. A. B. Puri | 23.02.2023 |
| 15 | 21MM1103 | Mohammad Hamza | MM | 15 | 8 | 15 | Dr. S. Pramanik, Dr. K. P. Yagati | 24.02.2023 |
| 16 | 21MM1102 | Avash Kumar Saha | MM | 12 | 8 | 12 | Dr. A. K. Mandal | 28.02.2023 |
| 17 | 21HS1104 | Tanushree Mitra | HS | 20 | 20 | 20 | Dr. A. Modak, Dr. S. Banerjee | 02.03.2023 |
| 18 | 20EC1103 | Rajeev Shukla | EC | 12 | 9 | 12 | Dr. A. Chandra | 02.03.2023 |
| 19 | 21MS1101 | InduNath Jha | MS | 27 | 16 | 27 | Dr. S. Sarkar, Dr. D. Pal | 14.03.2023 |
| 20 | 20MS1101 | Anwesha Mazumder | MS | 16 | 16 | 21 | Dr. K. Mandal | 28.03.2023 |
| 21 | 20CS1101 | Banashree Mandal | CS | 20 | 20 | 20 | Dr. D. Das | 06.04.2023 |

The registration to the PhD programme of the above mentioned scholars are recommended for approval on the dates as mentioned against the respective scholars.

**Item # 3** **To consider the name of the students to be awarded with Ph.D. Degree** –completed all requirements for the award of Ph.D. Degree.

| Sl. No. | Registration No. | Dept. | Name of the Scholar | Title of the Thesis | Name of the Supervisor(s) | Date of Defense |
|---|---|---|---|---|---|---|
| 1 | NITD/PhD/BT/2018/01031 | BT | Priyanka Sarkar | Studies on biodegradation of 4-Nitrophenol by a bacterial consortium isolated from a pesticide contaminated agricultural soil | Dr. A. Dey | 17.01.2023 |
| 2 | 20REE006 | EE | Pullabhatla Srikanth | Integrated Intelligent System for Recognition and Location of Power Quality Problems in an Interconnected Power Systems | Dr. C. Koley | 17.01.2023 |
| 3 | NITD/PhD/HS/2016/00832 | HS | Gautam Mazumdar | Impact Assessment of Community Institution Model for promotion of Rural Micro Enterprises under NRLM Pilot Scheme- Start-Up Village Entrepreneurship Program (SVEP), India | Dr. P. P. Sengupta | 20.01.2023 |
| 4 | NITD/PhD/CY/2018/01068 | CY | Saikat Mishra | Biological Relevance and Reactivity of Cu(II/I) Complexes Supported by N,S Donor Ligands | Dr. A. K. Patra | 27.01.2023 |
| 5 | NITD/PhD/CS/2017/00969 | CS | Pijush Kanti Dutta Pramanik | Sustainable Computing with Mobile Crowd Computing | Dr. P. Choudhury | 30.01.2023 |
| 6 | NITD/PhD/PH/2017/00844 | PH | Mahadeb Pal | Theoretical study of some properties of finite nuclei and core-crust transition density of neutron stars with finite range effective interaction | Dr. S. Sahoo, Dr. B. Sahoo, TDB College, Raniganj, Dr. S. Chakraborty, M.M.M College, Durgapur | 08.02.2023 |
| 7 | 20REE0016 | EE | Mehebub Alam | Novel Algorithms of Line Outage Detection Using Synchrophasor Measurements | Dr. S. S. Thakur, Dr. Sumit Banerjee, BCREC Durgapur | 13.02.2023 |
| 8 | NITD/PhD/CE/2017/00887 | CE | Shyamal Kumar Dutta Mazumdar | Performance Evaluation of the Compacted Lateritic Soil Amended with Bentonite and Fly Ash used as Composite Liner Material for Ash Pond Sites of Thermal Power Plant | Dr. S. Pal | 13.02.2023 |
| 9 | NITD/PhD/EC/2018/00998 | EC | Partha Das | Dielectric Engineering on GaN for High Electron Mobility Transistors | Dr. R. Mahapatra, Dr. A. K. Chakraborty | 15.02.2023 |
| 10 | NITD/PhD/BT/2018/01032 | BT | Subhasree Majumdar | Studies on Bacterial Secondary Metabolites: Low-cost Production, Applications and Toxicity in Animal System | Dr. D. Dasgupta Mandal | 17.02.2023 |
| 11 | NITD/PhD/EC/2018/01069 | EC | Anjan Bandyopadhyay | Studies on Reconfigurable Multiband and Wideband Microwave Bandpass Filters | Dr. R. Ghatak, Dr.T. Mondal, BCREC, Durgapur | 20.02.2023 |
| 12 | 20RCH004 | CH | Sumona Show | Comparative Assessment of Ibuprofen Removal through Biosorption and Bioremediation Technique | Dr. G. Halder | 20.02.2023 |
| 13 | 20REC013 | EC | Argha Deep Paul | Resistive Memory Devices based on Al doped $HfO_x$ for Flexible Electronics Applications | Dr. R. Mahapatra | 21.02.2023 |
| 14 | NITD/PhD/EC/2016/00745 | EC | Himangshu Pal | Natural Cellulosic Graphene: Synthesis, Characterization and Electro Chemistry Application | Dr. R. Mahapatra, Dr. S. Chatterjee, SMIT, Sikkim | 01.03.2023 |
| 15 | NITD/PhD/PH/2018/01072 | PH | Tuli Chatterjee | Structural, microstructural and electrical characterizations of some metal-hydroxyapatite nanocomposites based bioceramics developed by chemical and green synthesis routes | Dr. A. K. Meikap, Dr. S. K. Pradhan, B.U., Burdwan | 29.03.2023 |
| 16 | NITD/PhD/CH/2018/01009 | CH | Anjali. K. P | Seaweed Mediated Synthesis of Nanoparticles: Its Characterization and Application | Dr. S. Dutta, Dr. G. Devi, NUST Oman | 29.03.2023 |
| 17 | NITD/PhD/CS/2015/00672 | CS | Deepa Naik | Studies in optical and wireless networks | Dr. T. De | 06.04.2023 |

The award of the PhD degree to the above mentioned scholars are noted on the dates as mentioned against the respective scholar, to be reported to the Senate for recommendation.

**Item # 4 To consider the appeal for an extension of period of registration of the following scholars:**

| Sl. No. | Name of the Scholar | Roll No. | Registration No. | Date of Reg. | Extension recommended for | Valid from | No. of Times |
|---|---|---|---|---|---|---|---|
| 1 | Rhitwik Chatterjee | 16ES1502 | NITD/PhD/ES/2018/01020 | 28.02.2018 | 1 yr. | 28.02.2023 | 1st |
| 2 | Saikat Suvra Mondal | 16CE1502 | NITD/PhD/CE/2018/01014 | 02.02.2018 | 1 yr. | 02.02.2023 | 1st |
| 3 | MadhuVerma | 16BT1302 | NITD/PhD/BT/2017/00925 | 26.07.2017 | 1 yr. | 26.01.2023 | 2nd |
| 4 | PrantikMondal | 15CHE1106 | NITD/PhD/CH/2017/00863 | 06.02.2017 | 1 yr. | 06.02.2023 | 2nd |
| 5 | Oliva Roy | 15HSS1106 | NITD/PhD/HS/2016/00724 | 10.02.2016 | 1 yr. | 10.02.2023 | 3rd |
| 6 | Subhajit Roy | 16CS1303 | NITD/PhD/CS/2017/00904 | 05.05.2017 | 1 yr. | 05.02.2023 | 2nd |
| 7 | Shailesh Kumar Pandey | 17CH1101 | NITD/PhD/CH/2018/01010 | 24.01.2018 | 1 yr. | 24.01.2023 | 1st |
| 8 | Partha Banerjee | 16EC1505 | NITD/PhD/EC/2017/00905 | 08.05.2017 | 1 yr. | 08.05.2022 | 1st |
| 9 | Sudeshna Devnath | 16MA1102 | NITD/PhD/MA/2017/00951 | 09.10.2017 | 1 yr. | 09.04.2023 | 2nd |
| 10 | Sujit Goswami | 16EC1502 | NITD/PhD/EC/2018/01022 | 07.03.2018 | 1 yr. | 07.03.2023 | 1st |
| 11 | Sudeshna Halder | 15BT1107 | NITD/PhD/BT/2017/00959 **(Pre-submission seminar for PhD thesis given on 13.09.2022)** | 11.10.2017 | 1 yr. | 11.10.2022 | 1st |
| 12 | Arpan Dasgupta | 15BT1110 | NITD/PHD/BT/2016/00740 | 29.03.2016 | 1 yr. | 29.03.2023 | 3rd |

The matter of relaxation in connection to the period of registration will be considered for two Semesters/ One Yr. in the Academic Session 2023-2024 due to CoVID situation and post CoVID complications in addition to that is admissible as per prevalent PhD regulations subject to approval of the Senate .

**Item # 5 To consider the matter regarding the approval for extension of Pre- registration seminar:**

| Sl. No. | Name of the Scholar | Roll No. | Date of Admission | Extension for/till | No. of Times |
|---|---|---|---|---|---|
| 1 | Pranoy Roy | 20CE1501 | 09.10.2020 | 6 months/End of ongoing Even Sem. 2022-23 | 1st |
| 2 | Subhadip Saha | 20BT1102 | 07.10.2020 | 6 months/End of ongoing Even Sem. 2022-23 **(pre-registration seminar given on 10.03.2023)** | 1st |
| 3 | Somnath Bhowmik | 20CS1501 | 07.10.2020 | 6 months/End of ongoing Even Sem. 2022-23 | 1st |
| 4 | Ramit Choudhury | 20ME1107 | 09.10.2020 | 6 months/End of ongoing Even Sem. 2022-23 | 1st |

The matter is recommended for approval.

**Item # 6 To consider the appeal for discontinuation from PhD Program of the following Scholar:**

- Shashank Kumar Singh (Roll No. 18EC1507, Reg. No. 20REC050)-(No Dues from Hostel, Department and Library are pending).

The matter is recommended for approval subject to submission of no dues certificate from the hostel, library and the Department.

**Item # 7** **To consider the matter regarding the approval of reconstitution of DSC of the following Scholars:**

- Shuvra Saha (Roll No. 19CE1101, Reg. No. 21RCE073) change of Departmental faculty member. Inclusion of Dr.Suman Saha (CE) in place of Prof. P. Ray (CE).
- Puja Haldar (Roll No. 19CE1103, Reg. No. 20RCE053) change of Departmental faculty member. Inclusion of Dr.Bandhan Bandhu Majumdar(CE) in place of Prof. P. Ray (CE).
- Arpan Dasgupta (Roll No. 15/BT/1110, Reg. No. NITD/PHD/BT/2016/00740)- change of non-departmental faculty member. Inclusion of Prof. K.Adhikari (ES) in place of Late Prof. K. Basu (MA).
- Parna Ganguli (Roll No. 18BT1105, Reg. No. 21RBT021)- change of non-departmental faculty member. Inclusion of Prof. K.Adhikari (ES) in place of Late Prof. K. Basu (MA).
- Sameep Gehlot (Roll No. 15/BT/1102, Reg. No. NITD/PhD/BT/2017/00962) - change of non-departmental faculty member. Inclusion of Prof. K. Adhikari (ES) in place of Late Prof. K. Basu (MA).
- Amrita Mukherjee (Roll No. 20EC1102, Reg. No. 21REC076)- change in affiliation of co-supervisor, Dr. Pratik Chakraborty who was a DST-INSPIRE faculty at NIT Durgapur now working as a Asst. Prof. in the Dept. of ECE at IIIT Kalyani.
- Mainak Ranjan Chaki (Roll No. 16MS1301, Reg. No. NITD/PhD/MS/2018/01030)- change of non-departmental faculty member. Inclusion of Prof. S. Kar (MA) in place of Late Prof. K. Basu (MA).
- Sumi Kar (Roll No. 18MA1102, Reg. No. 20RMA067)-(i) Consideration of Dr. Anita Pal (MA) as supervisor in place of Late Prof. K. Basu (MA). (ii) Inclusion of Prof. S. Sarkar (Mondal) in place of Dr. Anita Pal & (iii) Change in affiliation of co-supervisor Dr. Biswajit Sarkar, Dept. of Industrial Engineering in Yonsei University, South.
- Debapriya Dey Sarkar (Roll No. 17MA1106, Reg. No. 19RMA028)- (i) Consideration of Prof. S. Kar (MA) as supervisor in place of Late Prof. K. Basu (MA), (ii) inclusion of Dr. G. Panigrahi in place of Dr. L. K.Dey (iii) inclusion of Prof. T. De (CS) as non-departmental faculty member in place of Prof. G. K. Mahanti (EC).
- Mahitosh Maity (Roll No. 21MA1103)- (i) Consideration of Prof. S. Kar (MA) as supervisor in place of Late Prof. K. Basu (MA),(ii) inclusion of Dr. P. P. Gopmandal in place of Prof. S.Kar (iii) inclusion of Prof. T. De (CS) as non-departmental faculty member in place of Prof. S. Choudhury (CS).
- Satadipa Banerjee (Roll No. 20MM1104)-Consideration of request of Dr. Ashok Kumar Arya, Bhaba Atomic Research Centre, Mumbai for not acting as external supervisor.
- Sourav Ghosh (Roll No. 15/EE/1508, Reg. No. NITD/PhD/EE/2018/01081) - Inclusion of Prof. S. N.Mahato (EE) in place of Prof. S. Ghosh (Retd. Prof., EE).
- Suchandra Pal (Roll No. 18BT1107, Reg. No. 21RBT022)-Consideration of the request for inclusion of Dr. Debojyoti De (BT) as co-supervisor.

The matter is recommended for approval.

However, the matter of requirements of physical presence of the External Supervisor in the DSC committee meeting/Seminar presentation/different PhD related activities of the Scholars may be discussed in the Departmental level so that it can be taken up by the RAC in the subsequent meeting.

**Item # 8** **To consider an appeal from Dept. of Mathematics regarding reallocation of supervisor for the PhD scholars of Late Prof. K. Basu and request for a special consideration in counting number of scholars per capita.**

Resolved that the allocation of scholars beyond the limit may be considered favourably as one time measure subject to approval of the Senate.

**Item # 9** **To consider the matter of recommendation of DSC of Priya Chakraborty (Roll No. 20PH1104, Date of Adm. 09.10.2020& Reg. No. 21RPH069, dated 11.08.2021) for her request for early submission of PhD thesis in May 2023.**

The matter is not considered.

**Item # 10** **To consider the matter of Arun Raj (Roll No. 22EC1103, Date of Adm. 16.08.2022) regarding PhD registration without completion of Research Methodology Course work.**

The matter is to be dealt with the provisions as per the existing regulations of PhD program.

**Item # 11** **To consider the matter of Sujoy Chattaraj (Reg. No. NITD/PhD/ChE/2014/00579)- regarding correction of thesis title in the PhD degree certificate awarded in 17th Convocation of the institute held on January 08, 2022.**

The matter is recommended for approval so as to reissue the Degree certificate as per the Thesis title provided on the Provisional certificate.

**Item # 12** **To consider the matter of Moumita Maji (Roll No. 17BT1106, Reg. No. 19RBT030) regarding extension of period of thesis submission until end of April, 2023 (pre-submission seminar held on 16.12.2022).**

The matter is recommended for approval.

**Item # 13** **To consider the matter regarding publication of corrigendum results of PhD coursework (Odd Sem./2022-2023).**

The matter is recommended for publication on the Institute website.

**Item # 14** **To consider the matter regarding revision of the syllabus of the Research Methodology course (course code: XE9031).**

The matter will be incorporated in the advertisement for admission to PhD program in odd semester 2023-2024.

**Item # 15** **To consider the appeal from Dept. of Chem. Engg. and Dept. of Humanities and Social Sciences regarding revision of the desired qualification for PhD admission in the Academic Session 2023-2024.**

The matter will be incorporated in the advertisement for admission to PhD program in odd semester 2023-2024.

**Item # 16** **To consider the matter regarding publication of advertisement for PhD admission in Odd Sem. 2023 - 2024.**

The matter is recommended for publication on the Institute website after obtaining the approval from the Senate of the Institute.

The meeting ended with vote of thanks to the Chairman.

17/04/2023

**Dean (Academic Research)**
**Date: 17.04.2023**

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Annexure 70.6.2

# Resolutions of the RAC meeting held on 19.05.2023

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# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

## Academic Section

**Date: 19.05.2023**

**Minutes of the meeting of Research Academic Committee (RAC) held on 19.05.2023 (Friday) at 10.30 am.**

The Chairman welcomed the members to the meeting and the agenda was placed for discussion.

**Item # 1** **To confirm the minutes of meeting of the RAC held on 17.04.2023.**

The minutes of the RAC meetings held on 17.04.2023 are confirmed with a correction of a typographical error in the item no 14 where the resolution be read as "The matter will be discussed later on."

**Item # 2** **To consider registration for Ph.D. programme of the following Scholars:**

| Sl. No. | Roll No. | Name of the Scholar | Dept. | Course Work (Total Credit) | | | Name of the Supervisor(s) | Date of Registration |
|---|---|---|---|---|---|---|---|---|
| | | | | Asgn. by DSC | As per regulation | Completed | | |
| 1 | 21MA1102 | Anirban Sen | MA | 20 | 20 | 20 | Dr. S. Sarkar (Mondal) | 10.04.2023 |
| 2 | 21MA1104 | Parikshit Das | MA | 20 | 20 | 20 | Dr. A. Pal | 10.04.2023 |
| 3 | 21MA1108 | Supriya Mondal | MA | 20 | 20 | 20 | Dr. S. Maitra | 10.04.2023 |
| 4 | 20BT1106 | Chandrima Roy | BT | 20 | 20 | 20 | Dr. S. Roy Barman | 18.04.2023 |
| 5 | 21PH1104 | Mansi Mandal | PH | 20 | 20 | 20 | Dr. S. Sahoo | 21.04.2023 |
| 6 | 20CE1501 | Pranoy Roy | CE | 12 | 12 | 12 | Dr. A. K. Samanta | 03.05.2023 |
| 7 | 20MM1104 | Satadipa Banerjee | MM | 12 | 12 | 12 | Dr. M. M. Ghosh, Dr. B. Maji | 08.05.2023 |

The registration to the PhD programme of the above mentioned scholars are recommended for approval on the dates as mentioned against the respective scholars.

**Item # 3** **To consider the name of the students to be awarded with Ph.D. Degree** –completed all requirements for the award of Ph.D. Degree.

| Sl. No. | Registration No. | Dept. | Name of the Scholar | Title of the Thesis | Name of the Supervisor(s) | Date of Defense |
|---|---|---|---|---|---|---|
| 1 | NITD/PhD/HSS/2017/00855 | HS | Asoke Howlader | The Spectrum of Global Concerns in the Light of Glocalization: A Study in the Select Plays of Mahesh Dattani | Dr. A. Modak | 11.04.2023 |
| 2 | NITD/PhD/ME/2018/01029 | ME | Aman Arora | Development and Modelling of Low Pressure Actuated Pneumatic Artificial Muscle for Assistive Applications | Dr. S. S. Roy | 12.04.2023 |
| 3 | NITD/PhD/CH/2015/00649 | CH | M. J. Varghese | Removal of Organic Pollutants from Seawater using Solar Nano Photocatalysts | Dr. S. Dutta, Dr. S. Feroz, PMBF University, Saudi Arabia | 13.04.2023 |



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|---|---|---|---|---|---|---|
| 4 | 20RCE057 | CE | Sudha Das Khan | Fuzzy Logic-based Condition Assessment and Ranking of Reinforced Concrete Bridges: A Study | Dr. P.Topdar, Dr. A. K. Datta | 19.04.2023 |
| 5 | 20RMA044 | MA | Prasanta Kumar Ghosh | Modelling of Some Green and Sustainable Supply Chain Problems under Different Payment Strategies | Dr. S. Kar, Dr. J. K. Dey, Mahishadal Raj College, Purba Medinipur | 20.04.2023 |
| 6 | NITD/PhD/EE/2016/00781 | EE | Kingsuk Majumdar | Enhancement of ATC for Integrated Power System Incorporating UPFC and Renewable Energy Sources | Dr. S. Banerjee, Dr. P. K. Roy, Kalyani Govt. Engg. College | 20.04.2023 |
| 7 | 20RPH0024 | PH | Sanjib Mondal | Studies on metal nanoparticles covered Erbium doped $TiO_2$ thin film based plasmonic Photodetectors | Dr. A. Mondal | 26.04.2023 |
| 8 | NITD/PhD/ChE/2015/00591 | CH | Sabyasachi Pramanik | Adsorptive Removal of Cyanide and Phenol from Wastewater | Dr. K. C. Ghanta, Dr. S. Dutta | 26.04.2023 |
| 9 | 19RMS016 | MS | Sayan Gupta | A Comprehensive Soft-Computing Approach for Construction of Conservative Portfolio in Indian Equity Market | Dr. G. Bandyopadhyay | 16.05.2023 |

The award of the PhD degree to the above mentioned scholars are noted on the dates as mentioned against the respective scholar, to be reported to the Senate for recommendation.

**Item # 4** **To consider the appeal for an extension of period of registration of the following scholars :**

| Sl. No. | Name of the Scholar | Roll No. | Registration No. | Date of Reg. | Extension for/till | Valid from | No. of Times |
|---|---|---|---|---|---|---|---|
| 1 | Prakash Mondal | 15CE1502 | NITD/PhD/CE/2017/00886 | 28.04.2017 | 1 yr. | 28.04.2023 | 2nd |
| 2 | Bhaskar Bishayee | 15CHE1509 | NITD/PhD/CH/2017/00902 | 04.05.2017 | 1 yr. | 04.05.2023 | 2nd |
| 3 | Partha Sarkar | 15EC1507 | NITD/PhD/EC/2017/00918 | 30.05.2017 | 1 yr. | 30.05.2023 | 2nd |
| 4 | Pratik Kumar Sinha | 15/IT/1108 | NITD/PhD/CS/2017/00889 | 28.04.2017 | 1 yr. | 28.04.2023 | 2nd |
| 5 | Pradipta Banerjee | 15/IT/1109 | NITD/PhD/CS/2017/00888 | 28.04.2017 | 1 yr. | 28.04.2023 | 2nd |
| 6 | Bishwajit Singh Kapoor | 16BT1101 | NITD/PhD/BT/2018/01045 | 25.06.2018 | 1 yr. | 25.06.2023 | 1st |
| 7 | Sanjeet Kumar | 15/CA/1502 | NITD/PhD/CS/2017/00913 | 16.05.2017 | 1 yr. | 16.05.2023 | 2nd |
| 8 | Vinay Kumar Shaw | 16/MS/1504 | NITD/PhD/MS/2018/01076 | 01.08.2018 | 1 yr. | 01.08.2023 | 1st |
| 9 | Padma Seragadam | 16/CH/1505 | NITD/PhD/CH/2017/00907 | 11.05.2017 | 1 yr. | 11.05.2023 | 2nd |
| 10 | Mainak Ranjan Chaki | 16MS1301 | NITD/PhD/MS/2018/01030 | 16.05.2018 | 1 yr. | 16.05.2023 | 1st |
| 11 | Arindam Chowdhury | 16IT1302 | NITD/PhD/CS/2018/01050 | 29.06.2018 | 1 yr. | 29.06.2023 | 1st |
| 12 | Siba Prasada Tripathy | 15/CSE/1102 | NITD/PhD/CS/2017/00873 | 27.04.2017 | 1 yr. | 27.04.2023 | 2nd |

The matter is recommended for approval as the formalities in this regard are fulfilled.
Further it is recommended for approval by the Senate for relaxation of one year extension in period of registration in addition to that is permitted in the Regulations in the academic year 2022-2023 also on specific recommendation of the respective DSC due to COVID19 situation.

**Item # 5** **To consider the appeal for discontinuation from PhD Program of the following Scholar:**

- Nandini Kundu (Roll No. 22HS1103)
- Prasanta Mandal (Roll No. 16CY1301, Reg. No. NITD/PhD/CY/2017/00952)

The above matter has been discussed and as recommended by DSC of the students it may be forwarded to the Chairman, Senate for his approval. However, the release will be subject to submission of original documents related to No Dues Certificates from Hostel, Library, Department and Scholarship Section.

The matter of release of regular Institute fellows will be guided by the regulations of the programme while the release of other regular fellows will be guided by the regulations of the respective funding agencies.

**Item # 6** **To consider the matter regarding the approval for Campus release of -**

- Abhishek Kumar (Roll No. 20EE1103, Reg. No. 22REE095) joined NEIGRIHMS, Shillong as a Junior Engineer (Electrical).

The matter is recommended for approval subject to submission of NOC from the NEIGRIHMS, Shillong and the respective hall of Residence.

**Item # 7** **To consider the matter regarding the approval of reconstitution of DSC of the following Scholars:**

- Mita Karmakar (Roll No. 21PH1107): Exclusion of external co-supervisor Dr. Mrinal Pal, CSIR-CGCRI, Kolkata as he has not received his Institutional No-objection Certificate from his Institute.
- Pradipta Banerjee (Roll No. 15/IT/1109, Reg. No. NITD/PhD/CS/2017/00888): Inclusion of non-departmental faculty member Dr. Ashis Kumar Mal (EC) in place of Dr. Partha Pratim Sengupta, Retd. - Prof. (HS).

The matter is recommended for approval

**Item # 8** **To consider the matter regarding numbering of grade cards in PhD programme.**

The suitable numbering system appropriate / meant for printing of grade cards of course work examinations in odd semester and even semester will be evolved / implemented by the office of the Dean ( Academic Research ).

**Item # 9** **To consider the matter regarding physical presence of an external supervisor in the DSC committee meeting from the department of Chemical Engineering.**

The matter will be taken up the subsequent meeting of RAC after being delivered in the Departmental level.

**Item # 10** **To consider the matter of Oliva Roy (Roll No. 15/HSS/1106, Reg. No. NITD/PhD/HS/2016/00724) regarding extension for period of thesis submission till next Senate meeting.**

The matter is kept in abeyance till the next meeting of the Senate.

**Item # 11** **To consider the matter of Academic Calendar 2023-2024 for PhD programme.**

The academic calendar of the PG programme will be followed. The dates for publication of results will be within two weeks from the dates of publication of the results of PG programme. The dates for examination of the Research Methodology will be communicated to the Departments / Centres / Examinees through email by the Coordinating Department.

RK

**Item # 12** **To consider the matter of Lipika Kankaria ( Roll No. 18HS1101, Reg. No. 19RHS035 Pre-Synopsis Submission Seminar given on 27.02.2023 ) regarding 3 months' extension of period for thesis submission.**

The matter is recommended for approval.

**Item # 13** **To consider the matter of correction of name in the grade cards for course work examination of Gautam Mazumdar (Roll No. 15HS1504, Reg. No. NITD/PhD/HS/2016/00832, Defence Seminar held on 20.01.2023).**

The matter is approved.

**Item # 14** **To consider the matter of incorporation of PhD programme from Admission to Convocation for all students including legacy database in the Institute automation system.**

The matter is recommended for consideration of the higher authority of the Institute.

The meeting ended with vote of thanks to the Chairman.

**Dean (Academic Research)**
**Date: 19.05.2023**

Annexure 70.6.3

# Resolutions of the RAC meeting held on 13.06.2023

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# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

**Academic Section**

**Date: 13.06.2023**

**Minutes of the meeting of Research Academic Committee (RAC) held on 13-06-2023 (Tuesday) at 11.00am.**

The Chairman welcomed the members to the meeting and the agenda was placed for discussion.

**Item # 1** **To confirm the minutes of meeting of the RAC held on 19.05.2023.**

The minutes of the RAC meetings held on 19.05.2023 are confirmed.

**Item # 2** **To consider the matter regarding commencement of academic session 2023-2024 (Odd Sem.).**

The odd semester of academic session 2023-2024 will commence from 17/07/2023 (Monday).

**Item # 3** **To consider the publication of results of PhD Course Work examinations held in Even Semester 2022-2023.**

The matter is recommended for publication on approval from the competent authority.

**Item # 4** **To consider registration for Ph.D. programme of the following Scholars:**

| Sl. No. | Roll No. | Name of the Scholar | Dept. | Course Work (Total Credit) | | | Name of the Supervisor(s) | Date of Registration |
|---|---|---|---|---|---|---|---|---|
| | | | | Asgn. by DSC | As per regulation | Completed | | |
| 1 | 21CS1109 | Durgesh Lohar | CS | 19 | 13 | 19 | Dr. B. Sen | 23.05.2023 |
| 2 | 21CS1101 | Arnab Chatterjee | CS | 12 | 9 | 16 | Dr. S. Changder | 05.06.2023 |
| 3 | 21PH1102 | Iman Biswas | PH | 18 | 20 | 22 | Dr. A. Mondal | 06.06.2023 |

The registration to the PhD programme of the above mentioned scholars are recommended for approval on the dates as mentioned against the respective scholars.

**Item # 5** **To consider the name of the students to be awarded with Ph.D. Degree** –completed all requirements for the award of Ph.D. Degree.

| Sl. No. | Registration No. | Dept. | Name of the Scholar | Title of the Thesis | Name of the Supervisor(s) | Date of Defense |
|---|---|---|---|---|---|---|
| 1 | NITD/PhD/MS /2017/00914 | MS | Sanjib Biswas | Empirical Inference of Investment Decision Making from Operations Research Context: An Insight of FMCG and Consumer Durable Sectors in India | Dr. G. Bandyopadhyay | 24.05.2023 |
| 2 | NITD/PhD/MS /2017/00966 | MS | Dipanita Deb | The Impact of Corporate Social Responsibility on the Financial Performance of Corporates: An International Evidence | Dr. A. De, Dr. P. Gillet, RITM, Universite Paris-Saclay, France | 24.05.2023 |

The award of the PhD degree to the above mentioned scholars are noted on the dates as mentioned against the respective scholar, to be reported to the Senate for recommendation.

**Item # 6** **To consider the appeal for an extension of period of registration of the following scholars :**

| Sl. No. | Name of the Scholar | Roll No. | Registration No. | Date of Reg. | Extension for/till | Valid from | No. of Times |
|---|---|---|---|---|---|---|---|
| 1 | Jeet Banerjee | 16EC1305 | NITD/PhD/EC/2018/01034 | 07.06.2018 | 1 yr. | 07.06.2023 | 1st |
| 2 | Sunil Kumar Patel | 17CS1104 | NITD/PhD/CS/2018/01036 | 07.06.2018 | 6 months | 07.06.2023 | 1st |
| 3 | Sanjib Saha | 16IT1303 | 19RCS014 | 25.01.2019 | 1 yr. | 25.01.2024 | 1st |
| 4 | Subrata Joarder | 14/CA/1505 | NITD/PhD/CA/2016/00750 | 02.05.2016 | 1 yr. | **Previous extension was valid upto 01.05.2022** | 2nd |

The matter as mentioned under Sl. No. 1 and 2 are recommended for approval as the formalities in this regard are fulfilled.
The matter under Sl. No. 3 is not considered as it is premature to decide upon and sent back to the department for necessary action during appropriate time.
The matter under Sl. No. 4 is referred back to the department to obtain further and detailed comments with respect to the provisions of PhD regulation in this regard.

**Item # 7** **To consider the appeal for discontinuation from PhD Program of the following Scholar:**

- Rajib Kumar Chatterjee (Roll No. 14/CA/1501, Reg. No. NITD/PhD/CA/2014/00493)
- Koushik Konar (Roll No. 22CS1112) – No dues from Hostel, Library and Department are not submitted.

The above matter has been discussed and as recommended by DSC of the students it may be forwarded to the Chairman, Senate for his approval. However, the release will be subject to submission of original documents related to No Dues Certificates from Hostel, Library, Department and Scholarship Section.
The matter of release of regular Institute fellows will be guided by the regulations of the programme while the release of other regular fellows will be guided by the regulations of the respective funding agencies.

**Item # 8** **To consider the matter regarding the approval of reconstitution of DSC of the following Scholars:**

- Nandan Banerji (Roll No. 15/IT/1103, Reg. No. NITD/PhD/IT/2016/00799): Inclusion of non-departmental faculty member Dr. Aniruddha Chandra (EC) in place of Dr. Prasenjit Choudhury (CS).
- Chandra Bhushan (Roll No. 22CH1101)- Inclusion of supervisor Dr. Debayan Das (CH) in place of Dr. Sankha Karmakar (Ex-faculty, CH).

The matter is recommended for approval

**Item # 9** **To consider the matter of Samudra Panda (Roll No. 21EE1105) regarding grant of medical leave for 3 months due to medical emergency.**

Subject to the approval of the Senate, Samudra Panda (Roll No. 21EE1105) may be allowed to avail medical leave of one month as per rule and the rest of the period of his leave may be considered on without any payment of scholarship, however the total stipulated duration of payment of scholarship will remain unaltered.

RC

**Item # 10 To consider the request from Prof. Rajnarayan Saha (Coordinator, CREW) regarding approval for uploading the previous year's PhD admission test question papers on the Institute website.**

The matter regarding uploading of PhD admission test question papers on the Institute website may be discussed at the Departmental level and the feedback received can be further discussed in the subsequent meetings of RAC.

The meeting ended with vote of thanks to the Chairman.

13/06/2023

**Dean (Academic Research)**
**Date: 13.06.2023**

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Annexure 70.6.4

# Resolutions of the RAC meeting held on 11.07.2023

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# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

**Academic Section**

**Date: 11.07.2023**

**Minutes of the meeting of Research Academic Committee (RAC) held on 11.07.2023 (Tuesday) at 11.00am.**

The Chairman welcomed the members to the meeting and the agenda was placed for discussion.

**Item # 1** **To confirm the minutes of meeting of the RAC held on 13.06.2023.**

The minutes of the RAC meetings held on 13.06.2023 are confirmed.

**Item # 2** **To consider registration for Ph.D. programme of the following Scholars:**

| Sl. No. | Roll No. | Name of the Scholar | Dept. | Course Work (Total Credit) | | | Name of the Supervisor(s) | Date of Registration |
|---|---|---|---|---|---|---|---|---|
| | | | | Asgn. by DSC | As per regulation | Completed | | |
| 1 | 20BT1102 | Subhadip Saha | BT | 8 | 8 | 12 | Dr. M. Ghosh | 10.03.2023 |
| 2 | 21CH1103 | Saheli Kar | CH | 8 | 9 | 14 | Dr. T. Mandal | 12.05.2023 |
| 3 | 20CS1106 | Ashwin CS | CS | 8 | 8 | 12 | Dr. S. Roy | 19.06.2023 |
| 4 | 20EC1106 | Satyam Shivam Sundram | EC | 8 | 8 | 20 | Dr. A. K. Mal & Dr. R. Todani | 21.06.2023 |
| 5 | 21CE1102 | Apurba Pal | CE | 12 | 9 | 16 | Dr. A. K. Datta | 22.06.2023 |
| 6 | 21MA1107 | Lokenath Thakur | MA | 16 | 16 | 20 | Dr. Md Firoz Ali | 23.06.2023 |
| 7 | 22CH1105 | Rhithuparna D | CH | 16 | 16 | 20 | Dr. G. Halder &Dr. S. L. Rokhum | 27.06.2023 |
| 8 | 21MA1501 | Ratnabali Pal | MA | 16 | 16 | 20 | Dr. S. Kar | 28.06.2023 |
| 9 | 21EE1505 | Sumit Kumar | EE | 16 | 9 | 16 | Dr. S. Banerjee | 30.06.2023 |
| 10 | 21CY1105 | Jharna Mahato | CY | 16 | 16 | 20 | Dr. T. K. Saha | 03.07.2023 |
| 11 | 21PH1107 | Mita Karmakar | PH | 16 | 16 | 20 | Dr. S. Basu | 03.07.2023 |
| 12 | 21PH1101 | Anurup Chakraborty | PH | 19 | 16 | 24 | Dr. A. K. Chakraborty | 04.07.2023 |
| 13 | 22EC1103 | Arun Raj | EC | 11 | 9 | 15 | Dr. D. Mandal | 04.07.2023 |
| 14 | 21CH1108 | Iman Ghosh Dastidar | CH | 20 | 16 | 20 | Dr. P. Pal & Dr. M. Roy | 06.07.2023 |

The registration to the PhD programme of the above mentioned scholars are recommended for approval on the dates as mentioned against the respective scholars.

**Item # 3** **To consider the name of the students to be awarded with Ph.D. Degree** –completed all requirements for the award of Ph.D. Degree.

| Sl. No. | Registration No. | Dept. | Name of the Scholar | Title of the Thesis | Name of the Supervisor(s) | Date of Defense |
|---|---|---|---|---|---|---|
| 1 | NITD/PhD/EC/ 2018/01011 | EC | Sanjukta Mandal | Studies on Designing On-chip Antennas in Silicon IC for Short Range Communication | Dr. S. K. Mandal, Dr. R. Mahapatra, Dr. A. K. Mal | 12.06.2023 |

RK

| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | NITD/PhD/ME /2018/01085 | ME | Bishwajit Sharma | Fluid Flow and Convective Heat Transfer past a Slotted Circular Cylinder | Dr. R. N. Barman | 13.06.2023 |
| 3 | NITD/PhD/EC/ 2018/01058 | EC | Sujoy Mandal | Studies on Sideband Radiation Characteristics towards Improving Time-Modulated Antenna Array Performances | Dr. S. K. Mandal | 21.06.2023 |
| 4 | NITD/PhD/CH /2018/01055 | CH | Meenakshi Malhotra | Development of Sustainable Membrane-Based Technologies for Selenium Abatement Towards Reutilization from Aqueous System | Dr. P. Pal | 23.06.2023 |
| 5 | 20RCY039 | CY | Aditya Suhasaria | Corrosion inhibition of mild steel in aqueous HCl medium by benzothiazole derivatives: structure reactivity correlation study | Dr. D. Sukul | 28.06.2023 |

The award of the PhD degree to the above mentioned scholars are noted on the dates as mentioned against the respective scholar, to be reported to the Senate for recommendation.

**Item # 4** **To consider the appeal for an extension of period of registration of the following scholars :**

| Sl. No. | Name of the Scholar | Roll No. | Registration No. | Date of Reg. | Extension for/till | Valid from | No. of Times |
|---|---|---|---|---|---|---|---|
| 1 | Srinibas Rana | 15/CSE/1509 | NITD/PhD/CS/2017/ 00940 | 26.09.2017 | 1 yr. | 26.09.2023 | 2nd |
| 2 | Sourav Ghosh | 15/EE/1508 | NITD/PhD/EE/2018 / 01081 | 20.09.2018 | 1 yr. | 20.09.2023 | 1st |
| 3 | Arpan Chattopadhyay | 16/ES/1301 | NITD/PhD/ES/2018/ 01046 | 27.06.2018 | 1 yr. | 27.06.2023 | 1st |
| 4 | Dhananjay Kumar Singh | 16/CA/1102 | NITD/PhD/CS/2018/ 01070 | 25.07.2018 | 6 months | 25.07.2023 | 1st |
| 5 | Soumen Chatterjee | 16/MS/1501 | NITD/PhD/MS/2017 /00929 | 26.07.2017 | 1 yr. | 26.07.2023 | 2nd |
| 6 | Jasper D | 16/EE/1101 | NITD/PhD/EE/2018 /01057 | 12.07.2018 | 1 yr. | 12.07.2023 | 1st |

The matter is recommended for approval.

**Item # 5** **To consider the matter regarding the approval for extension of Pre- registration seminar:**

| Sl. No. | Name of the Scholar | Roll No. | Date of Admission | Extension for/till | No. of Times |
|---|---|---|---|---|---|
| 1 | Somjit Halder | 20HS1501 | 07.10.2020 | 6 months/till October 2023 | 1st |

The matter is recommended for approval.

RK

**Item # 6** **To consider the appeal for discontinuation / withdrawal from PhD Program of the following Scholar:**

- Subhadeep Pal (Roll No. 23MA1103)
- Avijit Banerjee (Roll No. 23BT1101)
- Sayantika Ghosh (Roll No. 23ES1101)
- Shukla Karmakar (Roll No. 21EE1502)
- Toushik Maiti (Roll No. 19EE1102) - **Previous two semester registration due.**

The above matter has been discussed and as recommended by DSC of the students, RAC has recommended it and it is to be forwarded to the Chairman, Senate for his approval.

However, the release will be subject to submission of original documents related to No Dues Certificates from Hostel, Library, Department and Scholarship Section. The matter of release of regular Institute fellows will be guided by the regulations of the programme while the release of other regular fellows will be guided by the regulations of the respective funding agencies. Refund of the caution deposit may be allowed on application from the respective candidate.

**Item # 7** **To consider the matter regarding the approval for Campus release of-**

- Pragna Labani Sikdar (Roll No. 18CS1107, Reg. No. 20RCS040) joined Brainware University, Kolkata as an Asst. Prof.
- Avishek Adhikary (Roll No. 18CE1102, Reg. No. 20RCE0025) joined Swami Vivekananda University, Barrackpore as an Asst. Prof.
- Rahul Mandal (Roll No. 18CS1101, Reg. No. 20RCS0022) joined Amrita Vishwa Vidyapeetham, Tamil Nadu as an Asst. Prof.

The matter is recommended for approval.

**Item # 8** **To consider the matter regarding the approval of reconstitution of DSC of the following Scholars:**

- Sandeep Kumar Das (Roll No. 17EE1103, Reg. No. 20REE012): inclusion of non-departmental faculty member Dr. Samarjit Kar (MA) in place of Dr. Parthapratim Gupta (CH).
- Soumen Chatterjee (Roll No. 16/MS/1501, Reg. No. NITD/PhD/MS/2017/00929): change of affiliation of Dr. Ameet Kumar Banerjee (co-supervisor) from XIMB Bhubaneswar to XLRI-Xavier School of Management, Jamshedpur.
- Sayantan Sarkar (Roll No. 18CH1105, Reg. No. 20RCH0018)- change of affiliation of Dr. Deepshikha Datta (co-supervisor) from GMR Institute of Technology, Andhra Pradesh to Brainware University, Kolkata.
- Sumit Kumar (Roll No. 21EE1505)- Inclusion of co-supervisor Dr. Santu Kumar Giri, Principal Scientist, CSIR-CMERI, Durgapur.
- Soumen Chatterjee (Roll No. 16/MS/1501, Reg. No. NITD/PhD/MS/2017/00929): inclusion of non-departmental faculty member Dr. Durbadal Mandal (EC) in place of Dr. Partha Pratim Sengupta (Ex. Prof., HS).

The matter is recommended for approval.

**Item # 9** **To consider the matter regarding 2nd round of advertisement for admission to the PhD programme (Odd Sem. 2023-2024) for the department of Chemical Engineering.**

The resultant vacant seats in the Odd Semester 2023-2024 will be advertised for admission in Even Semester 2023-2024 as per PhD regulations of the Institute.

**Item # 10** **To consider the matter of completion of admission in Odd Semester 2023-2024 (61 nos. candidates have been admitted in regular category and 24 nos. candidates have been admitted in professional category.).**

The entire process of admission was successfully conducted and completed with the active help of participating Departments / Centres.

RK

**Item # 11** To consider the matter regarding admission in Odd Semester 2023-2024 of 04 students which could not be completed due to various reasons like non-completion of examinations etc.

The admission process will be concluded on submission of essential documents issued by the competent authority within 15.09.2023.

The meeting ended with vote of thanks to the Chairman.

R Kumar Rajaa

**Dean (Academic Research)**
**Date: 11.07.2023**

Annexure 70.6.5

# List of PhD students to be awarded PhD degree (33 nos.)
# and
# list of students completed formalities for PhD registration (45 nos.)

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**Annexure-70.6.5**

**A. List of 33 PhD students to be awarded with Ph.D. Degree –completed all requirements for the award of Ph.D. Degree-**

**Reported to the Senate by RAC dated 17.04.2023, 19.05.2023, 13.06.2023 and 11.07.2023 and to be Recommended by 70th SENATE dated 02.08.2023 for approval of the BOG.**

**Item # 3 RAC meeting held on 17.04.2023**

| Sl. No | Registration No. | Dept. | Name of the Scholar | Title of the Thesis | Name of the Supervisor(s) | Date of Defense |
|---|---|---|---|---|---|---|
| 1 | NITD/PhD/BT/2018/01031 | BT | Priyanka Sarkar | Studies on biodegradation of 4-Nitrophenol by a bacterial consortium isolated from a pesticide contaminated agricultural soil | Dr. A. Dey | 17.01.2023 |
| 2 | 20REE006 | EE | Pullabhatla Srikanth | Integrated Intelligent System for Recognition and Location of Power Quality Problems in an Interconnected Power Systems | Dr. C. Koley | 17.01.2023 |
| 3 | NITD/PhD/HS/2016/00832 | HS | Gautam Mazumdar | Impact Assessment of Community Institution Model for promotion of Rural Micro Enterprises under NRLM Pilot Scheme- Start-Up Village Entrepreneurship Program (SVEP), India | Dr. P. P. Sengupta | 20.01.2023 |
| 4 | NITD/PhD/CY/2018/01068 | CY | Saikat Mishra | Biological Relevance and Reactivity of Cu(II/I) Complexes Supported by N,S Donor Ligands | Dr. A. K. Patra | 27.01.2023 |
| 5 | NITD/PhD/CS/2017/00969 | CS | Pijush Kanti Dutta Pramanik | Sustainable Computing with Mobile Crowd Computing | Dr. P. Choudhury | 30.01.2023 |
| 6 | NITD/PhD/PH/2017/00844 | PH | Mahadeb Pal | Theoretical study of some properties of finite nuclei and core-crust transition density of neutron stars with finite range effective interaction | Dr. S. Sahoo, Dr. B. Sahoo, TDB College, Raniganj, Dr. S. Chakraborty, M.M.M College, Durgapur | 08.02.2023 |
| 7 | 20REE0016 | EE | Mehebub Alam | Novel Algorithms of Line Outage Detection Using Synchrophasor Measurements | Dr. S. S. Thakur, Dr. Sumit Banerjee, BCREC Durgapur | 13.02.2023 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | NITD/PhD/CE/2017/00887 | CE | Shyamal Kumar Dutta Mazumdar | Performance Evaluation of the Compacted Lateritic Soil Amended with Bentonite and Fly Ash used as Composite Liner Material for Ash Pond Sites of Thermal Power Plant | Dr. S. Pal | 13.02.2023 |
| 9 | NITD/PhD/EC/2018/00998 | EC | Partha Das | Dielectric Engineering on GaN for High Electron Mobility Transistors | Dr. R. Mahapatra, Dr. A. K. Chakraborty | 15.02.2023 |
| 10 | NITD/PhD/BT/2018/01032 | BT | Subhasree Majumdar | Studies on Bacterial Secondary Metabolites: Low-cost Production, Applications and Toxicity in Animal System | Dr. D. Dasgupta Mandal | 17.02.2023 |
| 11 | NITD/PhD/EC/2018/01069 | EC | Anjan Bandyopadhyay | Studies on Reconfigurable Multiband and Wideband Microwave Bandpass Filters | Dr. R. Ghatak, Dr.T. Mondal, BCREC, Durgapur | 20.02.2023 |
| 12 | 20RCH004 | CH | Sumona Show | Comparative Assessment of Ibuprofen Removal through Biosorption and Bioremediation Technique | Dr. G. Halder | 20.02.2023 |
| 13 | 20REC013 | EC | Argha Deep Paul | Resistive Memory Devices based on Al doped $HfO_x$ for Flexible Electronics Applications | Dr. R. Mahapatra | 21.02.2023 |
| 14 | NITD/PhD/EC/2016/00745 | EC | Himangshu Pal | Natural Cellulosic Graphene: Synthesis, Characterization and Electro Chemistry Application | Dr. R. Mahapatra, Dr. S. Chatterjee, SMIT, Sikkim | 01.03.2023 |
| 15 | NITD/PhD/PH/2018/01072 | PH | Tuli Chatterjee | Structural, microstructural and electrical characterizations of some metal-hydroxyapatite nanocomposites based bioceramics developed by chemical and green synthesis routes | Dr. A. K. Meikap, Dr. S. K. Pradhan, B.U., Burdwan | 29.03.2023 |
| 16 | NITD/PhD/CH/2018/01009 | CH | Anjali. K. P | Seaweed Mediated Synthesis of Nanoparticles: Its Characterization and Application | Dr. S. Dutta, Dr. G. Devi, NUST Oman | 29.03.2023 |
| 17 | NITD/PhD/CS/2015/00672 | CS | Deepa Naik | Studies in optical and wireless networks | Dr. T. De | 06.04.2023 |
| **Item # 3 RAC meeting held on 19.05.2023** | | | | | | |
| 18 | NITD/PhD/HSS/2017/00855 | HS | Asoke Howlader | The Spectrum of Global Concerns in the Light of Glocalization: A Study in the Select Plays of Mahesh Dattani | Dr. A. Modak | 11.04.2023 |
| 19 | NITD/PhD/ME/2018/01029 | ME | Aman Arora | Development and Modelling of Low Pressure | Dr. S. S. Roy | 12.04.2023 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Actuated Pneumatic Artificial Muscle for Assistive Applications | | |
| 20 | NITD/PhD/CH/2015/00649 | CH | M. J. Varghese | Removal of Organic Pollutants from Seawater using Solar Nano Photocatalysts | Dr. S. Dutta, Dr. S. Feroz, PMBF University, Saudi Arabia | 13.04.2023 |
| 21 | 20RCE057 | CE | Sudha Das Khan | Fuzzy Logic-based Condition Assessment and Ranking of Reinforced Concrete Bridges: A Study | Dr. P.Topdar, Dr. A. K. Datta | 19.04.2023 |
| 22 | 20RMA044 | MA | Prasanta Kumar Ghosh | Modelling of Some Green and Sustainable Supply Chain Problems under Different Payment Strategies | Dr. S. Kar, Dr. J. K. Dey, Mahishadal Raj College, Purba Medinipur | 20.04.2023 |
| 23 | NITD/PhD/EE/2016/00781 | EE | Kingsuk Majumdar | Enhancement of ATC for Integrated Power System Incorporating UPFC and Renewable Energy Sources | Dr. S. Banerjee, Dr. P. K. Roy, Kalyani Govt. Engg. College | 20.04.2023 |
| 24 | 20RPH0024 | PH | Sanjib Mondal | Studies on metal nanoparticles covered Erbium doped $TiO_2$ thin film based plasmonic Photodetectors | Dr. A. Mondal | 26.04.2023 |
| 25 | NITD/PhD/ChE/2015/00591 | CH | Sabyasachi Pramanik | Adsorptive Removal of Cyanide and Phenol from Wastewater | Dr. K. C. Ghanta, Dr. S. Dutta | 26.04.2023 |
| 26 | 19RMS016 | MS | Sayan Gupta | A Comprehensive Soft-Computing Approach for Construction of Conservative Portfolio in Indian Equity Market | Dr. G. Bandyopadhyay | 16.05.2023 |
| **Item # 5 RAC meeting held on 13.06.2023** | | | | | | |
| 27 | NITD/PhD/MS/2017/00914 | MS | Sanjib Biswas | Empirical Inference of Investment Decision Making from Operations Research Context: An Insight of FMCG and Consumer Durable Sectors in India | Dr. G. Bandyopadhyay | 24.05.2023 |
| 28 | NITD/PhD/MS/2017/00966 | MS | Dipanita Deb | The Impact of Corporate Social Responsibility on the Financial Performance of Corporates: An International Evidence | Dr. A. De, Dr. P. Gillet, RITM, Universite Paris-Saclay, France | 24.05.2023 |
| **Item # 3 RAC meeting held on 11.07.2023** | | | | | | |
| 29 | NITD/PhD/EC/2018/01011 | EC | Sanjukta Mandal | Studies on Designing On-chip Antennas in Silicon IC for Short Range Communication | Dr. S. K. Mandal, Dr. R. Mahapatra, Dr. A. K. Mal | 12.06.2023 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 30 | NITD/PhD/ME/ 2018/01085 | ME | Bishwajit Sharma | Fluid Flow and Convective Heat Transfer past a Slotted Circular Cylinder | Dr. R. N. Barman | 13.06.2023 |
| 31 | NITD/PhD/EC/ 2018/01058 | EC | Sujoy Mandal | Studies on Sideband Radiation Characteristics towards Improving Time-Modulated Antenna Array Performances | Dr. S. K. Mandal | 21.06.2023 |
| 32 | NITD/PhD/CH/ 2018/01055 | CH | Meenakshi Malhotra | Development of Sustainable Membrane-Based Technologies for Selenium Abatement Towards Reutilization from Aqueous System | Dr. P. Pal | 23.06.2023 |
| 33 | 20RCY039 | CY | Aditya Suhasaria | Corrosion inhibition of mild steel in aqueous HCI medium by benzothiazole derivatives: structure reactivity correlation study | Dr. D. Sukul | 28.06.2023 |

## B. To consider Registration of 45 Candidates for Ph.D. Programme (RAC Meetings held on 17.04.2023, 19.05.2023, 13.06.2023 and 11.07.2023)

**Registration of 45 Candidates for Ph.D. Programme is recommended by RAC for approval of the Senate**.

**Item # 2 RAC meeting held on 17.04.2023**

| Sl. No. | Roll No. | Name of the Scholar | Dept. | Name of the Supervisor(s) | Date of Registration |
|---|---|---|---|---|---|
| 1 | 20MM1503 | KashiNath Malik | MM | Dr. A. K. Mandal, Dr. S. Ghorai | 27.12.2022 |
| 2 | 20BT1108 | SandipMahato | BT | Dr. K. Aikat | 16.01.2023 |
| 3 | 21CY1501 | Pradeep Kumar Rout | CY | Dr. S. Ghosal | 16.01.2023 |
| 4 | 21CY1104 | Sayon Satpati | CY | Dr. S. Ghosal | 16.01.2023 |
| 5 | 21CE1104 | Nisheeth Shekhar | CE | Dr. S. Pal | 17.01.2023 |
| 6 | 20MS1102 | Vikash Mandal | MS | Dr. D. Pal | 19.01.2023 |
| 7 | 21EC1103 | Satish Kumar | EC | Dr. D. Mandal, Dr. R. Kar & Dr. G. Ram, NIT Warangal | 27.01.2023 |
| 8 | 20BT1112 | SouravSaha | BT | Dr. S. Chaudhuri | 30.01.2023 |
| 9 | 21EE1102 | Ankur Yadav | EE | Dr. T. K. Bera | 03.02.2023 |
| 10 | 21ME1104 | GeetaVerma | ME | Dr. R. N. Barman | 06.02.2023 |
| 11 | 21CH1102 | Nabanita Ghosh | CH | Dr. G. Halder | 10.02.2023 |
| 12 | 21EE1101 | Ananthammagari Bharathsimha Reddy | EE | Dr. S. N. Mahato | 14.02.2023 |
| 13 | 20MM1502 | Arijit Banerjee | MM | Dr. M. M. Ghosh, Dr. K. S. Ghosh | 17.02.2023 |
| 14 | 21ME1108 | Meghnath Sen | ME | Dr. A. B. Puri | 23.02.2023 |
| 15 | 21MM1103 | Mohammad Hamza | MM | Dr. S. Pramanik, Dr. K. P. Yagati | 24.02.2023 |
| 16 | 21MM1102 | Avash Kumar Saha | MM | Dr. A. K. Mandal | 28.02.2023 |
| 17 | 21HS1104 | Tanushree Mitra | HS | Dr. A. Modak, Dr. S. Banerjee | 02.03.2023 |
| 18 | 20EC1103 | Rajeev Shukla | EC | Dr. A. Chandra | 02.03.2023 |
| 19 | 21MS1101 | InduNath Jha | MS | Dr. S. Sarkar, Dr. D. Pal | 14.03.2023 |
| 20 | 20MS1101 | Anwesha Mazumder | MS | Dr. K. Mandal | 28.03.2023 |
| 21 | 20CS1101 | Banashree Mandal | CS | Dr. D. Das | 06.04.2023 |
| **Item # 2 RAC meeting held on 19.05.2023** | | | | | |
| 22 | 21MA1102 | Anirban Sen | MA | Dr. S. Sarkar (Mondal) | 10.04.2023 |
| 23 | 21MA1104 | Parikshit Das | MA | Dr. A. Pal | 10.04.2023 |
| 24 | 21MA1108 | Supriya Mondal | MA | Dr. S. Maitra | 10.04.2023 |
| 25 | 20BT1106 | Chandrima Roy | BT | Dr. S. Roy Barman | 18.04.2023 |
| 26 | 21PH1104 | Mansi Mandal | PH | Dr. S. Sahoo | 21.04.2023 |
| 27 | 20CE1501 | Pranoy Roy | CE | Dr. A. K. Samanta | 03.05.2023 |
| 28 | 20MM1104 | Satadipa Banerjee | MM | Dr. M. M. Ghosh, Dr. B. Maji | 08.05.2023 |
| **Item # 4 RAC meeting held on 13.06.2023** | | | | | |
| 29 | 21CS1109 | Durgesh Lohar | CS | Dr. B. Sen | 23.05.2023 |
| 30 | 21CS1101 | Arnab Chatterjee | CS | Dr. S. Changder | 05.06.2023 |
| 31 | 21PH1102 | Iman Biswas | PH | Dr. A. Mondal | 06.06.2023 |
| **Item # 2 RAC meeting held on 11.07.2023** | | | | | |
| 32 | 20BT1102 | Subhadip Saha | BT | Dr. M. Ghosh | 10.03.2023 |
| 33 | 21CH1103 | Saheli Kar | CH | Dr. T. Mandal | 12.05.2023 |
| 34 | 20CS1106 | Ashwin CS | CS | Dr. S. Roy | 19.06.2023 |
| 35 | 20EC1106 | Satyam Shivam Sundram | EC | Dr. A. K. Mal & Dr. R. Todani | 21.06.2023 |
| 36 | 21CE1102 | Apurba Pal | CE | Dr. A. K. Datta | 22.06.2023 |
| 37 | 21MA1107 | Lokenath Thakur | MA | Dr. Md Firoz Ali | 23.06.2023 |

| | | | | | |
|---|---|---|---|---|---|
| 38 | 22CH1105 | Rhithuparna D | CH | Dr. G. Halder &Dr. S. L. Rokhum | 27.06.2023 |
| 39 | 21MA1501 | Ratnabali Pal | MA | Dr. S. Kar | 28.06.2023 |
| 40 | 21EE1505 | Sumit Kumar | EE | Dr. S. Banerjee | 30.06.2023 |
| 41 | 21CY1105 | Jharna Mahato | CY | Dr. T. K. Saha | 03.07.2023 |
| 42 | 21PH1107 | Mita Karmakar | PH | Dr. S. Basu | 03.07.2023 |
| 43 | 21PH1101 | Anurup Chakraborty | PH | Dr. A. K. Chakraborty | 04.07.2023 |
| 44 | 22EC1103 | Arun Raj | EC | Dr. D. Mandal | 04.07.2023 |
| 45 | 21CH1108 | Iman Ghosh Dastidar | CH | Dr. P. Pal & Dr. M. Roy | 06.07.2023 |

Annexure 70.8

# Opening of a DBT sponsored MSC program on Life Sciences with specializations in Microbial Biotechnology / Plant & Animal Biotechnology from AY2023-24

INTENTIONALLY LEFT BLANK

# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

MAHATMA GANDHI AVENUE, DURGAPUR – 713209 WEST BENGAL, INDIA

ACADEMIC SECTION

## NOTESHEET

Date: July 21, 2023

**Subject:** Approval on Item No. 7 of UGAC and PGAC meeting held on 17th May 2023 and further approval on initiating the MSC Program on Life Sciences with specialization in Microbial Biotechnology / Animal & Plant Biotechnology offered by the Department of Biotechnology

Vide Item No. 7 of UGAC and PGAC meeting held on 17th May 2023, following points are recommended for approval from the Senate.

(a) Admission to the Present MSc programme in Life Sciences will be discontinued from the AY2024-25.

(b) A new programme namely MSc programme in Life Sciences with Specialization in Microbial Biotechnology / Plant & Animal Biotechnology will be started from AY2024-25. This shall be fully funded by DBT, Govt. of India. Following points are also recommended regarding this program.

i. Selection and Admission of students: As per the Clause No. 2 of agreement paper
ii. Starting Academic Year: 2024-25
iii. Total No. of Seats: 10
iv. Fee Structure & Fee Waiver: As per the existing norms of NIT Durgapur
v. Processing of Scholarships: Similar to existing GATE qualified MTECH students
vi. Leave rules for the students: Similar to the existing GATE qualified MTECH student
vii. Curriculum and Syllabus – As recommended by the Dept. of Biotechnology.

**This is placed before the Chairman, Senate for his kind approval please.**

Further, following the approval email received on July 17, 2023 from DBT regarding initiation of the MSC program mentioned in point (b) above from the Academic Year 2022-23, **honorable Chairman, Senate may further approve the following**:

(i) **Starting Academic Year:** 2023-24

(ii) **Eligibility criteria:**

a. Qualified GAT-B 2023
b. BSc in any branch of life sciences / Physics / Chemistry
c. Marks in Graduation:
   i. For OPEN/OBC/EWS: 6.5 CGPA (on a 10-point scale) or 60%
   ii. For SC/ST: 6.0 CGPA (on a 10-point scale) or 55%
d. A candidate appearing for final year graduation examination can apply for admission, but s/he has to submit the graduation final year result at the time of admission, failure of which will lead to cancellation of candidature.

PTO

21/7/2023
DEAN (ACADEMIC COURSES)

21/7/2023
DIRECTOR

**(iii) Seat Matrix:**

| UR | UR-PWD | EWS | EWS-PWD | OBC-NCL | OBC-NCL-PWD | SC | SC-PWD | ST | ST-PWD | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 04 | 0 | 01 | 0 | 02 | 01 | 01 | 0 | 01 | 0 | 10 |

(iv) **Selection Process:** The Institute will seek applications from prospective candidates and prepare a category-wise selection rank based on the GAT-B score/rank of the applicants. Two to three rounds of admission may be followed.

21/7/2023

Dean (Academic Courses)

21/7/2023

DIRECTOR

NIT DURGAPUR

**Dean Academic Courses <deanac@admin.nitdgp.ac.in>**

# Approval for admission notification of the MSc in Life Sciences programme supported by DBT

**Director NIT Durgapur** <director@admin.nitdgp.ac.in> Tue, Jul 25, 2023 at 5:27 PM
To: "Dean (Academic Courses)" <deanac@admin.nitdgp.ac.in>
Cc: Sudit Sekhar Mukhopadhyay <sudit.mukhopadhyay@bt.nitdgp.ac.in>, "Dr. Debjani Dutta" <hod@bt.nitdgp.ac.in>, Heads of the Departments and Sections <heads@admin.nitdgp.ac.in>

Approved as proposed.

On Tue, Jul 25, 2023 at 3:15 PM Dean (Academic Courses) <deanac@admin.nitdgp.ac.in> wrote:

> To
> The Director
> NIT Durgapur
>
> Respected Sir,
> Notice seeking applications for admission to MSC in Life Sciences Programme supported by DBT is attached herewith for your kind perusal and approval please.
> Kindly accord your approval for uploading the same on Institute website.
> Regards,
> Nirmal
> ---
> Dr. Nirmal Baran Hui
> Professor, Mechanical Engineering &
> Dean (Academic Courses)
> National Institute of Technology Durgapur
> Mahatma Gandhi Avenue, Durgapur - 713209, INDIA
> Phone No.: +91-343-2752017
> Email: deanac@admin.nitdgp.ac.in
> Website: www.nitdgp.ac.in
>
> ---------- Forwarded message ---------
> From: **Sudit Sekhar Mukhopadhyay** <sudit.mukhopadhyay@bt.nitdgp.ac.in>
> Date: Tue, Jul 25, 2023 at 1:05 PM
> Subject: Approval for admission notification of the MSc Life Science programme supported by DBT
> To: Dean Academic Courses <deanac@admin.nitdgp.ac.in>
> Cc: Dr. Debjani Dutta <hod@bt.nitdgp.ac.in>, Ashish Bhattacharjee <ashish.bhattacharjee@bt.nitdgp.ac.in>, Subhankar Roy Barman <subhankar.roybarman@bt.nitdgp.ac.in>
>
> Sir,
> Please find the admission notification for DBT supported MSc Life Science programme for your kind consideration and approval.
> Thank you.
> Yours sincerely,
> Sudit S. Mukhopadhyay

राष्ट्रीय प्रौद्योगिकी संस्थान दुर्गापुर
NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR
महात्मा गांधी एवेन्यू, दुर्गापुर - 713209, भारत
MAHATMA GANDHI AVENUE, DURGAPUR - 713209, INDIA
DEPARTMENT OF BIOTECHNOLOGY

| Seat Matrix and details of participating institutions for admissions to DBT supported Post Graduate (DBT PG) Programme in Biotechnology, in academic session 2023-24, through Graduate Aptitude Test-Biotechnology (GAT-B) 2023 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Name of the Institution / University and official website address** | **Name of the DBT supported Post Graduate Programme in Biotechnology** | **Name with complete contact details (including official email address, mobile number and official landline number) of DBT PG Programme Coordinator** | **DBT Sanctioned Intake/Seats for academic session 2023-2025 for GAT-B 2023 qualified candidates** | | | | | | | **Eligibility Criteria for Admission to DBT supported PG Programme in Biotechnology at participating institution/university, through GAT-B 2023** |
| | | | **Total** | **UR** | **OBC-NCL** | **SC** | **ST** | **EWS** | **DA/PWD** | |
| National Institute of Technology Durgapur<br>https://nitdgp.ac.in | M.Sc. Life Sciences (with specialization in Microbial Biotechnology/ Plant & Animal Biotechnology) | 1. Dr. Sudit S. Mukhopadhyay, Department of Biotechnology, National Institute of Technology Durgapur 713209 sudit.mukhopadhyay@bt.nitdgp.ac.in Contact: 9434788139<br>2. Dr. Ashish Bhattacharjee, Department of Biotechnology, NIT Durgapur 713209 ashish.bhattacharjee@bt.nitdgp.ac.in Contact: 9434788034 | 10 | 04 | 02 | 01 | 01 | 01 | OBC-NCL/DA/PWD 01 | B. Sc. in any branch of Life Sciences/Chemistry / Physics<br>For, Gen/EWS/OBC-NCL: minimum 6.5 CGPA or 60% marks in B.Sc.<br>For, SC/ST/PWD: minimum 6.0 CGPA or 55% marks in B.Sc. |
| **Reservation Policy of Government of India shall be followed for admission to DBT supported Post Graduate (DBT PG) Programme in Biotechnology, in academic session 2023-24, through Graduate Aptitude Test – Biotechnology (GAT-B) 2023** | | | | | | | | | | | |

Sign, Seal and Date of Head of Institution, Head of Department and DBT PG Programme Coordinator

Director

19/7/2023

(Prof. I Basak)

Director
National Institute of Technology
Mahatma Gandhi Avenue
Durgapur - 713209 (W.B.) INDIA

Head of the Department

(Dr. Debjani Dutta)

अध्यक्ष / Head
जैव प्रौद्योगिकी विभाग
Department of Biotechnology
राष्ट्रीय प्रौद्योगिकी संस्थान दुर्गापुर
National Institute of Technology Durgapur
दुर्गापुर (पश्चिम बंगाल), भारत / Durgapur (WB) India
पिन कोड -713209 / Pin Code - 713209
19/7/23

Programme Coordinators

1. (Dr. Sudit S. Mukhopadhyay)

Professor
Department of Biotechnology
National Institute of Technology Dugapur
Durgapur - 713209, West Bengal, India

2. (Dr. Ashish Bhattacharjee)

Dr. Ashish Bhattacharjee
Associate Professor & Ramalingaswami Fellow
Department of Biotechnology
National Institute of Technology Durgapur
Durgapur - 713209, West Bengal, India

Place: Durgapur

Date: July 19th, 2023

**NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR**

**DEPARTMENT OF BIOTECHNOLOGY**

Date: July 19, 2023

Minutes of the Departmental Postgraduate Academic Committee (DPAC) meeting held on July 19, 2023 in the Seminar Room of the Department of Biotechnology at 4 PM.

The following members were present in the meeting:

| | | |
|---|---|---|
| 1. | Dr. Debjani Dutta | Chairperson |
| 2. | Prof. Apurba Dey | Member |
| 3. | Prof. Sudip Chattopadhyay | Member |
| 4. | Prof. Sudit Sekhar Mukhopadhyay | Member |
| 5. | Prof. Kaustav Aikat | Member |
| 6. | Dr. Kazy Sufia Khannam | Member |
| 7. | Dr. Monidipa Ghosh | Member |
| 8. | Dr. Subhankar Roy Barman | Member |
| 9. | Dr. Debojyoti De | Member |
| 10. | Dr. Amita Barik | Member |
| 11. | Dr. Oindrilla Mukherjee | B.Tech Coordinator |
| 12. | Dr. Ashish Bhattacharjee | M.Sc Coordinator |
| 13. | Dr. Nibedita Mahata | M.Tech Coordinator |
| 14. | Dr. Sougata Saha | PhD Coordinator |

**The resolutions of the meeting are as follows:**

The meeting was held to discuss the issue arising out of the E.mail received from DBT, GoI, directing the institute to commence the DBT-sponsored M.Sc. Life Sciences program from the academic year 2023-24, instead of starting from 2024-25 onwards as was originally applied for. The modalities to run the aforesaid academic programme were discussed and the following points were resolved:

1. The CCMN program of 2023 (for M.Sc. Life Sciences) is an ongoing process. In view of this, approval is to be taken from the competent authority of our institute to start with the DBT-sponsored M.Sc. Life Sciences program, simultaneously and the matter will be intimated to DBT.
2. Necessary procedures regarding student's stipend, hostel facilities, fund management etc. need to be initiated after discussion with the competent authorities.
3. As DBT has instructed that all process regarding selection and admission of the GAT-B 2023 qualified candidates have to be carried by our institute, relevant permissions/approvals have to be taken from the competent authorities and the necessary procedures are to be initiated.
4. Seat matrix (for category wise break up of seats as per reservation policy of GoI), Eligibility criteria etc. for the said program will be the following for the academic year 2023-24.

**Seat matrix:**

| UR | UR-PWD | EWS | EWS-PWD | OBC-NCL | OBC-NCL-PWD | SC | SC-PWD | ST | ST-PWD | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 04 | 0 | 01 | 0 | 02 | 01 | 01 | 0 | 01 | 0 | 10 |

**Eligibility criteria:**

| Category | For GAT-B qualified candidates | | Qualifying degrees |
|---|---|---|---|
| | CGPA in qualifying degree | Percentage marks in qualifying degree | |
| UR / EWS / OBC-NCL | 6.5 | 60% | BSc in any branch of Life Science / Physics / Chemistry |
| SC / ST / PWD | 6.0 | 55% | |

The meeting ended with thanks to the Chair

Debjani Dutta 19/7/23

Dr. Debjani Dutta

Chairperson

Department of Biotechnology

Head
जैव प्रौद्योगिकी विभाग
Department of Biotechnology
राष्ट्रीय प्रौद्योगिकी संस्थान दुर्गापुर
National Institute of Technology Durgapur
दुर्गापुर (पश्चिम बंगाल), भारत / Durgapur (WB) India
पिन कोड -713209 / Pin Code - 713209

To

The Director

July 20, 2023

Subject: approval for the admissions to DBT supported Post Graduate (PG) programmes in Biotechnology, in academic session 2023-2025, through Graduate Aptitude Test-Biotechnology (GAT-B) 2023

Sir,

Department of Biotechnology, Govt. of India has selected NIT Durgapur for the DBT supported Post Graduate (PG) programmes in Biotechnology and we expressed our intension to start the programme from the session 2024. But, DBT informed us by email dated 17.07.2023 (copy attached) that aforesaid programme need to be started in the academic session 2023-2025. As per the guidelines of the programme, NIT Durgapur should take the responsibility of the admission of GAT-B qualified students (document attached).

So we need your approval for the development of the necessary admission portal which will be uploaded to NIT Durgapur website.

Yours sincerely,

Sudit S. Mukhopadhyay

(Sudit S. Mukhopadhyay)

Coordinator of the DBT-PG programme

approved

20/7/2023

Forwarded

20/7/23

जैव प्रौद्योगिकी विभाग / Head
Department of Biotechnology
राष्ट्रीय प्रौद्योगिकी संस्थान दुर्गापुर
National Institute of Technology Durgapur
दुर्गापुर (पश्चिम बंगाल), भारत / Durgapur (WB) India
पिन कोड -713209 / Pin Code - 713209

NIT DURGAPUR

Sudit Sekhar Mukhopadhyay <sudit.mukhopadhyay@bt.nitdgp.ac.in>

# Reg. : Proposal M.Sc. Life Sciences (with specialization in Microbial Biotechnology/ Plant & Animal Biotechnology) teaching program submitted to DBT for support

6 messages

**Manoj Singh Rohilla** <manojsrohilla.dbt@nic.in> Tue, Jul 18, 2023 at 1:34 PM
To: sudit.mukhopadhyay@bt.nitdgp.ac.in
Cc: feroz suri <feroz.suri@rcb.res.in>, Sanjay Mishra <sanjaykr.mishra@nic.in>

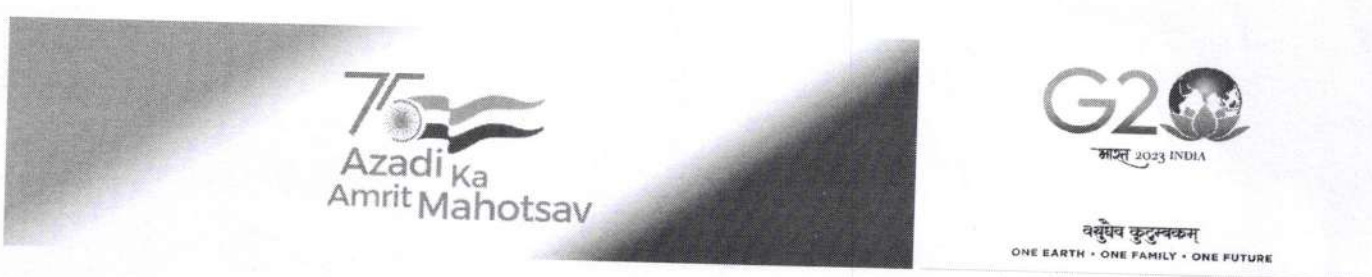
**Dear Dr. Mukhopadhyay,**

This is with reference to your proposal M.Sc. Life Sciences (with specialization in Microbial Biotechnology/ Plant & Animal Biotechnology) teaching program submitted to DBT for support. Department has considered your request and based on the recommendations of the DBT steering committee on HRD and Skill Vigyan approved the proposal for support during 15th Finance Commission. Department has approved the intake strength of 10/ Annum under DBT PG Program. I am requesting you to kindly initiate the process at your end for admission of GAT-B 2023 qualified students. Please also provide the following details to Dr. Feroz Suri, Manager, DBT HRD PMU, RCB Faridabad for uploading the information on RCB website as early as possible at your end:

(a) Distribution of seats under various categories as per the Government of India reservation policy.
(b) Eligibility criteria for admission.
(c) Web link of your university/institute website for easy access by the students for information about application process and admission in academic session 2023-24.

With kind regards,

डॉ. मनोज सिंह रोहिल्ला
Dr. Manoj Singh Rohilla
वैज्ञानिक- 'एफ'
Scientist-'F'
जैवप्रौद्योगिकी विभाग
Department of Biotechnology
विज्ञान और प्रौद्योगिकी मंत्रालय
Ministry of Science & Technology
ब्लॉक-2, 6-8वाँ तल
Block-2, 6-8th Floor
सीजीओ कॉम्पलैक्स
C.G.O. Complex
नई दिल्ली- 110 003
New Delhi-110 003
दूरभाष/Tele: 011-24363726




**Sudit Sekhar Mukhopadhyay** <sudit.mukhopadhyay@bt.nitdgp.ac.in> Tue, Jul 18, 2023 at 2:24 PM
To: "Dr. Debjani Dutta" <hod@bt.nitdgp.ac.in>, Ashish Bhattacharjee <ashish.bhattacharjee@bt.nitdgp.ac.in>, All Biotech Faculty <bt@nitdgp.ac.in>

NIT DURGAPUR

Sudit Sekhar Mukhopadhyay <sudit.mukhopadhyay@bt.nitdgp.ac.in>

# Admission to DBT-supported Post Graduate (PG) Programmes in Biotechnology, in academic session 2023-24. Reg (Batch: 2023-25)

5 messages

**Feroz Khan Suri** <feroz.suri@rcb.res.in> Wed, Jul 19, 2023 at 12:46 PM
To: Manoj Singh Rohilla <manojsrohilla.dbt@nic.in>, Sanjay Mishra <sanjaykr.mishra@nic.in>, "Dr. Arvind K. Sahu" <arvindsahu@rcb.res.in>, DBT PGT <pgt.dbt@rcb.res.in>
Bcc: sudit.mukhopadhyay@bt.nitdgp.ac.in

**Kind Attention!**

**Programme Coordinators**

**DBT supported Post Graduate (DBT PG) Programmes in Biotechnology (New Programs approved in 2023)**

**Dated: Wednesday, 19th July, 2023**

**Subject: Admission to DBT-supported Post Graduate (PG) Programmes in Biotechnology, in academic session 2023-24. Reg (Batch: 2023-25).**

**Dear Sir/Madam,**

**Greetings from DBT HRD Project Management Unit at Regional Centre for Biotechnology (RCB)!**

The list of newly approved programs under DBT PG Teaching Program is uploaded on RCB website and can be accessed from the following link:

https://rcb.res.in/upload/list%20of%20PG%20Program%20approved%20in%202023.pdf

Institutions/universities admitting students to DBT-supported Post Graduate (DBT PG) programmes in Biotechnology for academic session 2023-2024 shall confirm their participation so that DBT could provide the financial support including studentship/fellowship as per the agreed Mandatory Terms and Conditions of the DBT supported PG Programmes.

Call for admissions shall be advertised separately by the participating institutions/universities for DBT-supported programmes in Biotechnology for GAT-B 2023 qualified candidates. Regional Centre for Biotechnology (RCB) and Department of Biotechnology (DBT), Government of India, will not play any role and responsibility in the admission & selection process *(including admissions/Transfer policy/cancellation/conversion of vacant seats for admission/fee refund policy)* by the individual participating institutions/universities. **Reservation Policy of Government of India should be followed for admissions.**

In this regard, the Programme Coordinators of the DBT-supported Post Graduate (DBT PG) Programmes in Biotechnology are requested to provide their consent to participate in GAT-B 2023 for admission of GAT-B 2023 qualified candidates to DBT-supported PG (DBT PG) Programmes in Biotechnology, in the academic session 2023-2024, in their respective institutions, as per the DBT Mandatory terms and conditions of the programme to qualify for studentship support and for institutional support. The list of GAT-B 2023 qualified candidates is available on RCb website (https://rcb.res.in/upload/GAT-B%202023%20Result%20(Rank%20wise).pdf).

Along with your confirmation/consent, kindly email us duly authorised complete information in the attached prescribed template/format regarding number of DBT sanctioned intake/seats, seat matrix (for category wise break up of seats, as per Reservation Policy of Government of India), for admissions of GAT-B 2023 qualified students to DBT supported PG Programmes in Biotechnology in academic session 2023-2024 in your institution. Please also share the complete details such as name of DBT supported PG Programme, Eligibility criteria, DBT PG Programme coordinator's details, website, name of institution as asked for in the attached prescribed template.

**Kindly send us complete information in both, excel format and in pdf format-duly authorised (signed stamped by the Program Coordinator and Head of the Institute),** by return email. Complete details in the attached formats shall be sent latest by 22.07.2023 to the program email ID: pgt.dbt@rcb.res.in with copy to: manojsrohilla.dbt@nic.in and feroz.suri@rcb.res.in .

Thanks.

With kind regards,
Dr. Feroz Khan Suri / डॉ फ़िरोज़ ख़ान सूरी
Project Manager-DBT HRD PMU
Regional Center for Biotechnology / क्षेत्रीय जैवप्रौद्योगिकी केन्द्र
NCR Biotech Science Cluster / एनसीआर बायोटेक साइंस क्लस्टर
Faridabad / फरीदाबाद, Haryana / हरियाणा-121001 / १२१००१
Phone/ दूरभाष : 91-129-2848535
feroz.suri@rcb.res.in

**2 attachments**

**Template for information of participating institutions in GAT-B 2023.docx**
16K

**Template for information of participating institutions in GAT-B 2023.xlsx**
10K

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**Sudit Sekhar Mukhopadhyay** <sudit.mukhopadhyay@bt.nitdgp.ac.in> Wed, Jul 19, 2023 at 1:00 PM
To: "Dr. Debjani Dutta" <hod@bt.nitdgp.ac.in>, Ashish Bhattacharjee <ashish.bhattacharjee@bt.nitdgp.ac.in>

[Quoted text hidden]

**2 attachments**

**Template for information of participating institutions in GAT-B 2023.docx**
16K

**Template for information of participating institutions in GAT-B 2023.xlsx**
10K

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**Sudit Sekhar Mukhopadhyay** <sudit.mukhopadhyay@bt.nitdgp.ac.in> Wed, Jul 19, 2023 at 1:06 PM
To: Feroz Khan Suri <feroz.suri@rcb.res.in>

Dear Feroz,
Thank you for the mail. I already got the mail from Manoj. I am going back to you as soon as possible.
Thank you for your support and cooperation.
sincerely,
Dr. Sudit S. Mukhopadhyay,
Professor, Department of Biotechnology,
NIT Durgapur 713209
Contact: 9434788139
[Quoted text hidden]

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**Sudit Sekhar Mukhopadhyay** <sudit.mukhopadhyay@bt.nitdgp.ac.in> Wed, Jul 19, 2023 at 2:51 PM
To: Subhankar Roy Barman <subhankar.roybarman@bt.nitdgp.ac.in>

---------- Forwarded message ---------
From: **Feroz Khan Suri** <feroz.suri@rcb.res.in>
Date: Wed, Jul 19, 2023 at 12:46 PM
Subject: Admission to DBT-supported Post Graduate (PG) Programmes in Biotechnology, in academic session 2023-24. Reg (Batch: 2023-25)
To: Manoj Singh Rohilla <manojsrohilla.dbt@nic.in>, Sanjay Mishra <sanjaykr.mishra@nic.in>, Dr. Arvind K. Sahu <arvindsahu@rcb.res.in>, DBT PGT <pgt.dbt@rcb.res.in>

# REGIONAL CENTRE FOR BIOTECHNOLOGY

**DEPARTMENT OF BIOTECHNOLOGY**
**MINISTRY OF SCIENCE & TECHNOLOGY, GOVERNMENT OF INDIA**
**DBT POST GRADUATE (DBT PG) PROGRAMME IN BIOTECHNOLOGY**

## Guidelines and tentative schedule of activities regarding admissions to DBT supported Post Graduate (PG) Programmes in Biotechnology, in academic session 2023-2025, through GraduateAptitude Test-Biotechnology (GAT-B) 2023.

Results of Graduate Aptitude Test-Biotechnology (GAT-B) 2023 are displayed on the website of Regional Centre for Biotechnology (RCB) (https://rcb.res.in/) for access to participating universities/institutions and candidates.

### Guidelines for candidates

1. Following declaration of results of Graduate Aptitude Test-Biotechnology (GAT-B) 2023, candidates will download GAT-B 2023 Score and Rank card from the link provided on the website of National Testing Agency (NTA) (https://dbt.nta.ac.in/). The GAT-B 2023 Score and Rank Card can be downloaded only from NTA website (https://dbt.nta.ac.in/) and from no other website.
2. RCB has displayed details of participating universities/institutions, DBT supported PG Programmes, sanctioned seats and respective eligibility criteria of universities/institutions on the website (https://rcb.res.in/DBTPG/). For detailed information regarding admissions at participating universities/institutions, candidates may visit the website of the respective universities/institutions they wish to apply. Candidates shall fill the application form of individual universities/institutions as per institutional admission and selection norms.
3. Following display of admissions list by participating universities/institutions, candidates may contact respective DBT PG Program Coordinator regarding admissions related formalities and queries.
4. GAT-B 2023 Score and Rank Card is valid for admissions in academic session 2023-24 only. Issuance of GAT-B 2023 Score and Rank Card does not guarantee admissions to DBT supported Post Graduate (DBT PG) Programmes in Biotechnology at participating universities/institutions. Confirmation of admission to DBT supported Post Graduate (DBT PG) Programmes in Biotechnology, in academic session 2023- 24, is subject to candidate's fulfillment of requisite eligibility criteria of respective participating universities/institutions. Department of Biotechnology (DBT), GoI and Regional Centre for Biotechnology (RCB) do not play any role and responsibility in the admission and selection process of universities / institutions, following declaration of merit list of GAT-B 2023.

### Guidelines for participating universities/institutions

1. Participating universities/institutions shall display the eligibility criteria for admissions, DBT sanctioned seats, seat matrix following Reservation Policy of Government of India and related information, on the institutional website, notices/ advertisement/ information bulletin/ prospectus for admissions to DBT supported Post Graduate (DBT PG) Programmes in Biotechnology, in academic session 2023-2025 through GAT-B 2023.
2. Participating universities/institutions may decide admission and selection criteria as per institutional norms and display the list of selected candidates for admissions, along with waiting list. Reservation policy as per Government of India norms shall be followed for admissions to DBT supported Post Graduate Programmes in Biotechnology through GAT-B 2023.
3. Participating universities/institutions should not charge any application fee from applicants (GAT-B 2023 qualified Score and Rank card holder). Fee may be collected from the admitted students at a later time along with tuition fees.

4. Participating universities/institutions may allow transfer of a candidate once in academic session 2023-24 and refund of fees as per UGC norms.
5. Participating universities/institutions should follow timelines proposed in the table below for admissions to DBT supported Post Graduate (DBT PG) Programmes in Biotechnology, in academic session 2023-24, through Graduate Aptitude Test-Biotechnology (GAT-B) 2023.

Suggested admission schedule recommended by the Result Finalisation committee and approved by DBT for GAT-B 2023:

| S.No. | Admission Activity (Suggested timelines) | Date |
|---|---|---|
| 1. | GAT-B 2023 Examination | 13th May , 2023 |
| 2. | Declaration of GAT-B 2023 Scores by NTA. | 10th June, 2023 |
| 3. | Declaration of GAT-B 2023 Category wise merit list by DBT –RCB. | 20th June, 2023 |
| 4. | GAT-B 2023 Score and Rank Card download from NTA website. | 22nd June, 2023 |
| 5. | Admission process begins. | 23rd June, 2023 |
| 6. | Display of 1st admission list by participating universities/institutions. | 15th July, 2023 |
| 7. | Display of vacant seats & subsequent lists of candidates, if required | 31st July, 2023 |
| 8. | Transfer of candidates, if any. | 5th August, 2023 |
| 9. | Closure of admissions. | 12th August,2023 |
| 10. | **Submission of list of admitted students to DBT.** | **30th August 2023** |

**Mandatory Terms and Conditions as per Recommendations of DBT-HRD Task Force for Uniformity in Implementation of Postgraduate Teaching Program selected for Financial Support during 15th Finance commission (2020-21 to 2024-25)**

(1) **Core Faculty:** University/Institute should ensure the six regular faculty members as core group in the Department, along with 4-6 Associated Faculty, from collaborating Departments of the University/institute, for imparting the teaching and training under DBT support.

(A) Details of Core Faculty:

| S. No. | Name of Core (Regular) Faculty | Designation, Qualification and Name of Affiliated Department | Specialization and Teaching Area |
|---|---|---|---|
| 1. | Dr. Sudit S. Mukhopadhyay | Professor, Biotechnology | Cancer Biology/Animal Biotechnology |
| 2. | Dr. Kazy Sufia Khannam | Associate professor, Biotechnology | Microbiology /Microbial Biotechnology |
| 3. | Dr. Subhankar Roy Barman | Associate Professor, Biotechnology | Molecular Plant Pathogen interactions/ Plant Biotechnology |
| 4. | Dr. Ashish Bhattacharjee | Associate Professor, Biotechnology | Cell Signaling and inflammation/ Animal Biotechnology |
| 5. | Dr. Sougata Saha | Assistant Professor, Biotechnology | Cell and Molecular Biology/ Animal Biotechnology |
| 6. | Dr. Amita Barik | Assistant Professor, Biotechnology | Bioinformatics/Computational Biology |

(All other faculty members of the Biotechnology department will be involved in teaching)

(B) Details of Associated Faculty:

| S. No. | Name of Associated (Regular) Faculty | Designation, Qualification and Name of Affiliated Department | Specialization and Teaching Area* |
|---|---|---|---|
| 1. | Dr. Hemachander Subramanian | Assistant Professor, Physics | Fundamental Properties of DNA/ Structural Biology |
| 2. | Dr. Sayantari Ghosh | Assistant Professor, Physics | Approaches for modeling living systems/Systems Biology |
| 3. | Dr. Sankar Chandra Moi | Professor, Chemistry | Cancer drug development/ Organic Chemistry |
| 4. | Dr. Samarjit Kar | Professor, Mathematics | Computational Biology/ Operations research |

*Associated faculty members will be involved in teaching as and when required

(2) **Selection and Admission of Students:** University/Institute will admit the students under DBT support through Centralized selection process i.e., National level entrance exam conducted by DBT recognized/approved agency only and no parallel system of selection and admission will be allowed to any institution under DBT support.

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Dr. Sudit Shekhar Mukhopadhyay
Professor
Department of Biotechnology
National Institute of Technology Durgapur
Durgapur - 713209, West Bengal, India

**(3) Reservation Policy and Norms:** Admission of students under DBT supported PG Teaching Courses will be done by Universities/Institutes as per reservation policy and norms of Government of India only.

**(4) Uniform Fee Structure:** University/Institute should not charge the fee more than Rs. 50,000 (upper limit) for 2 years degree program. Full Relaxation/concession in Fees should be considered by Universities/Institutes for ST/SC/DA/EWS students admitted under DBT support as per prescribed guidelines of MHRD, Govt. of India.

***(For all the students fee norms of MoE, GOI will be followed)**

| S. No. | Semester | Fee Structure (Provide the breakup of Fee Heads) |
|---|---|---|
| 1. | Semester-I | Tuition fees Rs 7500, Examination fees Rs 1000 and other fees* |
| 2. | Semester-II | Tuition fees Rs 7500, Examination fees Rs 1000 and other fees* |
| 3. | Semester-III | Tuition fees Rs 7500, Examination fees Rs 1000 and other fees* |
| 4. | Semester-IV | Tuition fees Rs 7500, Examination fees Rs 1000 and other fees* |

*** Other fees include hostel charges and charges for other amenities/facilities**

**(5) Completion of Degree Program:** University/Institute should complete the course work and examination on time, within 2 Years' time period (24 Months), for DBT supported PG Teaching Program.

**(6) Approval of Statutory Agencies/Body (UGC/AICTE/PCI/MCI/Anyother Body):** University/Institute is solely responsible or liable to get the approval of Statutory Agencies/Body required for implementation of PG Teaching Program before admission of students under DBT support. DBT has no role and responsibility in such approval.

**(7) Constitution of Biosafety Committee:** University/Institute selected for support under DBT PG Teaching Program shall constitute the Institutional Biosafety Committee as per norms of Department of Biotechnology within three-month period after sanction of the project and inform to DBT, HRD Division.

**(8) In-house Dissertation:** University/Institute selected under DBT PG Teaching Program shall organize-in-house thesis/dissertation in core Department or in collaborating Department/s individually for all students admitted under DBT support. Institutions should ensure all the laboratory/field work facilities well in time for conducting the experiments by students and submission of project/thesis and dissertation on time and timely award of degree.

**(9) Placement of Students:** Universities/Institutes shall set up the in-house Placement Cell and Placement and Biotechnology Entrepreneurship Development Committee in the institution and ensure the placement of students desirous to work in Industries or provide handholding support to students desirous to start their own enterprise/start-ups under different schemes of Central/State Government. Institutions should also develop the linkages with industries and carry out the placement of students in following manner:

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*[Institute has CDC (Career Development Cell) and also IIC (Industry Incubation Centre) for Placement and Entrepreneurship Development]

| S. No. | Category | Percentage of Pass out Students |
|---|---|---|
| 1. | Academic Research | 40 % |
| 2. | Industry Jobs and Entrepreneurship Development/Start-ups/MSME | 50% |
| 3. | Any Other Sector | 10% |

Institutions should also motivate the students to appear in National Fellowship Examination (DBT-JRF, CSIR-NET, ICMR-JRF etc.) for pursuing the career in academic Research and Development. University/Institute should frame the entrepreneurship Development plan in consultation with experts for DBT students and submit to DBT within 3 months of sanction of program.

**(10) Skill Training:** Universities/Institutes shall ensure and impart the skill training during summer/winter break of semester to all students under approved skill courses of Ministry of Skill and Entrepreneurship Development, GoI, New Delhi and certification by concerned Sector Skill Council.

**(11) Acknowledgement of DBT Grants.** All research articles/report/presentation/Thesis should have a funding acknowledgement statement that the outcome of thesis/in-house dissertation of students supported under DBT-PG Teaching Program. Any patent from Thesis work/dissertation will be filed through DBT-Patent Facilitation Cell only.

**(12) Monthly Disbursement of Stipend/Studentship:** Universities/Institutes shall ensure the monthly disbursement of studentship/stipend to all the students. Each student selected should receive stipend/studentship every month. The stipend/studentship should be credited to the bank account linked with Aadhar of the student by 30th or 31st of each month as the case may be through RTGS/ECS Transfer. Even if there is delay in receiving funds from the DBT due to delay in submission of financial or other documents to DBT, the University/Institute will have to ensure timely disbursement of studentship in consultation with DBT.

**(13) Course curriculum:** Universities/Institutes shall ensure the adoption of Model Course Curriculum prescribed by DBT without any deviation.

**(14) Submission of Financial Documents:** Universities/Institutes shall ensure the submission of Financial Documents (Utilization Certificate and Statement of Expenditure in prescribed format) in the month of April (within 30 Days after end of previous Financial Year) of every Financial Year for release of subsequent grant/annual grant for smooth running of PG Teaching Program under DBT support.

**(15) Hostel Facility:** Universities/Institutes should provide hostel accommodation in campus for all out-station students.
***(NIT-Durgapur is a fully residential institute and hostel accommodation is compulsory)**

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**(16) Monitoring of Program:** DBT will monitor the progress of program through three tier mechanism (A) Annual In-house Advisory Committee (B) Annual Program Coordinator Meeting (C) Annual DBT-HRD TF/Steering Committee.

**(A) Annual In-house Advisory Committee:** An in-house Advisory Committee with the following composition will be constituted by the University/Institute:

| S. No. | Role | Designation |
|---|---|---|
| 1. | Vice Chancellor/Director | Chairman |
| 2. | DBT Representative | Member (1) DBT Nominee |
| 3. | External Academic Experts Outside | Member 1.Dr. Naryan Chandra Mandal, Professor, Siksha Bhavana (Institute of Science) Visva-Bharati, Santiniketan – 731235, Birbhum, WB.<br><br>2. Dr. Suvro Chatterjee, Professor, Department of Biotechnology, Universtiy of Burdwan, W.B, |
| 4. | Industrial Representative | Member (1) Dr. Sabyasachi Chakraborty-Senior Director Biology, TCG Life Science Private Limited, Kolkata |
| 5. | Skill Expert | Member (1) Concerned Sector Skill Council Nominee |
| 6. | All Core and Associated Faculty of Department | Member |
| 7. | Program Coordinator | Prof. Sudit S. Mukhopadhyay |

The committee shall meet at least once a year, preferably before the commencement of academic session to review the progress and decide the future course of action.

**(B) Annual Program Coordinator Meeting**: DBT will organize the meeting annually in one of the university/Institute supported under DBT PG Program and invite all the program coordinators for review of progress of program and resolving the issues, if any, being faced by Universities/Institutes in running the PG Teaching Course.

**(C) DBT-HRD Task Force/DBT-HRD Steering Committee:** DBT will review the progress of DBT PG Teaching Program in High Power Committee annually. Based on the recommendations of Committee DBT will decide about continuity of support to PG Teaching Program.

**(17) Monitoring Parameters:** Department of Biotechnology Govt. of India will provide the monitoring parameters for evaluation of Progress of DBT supported PG Teaching Program to University/Institute in due course of time.

**(18) Intake of Students:** Private Institution will not admit more than 10 students under proposed course under non-DBT category in each academic session.

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Durgapur - 713209, West Bengal, India

**Disclaimer:** **National Institute of Technology Durgapur** understands the DBT Mandatory Terms and Conditions as mentioned at serial Number 1-18 above, in this document and agree to abide by and fulfill all these before selection and admission of students under DBT support for **M.Sc. Life Science (Microbial Biotechnology/Plant and Animal Biotechnology)**. If at any stage, it is found that the information provided by Program Coordinator in the proposal and in presentation by the course coordinator in TF/Steering Committee Meeting is false or there is any deficiency in the basic requirements set by the Department for this support, the Department (DBT) has the right to withdraw the support. The University/Institute has no legal right/claim for this support, if the Department discontinues it.

Sudip S. Mukhopadhyay
Program Coordinator
Name and Designation
Signature and Stamp

Dr. Sudip Shekhar Mukhopadhyay
Professor
Department of Biotechnology
National Institute of Technology Durgapur
Durgapur - 713209, West Bengal, India

*****

24/3/2023
Head of the Institute
Name and Designation
Signature and Stamp

(Prof. Indrajit Basak)
Director
National Institute of Technology
Mahatma Gandhi Avenue
Durgapur - 713209 (W.B.) INDIA

# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

MAHATMA GANDHI AVENUE DURGAPUR

713 209, WEST BENGAL, INDIA

Website: www.nitdgp.ac.in


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**Admission to DBT-Sponsored MSc (Life Sciences) Programme with specialization in Microbial Biotechnology / Animal & Plant Biotechnology (2023-2025)**

**NOTICE**

Prospective candidates are requested to register and apply for the program going through the link **https://nitdgp.ac.in/pg/ .** Details of admission advertisement are appended below.

**Timeline:**

| | |
|---|---|
| Last date of submission of application online | 10 AM, August 07, 2023 |
| Publication of list of candidates applied | August 07, 2023 |
| Publication of merit list for admission | August 10, 2023 |
| Online admission of selected candidates | August 11-12, 2023 |
| Online admission of candidates from wait list, if required | August 18, 2023 |
| Hostel allotment | August 19-20, 2023 |
| Start of classes | August 21, 2023 |

Please note that there is no application charge at the time of form submission. However, application processing fee of ₹1,000/- for UR/EWS/OBC-NCL candidates and ₹500/- for SC/ST/PWD candidates will be collected from the admitted students during admission.

**Seat matrix:**

| UR | UR-PWD | EWS | EWS-PWD | OBC-NCL | OBC-NCL-PWD | SC | SC-PWD | ST | ST-PWD | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 04 | 0 | 01 | 0 | 02 | 01 | 01 | 0 | 01 | 0 | 10 |

**Eligibility criteria:**

**a.** Qualified GAT-B 2023

b. BSc in any branch of life sciences / Physics / Chemistry

c. Marks in Graduation:

- For OPEN/OBC/EWS: 6.5 CGPA (on a 10-point scale) or 60%
- For SC/ST/PWD: 6.0 CGPA (on a 10-point scale) or 55%
- The above mentioned CGPA/Percentage should be awarded by a recognized University/Institute. Conversion from CGPA to percentage or vice versa given by individual Institute will not be considered. Candidates will have to mention CGPA/Percentage as awarded by their University/Institute.
- A candidate appearing for final year graduation examination can apply for admission, but s/he has to submit the course completion certificate as per the format attached, failure of which will lead to cancellation of candidature.

**Application checklist (to be uploaded and later produced during physical reporting):**

1. Scanned colour photo of the candidate (recently taken)
2. Valid proof of date of birth (Class X admit card / Birth certificate)
3. Higher secondary (Class XII) marks sheet
4. All mark sheets of the qualifying degree examination
5. Degree certificate / course completion certificate (as per the format given) of the qualifying degree examination
6. GAT-B 2023 score card
7. Category certificate (OBC-NCL/EWS/SC/ST) from the competent authority (as per the formats given), if applicable. **For OBC-NCL and EWS candidates the certificate must be issued on or**

**after 01/04/2023 from the competent authority.**

8. PWD certificate (as per format given), if applicable.

Please note that

- Caste certificate (SC/ST/OBC-NCL) issued by Maharashtra State must be validated by Social Welfare department (in case of SC and OBC-NCL category) and Tribal Welfare department (in case of ST category) of Maharashtra Government. The SC/ST/OBC-NCL candidates of Maharashtra State have to produce their caste validity certificate in the format available on the website.

- ST certificates from Tamil Nadu state must be issued by the concerned Revenue Divisional Officer.

- Candidates' inability to produce valid caste certificates would lead to cancelation of candidature, irrespective of the caste.

**Application Process:** Register and apply for the programme using the link - https://nitdgp.ac.in/pg/

**Merit List Preparation:**

Merit List for selection of admission will be prepared based on the GAT-B rank/score of the year 2023. In case of the same GAT-B score, to resolve and determine inter-se-merit of candidates, following criteria will be used in the stated order.

i. In the unlikely event of candidates having the same GAT-B rank/score, Date of Birth will be considered. Elder candidate will be given preference.
ii. In the highly unlikely event of candidates having the same GAT-B rank/score and Date of Birth, rank will be decided on the basis of Random number generation. Candidate with lower random number generated will be given preference.

**Hostel:**

The Institute is essentially a residential one and every student shall be required to reside on campus and be a boarder of the Hall of Residence to which s/he is assigned. However, no family accommodation will be provided inside the campus.

**Fees:** Rs. 53,100/- (tentative) for 1st semester other than mess charges. Detailed fee structure will be made available before actual admission process.

**Contact details:**

| | |
|---|---|
| **Prof. Sudit S. Mukhopadhyay**<br>Programme Coordinator<br>Department of Biotechnology<br>NIT Durgapur<br>Phone: 9434788139<br>Email ID: sudit.mukhopadhyay@bt.nitdgp.ac.in | **Head of the Department**<br>Department of Biotechnology<br>NIT Durgapur<br>Email ID: hod@bt.nitdgp.ac.in |

**Sd/-**
**Dean (Academic Courses)**
**NIT Durgapur**
**25.07.2023.**

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