

# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

## 69<sup>TH</sup> MEETING OF THE SENATE

TO BE HELD ON  
**MONDAY, JANUARY 23, 2023**  
**FROM 04:30 P.M. ONWARD**  
AT THE SENATE ROOM, S.N. RAY MEMORIAL BUILDING  
NIT DURGAPUR



## AGENDA NOTES

**Agenda Notes: 69<sup>th</sup> Meeting of the Senate, National Institute of Technology Durgapur**  
**Monday, January 23, 2023**

**Item No. 69.1 Confirmation of the Minutes of the Extraordinary Senate Meeting.**

An Extraordinary Senate Meeting (68<sup>th</sup>) was held on November 29, 2022 at 11 AM in the Senate Room, S. N. Ray Memorial Building. The minutes of the said meeting were mailed to all Senate members for their comments (Annexure 69.1.1). No comments were received from the members.

Submitted to the Senate for confirmation of the Minutes.

**Item No. 69.2 Actions Taken Report on the Resolutions taken in the Extraordinary Senate Meeting (68<sup>th</sup>).**

<b>Reference No.</b>	<b>Agenda Item</b>	<b>Action Taken on the Resolution</b>
1.	To consider the Guidelines for Technology Transfer by NIT Durgapur	To be placed in the next BoG meeting.
2.	To consider the MoU with TIFAC for IP management at NIT Durgapur.	MoU signed and sent to TIFAC.
3.	To discuss the issue of grade reduction for the students due to low attendance.	Resolution duly implemented.
4.	To discuss the issue of re-admission of a B. Tech. student of the Department of Computer Science & Engineering.	Resolution duly implemented.
5.	To consider the issues and proposals of academic importance to be mooted by the Chairman, Senate.	Actions to be initiated by the respective academic committees and the departments
6.	Any other matter with the permission of the chair.	Implementation in progress.

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

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

The Senate may consider the resolutions of UGAC meetings held on 17.11.2022, 15.12.2022, 27.12.2022 (**Annexures 69.3.1, 69.3.2, 69.3.3**) and the UGAC meeting to be held on 19.01.2023 (**Annexure 69.3.4 to be placed on the table**).

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

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

The Senate may consider the resolutions of PGAC meetings held on 17.11.2022, 15.12.2022, 27.12.2022 (**Annexures 69.3.1, 69.3.2, 69.3.3**) and the PGAC meeting to be held on 19.01.2023 (**Annexure 69.3.4 to be placed on the table**).

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

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

The Senate may consider the resolutions of RAC meetings held on 23.11.2022, 16.12.2022, 27.12.2022 (**Annexures 69.5.1, 69.5.2 and 69.5.3**) and the RAC meeting to be held on 18.01.2023 (**Annexure 69.5.4 to be placed on the table**).

**PART D: OTHER MATTERS**

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

The Senate may discuss signing MoU with ISI Kolkata, IIT Madras, IIIT Hyderabad, UEM Kolkata and Brainware University (**Annexures 69.6.1, 69.6.2, 69.6.3, 69.6.4, 69.6.5, 69.6.6**).

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

The Senate may discuss the scope of participation of NIT Durgapur in the PM GatiShakti Master Plan in line with the deliberations made in the online meeting chaired by the Secretary, Higher Education, Government of India, on 10<sup>th</sup> January, 2023 (**Annexure 69.7**).

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

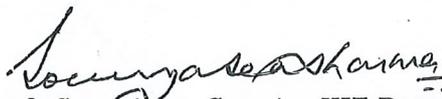
The Senate may consider the norms for instituting new endowment gold medals prepared by a committee constituted for the purpose (**Annexure 69.8**).

**Item No. 69.9 To consider the framework suggested by the Continuing Education Centre for conduction of summer courses'.**

The Senate may consider the framework suggested by the Continuing Education Centre for conduction of summer courses. (**Annexure 69.9**).

**Item No. 69.10 Any other matter with the permission of the Chair.**

Date: 17.01.23

  
Registrar & Secretary, Senate, NIT Durgapur

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**NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR**

**EXTRAORDINARY MEETING OF THE SENATE**

*HELD ON*  
**TUESDAY, NOVEMBER 29, 2022**  
**FROM 11 AM ONWARD**  
*AT THE SENATE ROOM, S.R. RAY MEMORIAL BUILDING*  
*NIT DURGAPUR*



**MINUTES**

## MINUTES: EXTRAORDINARY MEETING OF THE SENATE

### National Institute of Technology Durgapur

The meeting was attended by the following members:

1. **Prof. Anupam Basu** : Chairman  
Director & Chairman-Senate  
NIT Durgapur
2. **Prof. K. Aikat** : Member  
Department of Biotechnology,  
NIT Durgapur
3. **Dr. Debjani Dutta** : Member  
**HoD**, Department of Biotechnology,  
NIT Durgapur
4. **Prof. S. S. Mukhopadhyay** : Member  
Department of Biotechnology,  
NIT Durgapur
5. **Prof. Dalia Dasgupta Mandal** : Member  
Department of Biotechnology,  
NIT Durgapur
6. **Prof. A. Dey** : Member  
Department of Biotechnology,  
NIT Durgapur
7. **Prof. A.K. Patra** : Member  
Department of Chemistry,  
NIT Durgapur
8. **Prof. Rajnarayan Saha** : Member  
Department of Chemistry,  
NIT Durgapur
9. **Prof. Sankar Ch. Moi** : Member  
**HoD** Department of Chemistry,  
NIT Durgapur
10. **Prof. P. Gupta** : Member  
Department of Chemical Engineering,  
NIT Durgapur
11. **Prof. K. C. Ghanta** : Member  
**Dean (R&C)**  
Department of Chemical Engineering,  
NIT Durgapur

**MINUTES: EXTRAORDINARY MEETING OF THE SENATE**

**National Institute of Technology Durgapur**

12. **Prof. S. Dutta** : Member  
Department of Chemical Engineering,  
NIT Durgapur
13. **Prof. Gopinath Halder** : Member  
Department of Chemical Engineering,  
NIT Durgapur
14. **Prof. Tamal Mandal** : Member  
Department of Chemical Engineering,  
NIT Durgapur
15. **Dr. Jaya Sikder** : Member  
**HoD**, Department of Chemical Engineering,  
NIT Durgapur
16. **Prof. P. Pal** : 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

**MINUTES: EXTRAORDINARY MEETING OF THE SENATE**

**National Institute of Technology Durgapur**

23. **Dr. Diptesh Das** : Member  
Associate Professor  
**HoD**, Civil Engineering
24. **Prof. S. Saha** : Member  
Department of Civil Engineering,  
NIT Durgapur
25. **Prof. (Mrs.) T. Pal** : Member  
Dept. of Computer Science & Engg.  
NIT Durgapur
26. **Prof. Tanmay Dey** : Member  
Dept. of Computer Science & Engg.  
NIT Durgapur
27. **Prof. Subrata Nandi** : Member  
**HoD**, Dept. of Computer Science & Engg.  
NIT Durgapur
28. **Prof. (Mrs.) Suchismita Roy** : Member  
**Dean (FW)**  
Dept. of Computer Science & Engg.  
NIT Durgapur
29. **Prof. Subhrabrata Choudhury** : Member  
Dept. of Computer Science & Engg.  
NIT Durgapur
30. **Prof. D. Nandi** : Member  
Dept. of Computer Science & Engg.  
NIT Durgapur
31. **Prof. Avijan Dutta** : Member  
Dept. of Management Studies  
NIT Durgapur
32. **Prof. Gautam Bandopadhyay** : Member  
Dept. of Management Studies  
NIT Durgapur
33. **Dr. Kaushik Mandal** : Member  
**HoD**, Dept. of Management Studies  
NIT Durgapur
34. **Prof. Mousumi Roy** : Member  
Dept. of Management Studies  
NIT Durgapur

**MINUTES: EXTRAORDINARY MEETING OF THE SENATE**

**National Institute of Technology Durgapur**

35. **Prof. A.K. Bhattacharjee** : Member  
Dept. of Electronics & Communication Engineering  
NIT Durgapur
36. **Dr. Durbadal Mondal** : Member  
**HoD**, Dept. of Electronics & Communication Engineering  
NIT Durgapur
37. **Prof. Rowdra Ghatak** : Member  
Dept. of Electronics & Communication Engineering  
NIT Durgapur
38. **Prof. R. Mahapatra** : Member  
**Dean (SW)**  
Dept. of Electronics & Communication Engineering  
NIT Durgapur
39. **Prof. G.K. Mahanti** : Member  
Dept. of Electronics & Communication Engineering  
NIT Durgapur
40. **Prof. Sumit Kundu** : Member  
Dept. of Electronics & Communication Engineering  
NIT Durgapur
41. **Prof. B. Maji** : 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

**MINUTES: EXTRAORDINARY MEETING OF THE SENATE**

**National Institute of Technology Durgapur**

48. **Dr. Arindam Modak** : Member  
HoD, Dept. of Humanities and Social Sciences  
NIT Durgapur
49. **Dr. Lakshmi Kanta Dey** : Member  
HoD, 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. B. Halder** : Member  
Dept. of Mechanical Engineering  
NIT Durgapur
53. **Prof. N. B. Hui** : Member  
**Dean (Academic Courses)**  
Dept. of Mechanical Engineering  
NIT Durgapur
54. **Prof. N. Banerjee** : Member  
Dept. of Mechanical Engineering  
NIT Durgapur
55. **Prof. A. Layek** : Member  
Dept. of Mechanical Engineering  
NIT Durgapur
56. **Dr. Sumit Mukhopadhyay** : Member  
HoD, Dept. of Mechanical Engineering  
NIT Durgapur
57. **Prof. I. Basak** : Member  
Dept. of Mechanical Engineering  
NIT Durgapur
58. **Prof. A. B. Puri** : Member  
Dept. of Mechanical Engineering  
NIT Durgapur
59. **Dr. Supriya Bera** : Member  
HoD, Dept. of MME  
NIT Durgapur
60. **Prof. K. S. Ghosh** : Member  
Dept. of MME  
NIT Durgapur

## MINUTES: EXTRAORDINARY MEETING OF THE SENATE

### National Institute of Technology Durgapur

61. **Dr. P. S. Bhowmik** : Member  
**Associate Dean (Academic Research)**  
Representative of Dean (Academic Research)  
NIT Durgapur
62. **Prof. A. K. Meikap** : Member  
Dept. of Physics  
NIT Durgapur
63. **Dr. Sukadev Sahoo** : Member  
**HoD**, Dept. of Physics  
NIT Durgapur
64. **Dr. Bibhash Sen** : Member  
**Head**, Computer Centre  
NIT Durgapur
65. **Mr. Soumya Sen Sharma** : Secretary  
Registrar  
NIT Durgapur

Prof. Ajitava Raychaudhuri, Prof. Siddhartha Sen, Prof. (Mrs.) Swagata Dasgupta, Sri S. Chatterjee, Mr. B. Bhattacharya, Prof. S. S. Roy, Prof. K. Adhikari, Prof. N.K. Roy, Prof. P. Ray, Prof. K. Bhattacharya, Prof. M. Maji, Prof. D. Sukul, Prof.(Ms.) Surabhi Chaudhuri, Prof. S. Chattopadhyay, Ms. Ishani Ray, Prof.(Mrs.) Kajla Basu, Prof. A. N. Mullick, Prof. Ashis Kr. Mal, Prof. Amit Kr. Chakraborty and Prof. Joydeep Maity could not attend the meeting and were granted leave of absence.

At the outset, the Chairman formally welcomed Prof. (Retd.) Sadanand Sadashiv Gokhale, who was present in the meeting as a Special Invitee. The Chairman, Senate also welcomed the Senate members to the meeting and requested Secretary, Senate to present the agenda of the Extraordinary meeting of the Senate.

**Item No. 1**                    **To consider the Guidelines for Technology Transfer by NIT Durgapur.**

The Senate recommended the proposed Guidelines for Technology Transfer by NIT Durgapur. The Senate also deliberated on the mode of technology transfer (exclusive and non-exclusive) and further recommended sharing of 40% of the technology transfer fee with the innovator/s.

**Item No. 2**                    **To consider the MoU with TIFAC for IP management at NIT Durgapur.**

The Senate recommended signing the proposed MoU with TIFAC for IP management at NIT Durgapur.

**Item No. 3**                    **To discuss the issue of grade reduction for the students due to low attendance.**

The Senate resolved that the reduction in grade for the students due to low attendance shall be made as per the existing academic regulations.

**MINUTES: EXTRAORDINARY MEETING OF THE SENATE**

**National Institute of Technology Durgapur**

However, the issue may be discussed by the appropriate bodies in the future for possible revision in the regulations if needed.

**Item No. 4**

**To discuss the issue of re-admission of a B. Tech. student of the Department of Computer Science & Engineering.**

The Senate resolved that Sambit Saha (Roll No. 20CS8110), a B. Tech. student of Computer Science & Engineering department, shall be allowed to be readmitted in the third semester of the academic session 2023-24 for the continuation of his studies.

**Item No. 5**

**To consider the issues and proposals of academic importance to be mooted by the Chairman, Senate.**

The Chairman, Senate mooted the following proposals for initiating these in the future.

- A new MS by Research program with primary focus on the research project and less on other credit courses may be offered for the research project staff of the Institute.
- A department of Architecture & Regional Planning may be created, and Department of Civil Engineering may take the lead in its planning.
- A multi-disciplinary centre for Design & Mechatronics may be set up. Departments of Mechanical, Civil, Electronics & Communication and Computer Science Engineering may take the lead in its planning.

The Senate highly appreciated the proposals, and resolved to follow it up by the appropriate bodies.

**Item No. 6**

**Any other matter with the permission of the chair.**

Prof. S. S. Gokhale, Chairperson, Board of Governors and a Special Invitee to the meeting, shared his valuable thoughts with the Senate on research and collaboration and wider dissemination of the rules laid down in the NIT Act and Statute among all the faculty members. The Senate noted the same.

The Senate unanimously acknowledged the outstanding contribution of Prof. Anupam Basu towards the development of the Institute and placing it onto a higher trajectory of growth path during his tenure as the Director of the Institute.

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

  
**Registrar & Secretary, Senate  
NIT Durgapur**

**NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR**  
**Academic Section**

Date: 17.11.2022

**Minutes of the meeting of UGAC and PGAC held jointly at the meeting room of the Academic Section on 17.11.2022 (Thursday) at 11.00 am.**

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

**Item # 1 Confirmation of the minutes of UGAC and PGAC held on 31.08.2022.**

The minutes of the UGAC and PGAC meeting held on 31.08.2022 are confirmed.

**Item # 2 To consider the minutes of the meeting of Examination Disciplinary Committee held on 11.10.2022.**

The minutes of the meeting of examination disciplinary committee held on 11.10.2022 is recommended for approval.

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

Sl No.	Reg. No.	Roll No.	Name	Programme
1	21U10460	21J80046	SNEHASIS SATAPATHY	B. TECH
2	21U10644	21D80065	SOUPTIK HAZRA	B.TECH
3	21U10915	21E80092	PAWAN YADAV	B.TECH
4	21U10658	21MM8055	ARGHA MONDAL	B.TECH
5	20U10882	20CS8194	SOUMYADEEP MAITI	B.TECH
6	21U10073	21CS8029	VISHWAJEET KUMAR	B.TECH
7	21U10034	21CS8012	AYAN DAS	B.TECH
8	22U10454	22B80114	V V SAI SRIVATHSAV	B.TECH
9	21U10415	21E80042	DEEPTESH MANDAL	B.TECH
10	22P20018	22HS4004	SUDESHNA MONDAL	MSW
11	22P20169	22CY4514	BIDISHA SARKAR	M.Sc
12	22P10272	22ES4106	SHREYASH ANAND	M.TECH
13	22P10256	22BT4108	MAHI BALAN T	M.TECH
14	22P10157	22EE4303	PRITHWISH BISWAS	M.TECH

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

However, no refund will be admissible to the candidates, who did 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 be forfeited.

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

**Item # 4** **To consider re-admission of Mohd. Shoeb (Roll No. 21D80055, Reg. No. 21U10544) and S Kalyan Kumar (Roll No. 21B80082, Reg. No. 21U10812) to 2<sup>nd</sup> Semester 2022-2023.**

The matter of readmission of the students are recommended for approval.

**Item # 5** **To consider the appeal of Sambit Saha (Roll No. 20CS8110) regarding year lag.**

Sambit Saha (Roll No. 20CS8110) may be allowed to take readmission in 3<sup>rd</sup> semester in the Academic Year 2023-2024.

**Item # 6** **To consider the matter regarding the absence of students from end semester examination due to participation of those students in All India Inter NIT Tournaments 2022-2023.**

The matter regarding the absence of students from end semester examination due to participation of those students in All India Inter NIT Tournaments 2022-2023 will be considered in accordance with the regulations of the programme.

**Item # 7** **To consider the matter of merging two programs or collaborating with other departments to offer and interdisciplinary M.Tech Programs to prepare a revised seat matrix for M. Tech program.**

The matter of merging two programs or collaborating with other departments to offer and interdisciplinary M.Tech Programs to prepare a revised seat matrix for M. Tech program will be discussed in detail in the next meeting of PGAC after receiving communications in this regard from all the Departments.

**Item # 8** **To consider the matter regarding attendance of students below 25% in Odd Semester 2022-2023.**

The matter regarding attendance of students below 25% in Odd Semester 2022-2023 is to be treated as per the provisions of the regulations.

**Item # 9** **To consider the appeal of Sankha Subhra Panja (Roll No. 21C80072) for providing full credit in supplementary examination (CSC01, ECC01, EEC01, BTC01, MAC02, XXC01, EES51) on medical grounds.**

The appeal of Sankha Subhra Panja (Roll No. 21C80072) for providing full credit in supplementary examination (CSC01, ECC01, EEC01, BTC01, MAC02, XXC01, EES51) on medical grounds may be considered as per the provisions of the regulations.

**Item # 10** **To consider the matter regarding correction of name –**

- **AJAENDLA NIVAS (REG. NO. 19U10611) from AJEANDLA NIVAS**
- **AMANDEEP SINGH (ROLL NO. 22ES4512) from AMANDEEP I SINGH**
- **Fathers Name – GADI SRIRAMA MURTHY from GADI SRI RAMA MURTHY**

The matter regarding correction of names may be incorporated accordingly.

**Item # 11** **To consider the appeal for introducing a new program “Integrated M.Sc in Physics”.**

The matter of introduction of new programme “Integrated M.Sc in Physics” is discussed in detail and forwarded to the Senate of the Institute.

**Item # 12 To consider the matter on allotment procedure for Minor Programs.**

The matter on allotment procedure for Minor Programs meant for the students of Undergraduate Programme will be started from 4<sup>th</sup> semester 2022-2023 based on the options given by the students on CGPA obtained in 2<sup>nd</sup> semester examination.

**Item # 13 To discuss the minutes of DAC / DPAC meeting on 22.09.2022 of the Department of Chemical Engineering.**

The matter is discussed.

**Item # 14 To consider the matter regarding usage and maintenance of physical infrastructure in terms of electronic gadgets etc. in 58 class rooms / lecture galleries etc. located at new Academic building and main Academic building.**

The matter is discussed and the guidelines / modalities are appraised / informed regarding the usage.

The meeting ended with vote of thanks to the Chairman.

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

**Dean (Academic Courses)**

**Date: 17.11.2022**

# Annexure - 69.3.2

## NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

### Academic Section

Date: 15.12.2022

**Minutes of the meeting of UGAC and PGAC held jointly at the meeting room of the Academic Section on 15.12.2022 (Thursday) at 11.00 am.**

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

**Item # 1 To confirm the minutes of meeting of the UGAC and PGAC held on 17.11.2022.**

The minutes of the UGAC and PGAC meeting held on 17.11.2022 are confirmed.

**Item # 2 To consider the minutes of the meeting of Examination Disciplinary Committee held on 01.12.2022.**

The minutes of the meeting of examination disciplinary committee held on 01.12.2022 is recommended for approval.

Souvik Mukherjee (Roll No. 19ME8033) may be allowed to appear in supplementary examination on the subject with a decrement of three letter grades but not below "P" in the final grades obtained by him.

**Item # 3 To consider the publication of withheld results of 8<sup>th</sup> semester, issuance of grade card and provisional certificate with respect to office order dated 30.11.2022 vide no. NITD/anti-ragging/2114/2/5, NITD/anti-ragging/2114/1/5, NITD/anti-ragging/2114/3/5 related to**

- Maji Sai Sanjay - 18CH8059
- Surbhi Vinay Kumar - 18BT8023
- Dharavat Koushik - 18MM8044

The result is recommended for publication with the issuance of grade cards and provisional certificate with respect to office order dated 30.11.2022 vide no. NITD/anti-ragging/2114/2/5, NITD/anti-ragging/2114/1/5, NITD/anti-ragging/2114/3/5.

**Item # 4 To consider the appeal on cancellation of admission -**

Sl No.	Reg. No.	Roll No.	Name	Programme
1	22U10469	22D80117	SUMIT DE	B.TECH
2	21U10807	21BT1005	MADHUSUDAN MONDAL	B.TECH
3	22U10619	22B80156	SOHAM BISWAS	B.TECH
4	21U10857	21MM8071	SAPTASWA MUKHERJEE	B.TECH
5	21U10036	21F80004	ANUSKA SINGH	B.TECH
6	22P20166	22MA4510	LAXMAN DAS	M.Sc
7	22P10116	22EC4206	ARPITA DAS	M.TECH
8	22U10802	22A80201	ANWESHA SAHA	B.TECH
9	22U10833	22D80208	SUBHRADEEP BERA	B.TECH
10	21U10303	21ME8065	SAYAM CHAKRABORTY	B.TECH

The matter of withdrawal by the respective students are accepted. The Institute fee and Hostel fee paid by the candidates/students 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 re-admission of Arpan Chandra (Roll No. 21EE8026 ,Reg. No. 21U10238) to 3<sup>rd</sup> semester 2023-2024.

The matter of readmission of the student is recommended for approval.

**Item # 6** To consider the matter regarding correction of name –

- TADUKU EKAMBARAM (ROLL NO. 22CE4104) from EKAMBARAM TADUKU.
- PEDDASUBBANNA GARI BHANUPRAKASH REDDY (ROLL NO. 22EC4208) from BHANUPRAKASH REDDY PEDDASUBBANNA GARI.
- THALLA AKHIL (ROLL NO. 22EC4219) from AKHIL THALLA.
- PURAM TEJA RAJ (ROLL NO. 22EC4216) from TEJA RAJ PURAM.
- NAKKA LALITH TEJA (ROLL NO. 22EE4204) from LALITH TEJA NAKKA.
- SRIPADAM SAI VENKATA KARTHEEK (ROLL NO. 22ME4207) from SAI VENKATA KARTHEEK SRIPADAM.
- SAMUDRALA PURNA SAI (ROLL NO. 22ME4303) from PURNA SAI SAMUDRALA.
- PODIPIREDDY SIVA SURYA NARAYANA (ROLL NO. 22ME4301) from SIVA SURYA NARAYANA PODIPIREDDY.
- G RAHUL RAJ (ROLL NO. 21CE4113) from RAHUL GANGA.
- ANUP YADAV (ROLL NO. 21ME4111) from ANUP ANIL YADAV.

The matter regarding correction of names may be incorporated accordingly.

**Item # 7** To consider the appeal of students who could not appear in the odd semester regular examination 2022-2023 due to medical condition / family condition.

Sl. No.	Roll No.	Name	Program	Subject Codes
1	22EC4305	MD MUSHARRAF AZAM	MTECH	--
2	19EC8042	D SAI TEJA	BTECH-EC, 4 <sup>th</sup> Year	MSC731, CSO743, ECE711, ECE712, ECE719
3	19EE8062	ADITYA MITRA	BTECH-EE, 4 <sup>th</sup> Year	MSC731, EEE714, EEE715, EEE720, HSO740
4	20CY1014	ROHIT CHATTERJEE	INT-CY, 3 <sup>rd</sup> Year	CYC501, CYC502, CYC503, CYC504, ECO541
5	20CS8007	NAVIN KUMAR YADAV	BTECH-CS, 3 <sup>rd</sup> Year	CSC501, CSC502
6	20CS8169	M VENKATA SUHAS	BTECH-CS, 3 <sup>rd</sup> Year	CSC502, CSC503
7	20EE8068	BISHAL SINGH	BTECH-EE, 3 <sup>rd</sup> Year	EEC501, EEC502
8	20ME8191	SAURABH PANDEY	BTECH-ME, 3 <sup>rd</sup> Year	MEC503
9	21CS8144	AIMAN AISHA	BTECH-CS, 2 <sup>nd</sup> Year	PHC331
10	21EC8019	AYUSH BHARTIA	BTECH-EC, 2 <sup>nd</sup> Year	MSC331
11	21EC8073	MUSKAN JAISWAL	BTECH-EC, 2 <sup>nd</sup> Year	PSC331
12	21EE8092	SRABANI SAHOO	BTECH-EE, 2 <sup>nd</sup> Year	EEC301, EEC302, ECC331
13	21ME8036	ARYAN AARAV	BTECH-ME, 2 <sup>nd</sup> Year	MEC301, MEC302, MEC303, MEC304, PHC333
14	21ME8092	SOUMYADIP DEBNATH	BTECH-ME, 2 <sup>nd</sup> Year	MEC301, MEC302, MEC303, MEC304, MEC334
15	21CY1006	SOUMYADIP RAJA	INT-CY, 2 <sup>nd</sup> Year	CYC302

The matter is considered in accordance with the regulations of the program.

**Item # 8 To consider the application of Asish Bauri (Roll No. 20CS8067) regarding absence in classes as his attendance is below 25%.**

The matter regarding attendance of students below 25% in Odd Semester 2022-2023 is to be treated as per the provisions of the regulations.

**Item # 9 To consider the matter on allotment procedure for Minor Programs and revision in curriculum and regulations.**

**(A) Revision in curriculum:**

Curriculums of the following minor programs are slightly revised.

- i) Biotechnology
- ii) Chemical Engineering
- iii) Computer Science and Engineering
- iv) Electronics and Communication Engineering
- v) Electrical Engineering

Revised Curriculum is appended as Annexure.

**(B) Revision in Regulations -**

- (i) A CGPA in excess of 8.0 has 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 will cease to be active.
- (ii) A student may cover the subjects as mentioned in respective Minor Curriculum either as a depth, elective or an open elective subject or as additional credits. He/she can earn up to 8 credits as depth / elective / open elective subjects, rest they will have to take as additional credits to earn a minor.
- (iii) Students enrolled in Dual Degree, Integrated M.Sc. are permitted to pursue minor in other discipline up to their 10th Semester, while the students of BTech should complete the minor requirements by 8th semester.

**(C) Allotment of Minor Programs for the AY2022-23**

The matter on allotment procedure for Minor Programs meant for the students of Undergraduate Programme will be started from 4<sup>th</sup> semester 2022-2023 based on the options given by the students on CGPA obtained in 3<sup>rd</sup> semester examination (CGPA > 8.5). Minor program on Economics offered by the Department of Humanities and Social Sciences and Minor Program on Materials Science & Engineering offered by the Department of Metallurgical and Materials Engineering will not be floated for the AY2022-23.

**Item # 10 To consider introduction of few depth / open elective subjects**

**Proposal for introduction of following subjects are received and recommended for approval of Senate. Syllabus as per specified format is attached as Annexures.**

Sl. No.	Subject Code	Subject Name	Department Proposed	Remarks
1	CS0443	Digital Computer Design	CS	Open Elective
2	MM0842	Nano materials: Processing, Characterization and Properties	MM	Open Elective
3	MS9120	People Analytics	DMS	Elective - MBA
4	MEE626	Energy Management and Auditing	ME	Depth Elective

The meeting ended with vote of thanks to the Chairman.



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

**Dean (Academic Courses)**

**Date: 15.12.2022**

Department of Computer Science and Engineering							
Course Code	Title of the course	Program Core (PCR)/ Elective (PEL)	Total Number of contact hours				Credit
			Lecture (L)	Tutorial (T)	Practical (P)	Total Hours	
CSO443	Digital Computer Design	PEL	3	0	0	3	3
Pre-requisites		Course Assessment methods (Continuous Assessment (CA), Mid-Term (MT), End Term (ET))					
Basic Electronics		CA+ MT + ET [CA: 15%, MT: 25%, ET: 60%]					
Course Outcomes	<ul style="list-style-type: none"> <li>● CO1: Design the hardware building blocks of a computer system.</li> <li>● CO2: Analyze the various parts of a modern computer functional units, bus structure, addressing modes and computer arithmetic.</li> <li>● CO3: Identify the process involved in executing an instruction and fetching the word from memory.</li> <li>● CO4: Design the hardwired and micro-programmed control units and implementation of interrupts.</li> <li>● CO5: Understand the memory hierarchy and design a memory system.</li> </ul>						
Topics Covered	<p><b>UNIT-I: Digital logic circuits:</b> Digital Systems, Binary Logic and Basic Gates, Boolean Algebra, Logic Simplification using K-Map, Combinational Logic Circuits : Binary Adder, Subtractor, Magnitude Comparator, Decoder, Multiplexer; Sequential logic circuits : Flip-flop, register, shift register, Ring counter. (12L)</p> <p><b>UNIT-II: Introduction to Computer Organization:</b> Evolution of computers, Basic Structure of Computers: Basic Operational Concepts, GPR based organization. Bus Structures, Machine Instructions and Programs: Memory Location and Addresses, Memory Operations, Instructions and Instruction Sequencing, Addressing Modes (10L)</p> <p><b>UNIT-III: Processing Unit:</b> Combinational and Sequential ALU, ALU expansion strategies, Floating Point Numbers (IEEE754), Floating Point Operations. Fetching and Storing words, Register Transfer, Execution of instruction, timing &amp; control, instruction cycle, Hard-wired Control, Micro programmed Control: Micro instruction, Microprogram sequencing (10L)</p> <p><b>UNIT-IV: Input/output Organization:</b> Accessing I/O Devices, Interrupt. (4L)</p> <p><b>UNIT-V: Memory System:</b> Basic Concepts, Semiconductor RAM Memories, Read Only Memories, Speed, Size, and Cost, Cache Memories – Mapping Functions, Replacement Algorithms, Virtual Memories, And Secondary Storage. (6L)</p>						
Text Books, and/or reference material	<p><b>Text Books:</b></p> <ol style="list-style-type: none"> <li>1. M.Morris Mano : “Digital logic and Computer Design” Pearson.</li> <li>2. M.Morris Mano : “Computer System Architecture”, Pearson.</li> <li>3. Carl Hamacher, Zvonko Vranesic, Safwat Zaky: Computer Organization, Tata McGraw Hill.</li> </ol> <p><b>Reference Books:</b></p> <ol style="list-style-type: none"> <li>1. William Stallings, “Computer Organization and Architecture”.</li> <li>2. Nicholas P Carter, “Computer Architecture &amp; Organisation”.</li> </ol>						

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

POs COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	2	2	1	-	-	-	-	-	-	1
CO2	3	1	2	2	1	-	-	-	-	-	-	1
CO3	3	1	3	3	1	-	-	-	2	-	-	-
CO4	3	2	3	3	2	-	-	-	1	-	-	-
CO5	3	2	3	3	2	-	-	-	1	-	-	-

Correlation levels 1, 2 or 3 as defined below:

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

Department of Metallurgical and Materials Engineering							
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	
MMO842	Nanomaterials: Processing, Characterization and Properties	Open Elective	3	0	0	3	3
Pre-requisites		Course Assessment methods (Continuous (CT) and end assessment (EA))					
PHC01: Engineering Physics, CYC01: Engineering Chemistry		CT+EA					
Course Outcomes	CO1: Introduction to the basic concept of nanomaterials and nanotechnology CO2: To get an overview of the processing and characterization of nanomaterials CO3: To understand the structure-property co-relation of nanomaterials for various engineering applications						
Topics Covered	<ol style="list-style-type: none"> <li>1. Introduction: Definition of nanomaterials on the basis of dimension. Basic concept of nanotechnology. Types of nanomaterials, uses of nanomaterials, advantage and disadvantage of nanomaterials over the conventional materials. [6 h]</li> <li>2. Processing of nanomaterials: Different methods-bottom up and top down approaches, brief discussion and the bulk dimension of the end product. [8 h]</li> <li>3. Characterization of nano-materials and nano-structured materials by different techniques. [8 h]</li> <li>4. Properties of nanomaterials: Mechanical, electrical, magnetic and optical properties of nanomaterials. Comparative studies between the properties of nanomaterials and conventional materials. Structure-property co-relation of nanomaterials. [12 h]</li> <li>5. Application of nanomaterials: Practical engineering applications of nanomaterials. Future of nanomaterials on the basis of current applications. Environmental effect of the usages of nanomaterials. [6 h]</li> </ol>						
Text Books, and/or reference material	Text Books: <ol style="list-style-type: none"> <li>1. Materials Science and Engineering: An Introduction - William D. Callister, Jr., John Wiley &amp; Sons, Inc., 2007</li> <li>2. Nanomaterials Nanotechnologies and Design – D.L. Schodek, P. Ferreira, M.F. Ashby, Butterworth-Heinemann, 2009</li> <li>3. Introduction to Nanotechnology – C.P. Poole, F.J. Owens, Wiley Interscience, 2003</li> </ol>						

Department of Management Studies							
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	
MS9120	People Analytics	PEL	3	0	0	3	3
Pre-requisites		Course Assessment methods (Continuous (CT) and end assessment (EA))					
NIL		CT+EA					
Course Outcomes	<ul style="list-style-type: none"> <li>• CO1: Appreciate the importance of People analytics</li> <li>• CO2: Analyse various frameworks and tools of people analytics</li> <li>• CO3: Crafting data driven solutions on people issues</li> </ul>						
Topics Covered	<ol style="list-style-type: none"> <li>1. Introduction to People analytics, Types data analytics, A Short History of Analytics Adoption, The Promise of Analytics and People Analytics Bridges. Frameworks of people analytics (8).</li> <li>2. Seven Pillars of People Analytics Workforce Planning Analytics Pillar, Sourcing Analytics Pillar, Acquisition/Hiring Analytics Pillar, On boarding, Culture Fit, and Engagement Pillar, Performance Assessment and Development and Employee Lifetime Value Pillar, Employee Churn and Retention Pillar, Employee Wellness, Health, and Safety Pillar (10).</li> <li>3. Role and Deployment of Statistics and statistical tools in People Analytics: excel Dashboards, SPSS, R, and Tableau Data Visualization. (5).</li> <li>4. Predictive Modelling in People analytics: Workforce Planning Analytics, Talent Sourcing Analytics, Talent Acquisition Analytics, Onboarding and Culture Fit, Talent Engagement Analytics, Analytical Performance Management, Employee Lifetime Value and Cost Modelling, Using Retention Analytics to Protect Your Most Valuable Asset. Employee Wellness, Health, and Safety to Drive Business Performance and Loyalty. (15).</li> <li>5. People Analytics in Mergers and Acquisitions, M&amp;A Deal Continuum, Key Risks in M&amp;A Integrations, HR Data Structures—Due Diligence (2).</li> <li>6. Future of People Analytics: Rise of Employee Behavioural Data , People Analytics Moves beyond the Averages, Automated Big Data Analytics (2)</li> </ol> <p>Note: Suitable Case studies will be discussed.</p>						
	Text Book: <ol style="list-style-type: none"> <li>1. Isson, J. P., &amp; Harriott, J. S. (2016). People analytics in the era of big data: Changing the way you attract, acquire, develop, and retain talent. John Wiley &amp; Sons.</li> <li>2. Ghatak, R. (2022). People Analytics: Data to Decisions.Springer</li> </ol>						

Department of Mechanical Engineering							
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	
<b>MEE626</b>	<b>Energy Management and Auditing</b>	<b>PEL</b>	3	0	0	3	3
Pre-requisites		Course Assessment methods (Continuous (CT) and End Assessment (EA))					
MEC 601		CT + EA					
<b>Course Outcomes</b>	<p><b>CO1:</b> To acquire the knowledge about energy conservation.</p> <p><b>CO2:</b> Knowledge of energy conversion efficiency.</p> <p><b>CO3:</b> Ability to evaluate the performance of pumps, fans, blowers, and industrial boilers etc.</p> <p><b>CO4:</b> To gain knowledge about the energy conservation opportunities in various industrial processes.</p> <p><b>CO5:</b> Students will be able to become energy manager and energy auditor in different industries.</p>						
<b>Topics Covered</b>	<p><b>Introduction:</b> Importance of energy management, Role, Responsibilities and Duties of Energy manager and Energy Auditor, Energy Conservation Act and Calculation of energy consumption, Fundamental calculation in Mechanical, Thermal &amp; Electrical system, Thermal energy basis, Measurement and instruments used in energy audit, Performance parameters for energy audit, Bureau of Energy Efficiency (BEE), Plant Energy Performance (PEP). <b>(10)</b></p> <p>Material and Energy Balance, Energy analysis, Sankey diagram, Financial Management and analysis techniques, Project Management, Time-dependent energy analysis, Energy conversion efficiency, Capacity Factor (CF), Renewable energy sources, Non-renewable energy sources, and Conversion efficiency. <b>(8)</b></p> <p><b>Mechanical and Thermal system:</b> Gross Calorific Value (GCV) and Net Calorific Value (NCV), Combustion, Boiler efficiency testing, excess air control, steam distribution and use of steam traps, condensate recovery, flash steam utilization, Furnace efficiency, thermal insulation, Cogeneration, Waste heat recovery, Energy conservation in pumps, fan and blower, Compressed air systems, Refrigeration and air conditioning systems. <b>(10)</b></p> <p><b>Electrical System:</b> Power factor, energy efficient motors, Lighting levels, Illuminance, Energy Conservation in cooling tower, Waste heat recovery, Trigeneration, Energy conservation building code. <b>(5)</b></p> <p><b>Energy Auditing:</b> Introduction, Importance of energy audit, Uses of energy audit, Basic terms of energy audit, Types of energy audit, Procedure for carrying energy audit, Instruments used for energy audit. <b>(9)</b></p>						
<b>Text Books, and/or reference material</b>	<p><b>Text Books:</b></p> <ol style="list-style-type: none"> <li>1. Energy Management and Conservation Handbook, Frank Kreith and D. Yogi Goswami; CRC Press, Taylor &amp; Francis Group.</li> <li>2. Hand book of Energy Efficiency and Renewable Energy; Frank Kreith and D. Yogi Goswami; CRC Press, Taylor &amp; Francis Group.</li> <li>3. Guide to Energy Management, Seventh Edition, Barney L. Capehart, Wayne C. Turner, William J. Kennedy; CRC Press, Taylor &amp; Francis Group.</li> <li>4. Handbook of Energy Audits, Ninth Edition, Albert Thumann, Terry Niehus, and William J. Younger; CRC Press, Taylor &amp; Francis Group.</li> </ol> <p><b>Reference Books:</b></p> <ol style="list-style-type: none"> <li>1. Introduction to Power Plant Engineering - P K Nag</li> <li>2. Energy Management in Buildings Using Photovoltaics, Elena V. M. Papadopoulou; Springer.</li> </ol>						

# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

## MINOR CURRICULUM OF 2021 ONWARD UNDERGRADUATE ADMISSION BATCH



Recommended in UGAC	: 16/08/2021
Approved by the Senate	: 22/08/2021
Revised in UGAC	: 15/12/2022

**FEW IMPORTANT POINTS**

- (a) Allocation of students in different minor programs will be made centrally based on the choices given by the students before the start of the 4<sup>th</sup> Semester and once a Minor Program is allotted to a student, he/she may opt out from the program, however, changeover to any other minor programs is not possible.
- (b) Students having CGPA of more than or equal to 8.5 at the end of 3<sup>rd</sup> Semester are only eligible to apply. A CGPA in excess of 8.0 has 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 will cease to be active.
- (c) Minimum number of students required to float a minor program is 5, whereas, individual programs may have different maximum limit as mentioned in the table below.
- (d) A student cannot take more than 8 credits in a semester for Minor program. A student may cover the subjects as mentioned in respective Minor Curriculum either as a depth, elective or an open elective subject or as additional credits. He/she can earn up to 8 credits as depth / elective / open elective subjects, rest they will have to take as additional credits to earn a minor.
- (e) Students enrolled in Dual Degree, Integrated M.Sc. are permitted to pursue minor up to their 10th Semester, while the students of BTech should complete the minor requirements by 8th semester.
- (f) Separate SGPA and CGPA calculations will be given for Major programs and Programs including Minor courses. Minor courses will be separately indicated in Grade Card.
- (g) Degree Nomenclature will be different from the existing one. In those cases where the student has earned the required credits for a Minor in another discipline within the stipulated time, this will be mentioned in the degree certificate as:
- B.Tech. in Chemical Engineering with Minor in Electrical Engineering
  - B.Tech. in Chemical Engineering (under Dual Degree program) with Minor in Electrical Engg

Dept	Minor in	Credits	Curriculum for Minor		Who are not eligible	Maximum Permissible Students
			Theory	Lab / Sessional		
BT	Biotechnology	21	4 Core + 2 Elective	1 project	B. Tech. BT and DD-BT	10
CE	Civil Engineering	22	3 Core + 2 Electives	1 lab / project	B. Tech. CE	15
CS	Computer Science & Engineering	21.5	4 Core + 2 Electives	2 labs	B. Tech. CSE	10
CH	Chemical Engineering	22	3 Core + 2 Electives	1 lab	B. Tech. CH and DD-CH	10
CY	Chemistry in Industrial Applications	21	5 Core + 2 Elective	Industrial visit	--	20
EC	Electronics & Communication	23/21	2 Core + 4 Electives	1 lab	B. Tech. EC, B. Tech. EE, B. Tech. CSE	20
EE	Electrical Engineering	21.5	5 Core	2 labs	B. Tech. EE	20
HS	Economics	20	8 Core	No Labs	--	20
MA	Mathematics	20	5 Core	No Labs	--	10
MM	Materials Science & Engineering	21	3 Core + 2 Electives	1 lab	B. Tech. MM	10
MS	Financial Management	20	6 Core	2 labs	--	20
MS	Marketing Management	20	6 Core	2 labs	--	20
MS	Systems and Operations Management	21	6 Core	2 labs	--	20
PH	Physics	22	4 Core + 1 Electives	1 lab	--	20

**DEPARTMENT OF BIOTECHNOLOGY****Program Name: Minor in Biotechnology****CURRICULUM**

<b>Semester - 4</b>							
<b>Sl. No</b>	<b>Subject Code</b>	<b>Subject</b>	<b>L</b>	<b>T</b>	<b>S</b>	<b>C</b>	<b>H</b>
1	BTM401	Microbiology and Cell Biology	3	1	0	4	4
		<b>TOTAL</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>4</b>
<b>Semester -5</b>							
<b>Sl. No</b>	<b>Subject Code</b>	<b>Subject</b>	<b>L</b>	<b>T</b>	<b>S</b>	<b>C</b>	<b>H</b>
1	BTM501	Biochemistry and Enzyme Technology	3	1	0	4	4
2	BTO541	Introduction to Computational Biology	3	0	0	3	3
		<b>TOTAL</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>7</b>
<b>Semester - 6</b>							
<b>Sl. No</b>	<b>Subject Code</b>	<b>Subject</b>	<b>L</b>	<b>T</b>	<b>S</b>	<b>C</b>	<b>H</b>
1	BTM601	Molecular Biology and Immunology	3	1	0	4	4
2	BTM651	Project	0	0	2	2	2
		<b>TOTAL</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>6</b>
<b>Semester - 7</b>							
<b>Sl. No</b>	<b>Subject Code</b>	<b>Subject</b>	<b>L</b>	<b>T</b>	<b>S</b>	<b>C</b>	<b>H</b>
1	BTM701	Bioprocess Engineering Fundamentals	3	1	0	4	4
		<b>TOTAL</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>4</b>
		<b>TOTAL</b>	<b>15</b>	<b>4</b>	<b>2</b>	<b>21</b>	<b>21</b>

**List of electives:**

<b>Elective – I</b>		<b>Elective - II</b>	
<b>Subject Code</b>	<b>Subject Name</b>	<b>Subject Code</b>	<b>Subject Name</b>
BTE 610	Animal Biotechnology	BTE 711	Cancer Biology & Cell Signalling
BTE 613	Human Genomics	BTE 713	Biopharmaceutical Process Design
BTE 614	Molecular Virology	BTE 714	Bioenergy
BTE 615	Bio-metallurgy	BTE 715	Project Engineering for Biotechnology
BTE 616	Nano-biotechnology	BTE 716	Structural Biology
BTE 617	Marine Biotechnology	BTE 717	Environmental Biotechnology
BTE 618	Folding, Misfolding and Diseases	BTE 718	Proteomics and Protein Engineering
BTE 619	Engineering Resistance in Plants	BTE 719	Molecular Modelling & Drug Design
BTE 810	Plant Developmental Biology	BTE 720	Nano-therapeutics
BTE 811	Bioprocess Plant & Equipment Design	BTE 724	Application of Molecular Cloning
BTE 812	Medical & Pharmaceutical Biotechnology	BTE 721	Biomaterials
BTE 813	GM Crops	BTE 722	Vaccine Technology
BTE 814	Bioethics & IPR		
BTE 815	Environmental Microbiome		
	Machine learning for genomics		

**DEPARTMENT OF CIVIL ENGINEERING**

Program Name: Minor in Civil Engineering

**CURRICULUM**

Sl. No		Subject	L	T	S	C	H
<b>Group A (Compulsory)</b>							
1	CEC301	Solid Mechanics	3	1	0	4	4
2	CEC303	Building Construction & Concrete Technology	3	1	0	4	4
3	CEC401	Structural Analysis-I	3	1	0	4	4
<b>Group-B (Minimum Two)</b>							
1	CEC302	Fluid Mechanics	3	0	0	3	3
2	CEC402	Design of Concrete Structures	3	1	0	4	4
3	CEC502	Design of Steel Structure	3	1	0	4	4
4	CEC503	Soil Mechanics	3	0	0	3	3
5	CEC504	Transportation Engineering	3	1	0	4	4
6	CEC602	Foundation Engineering	3	0	0	3	3
7	CEC601	Water Resource Engineering	3	1	0	4	4
8	CEC603	Environmental Engineering	3	1	0	4	4
<b>Group-C (Minimum one)</b>							
1	CES554	Surveying Laboratory & Estimation Sessional	1	0	3	2.5	4
2	CES553	Transportation Engineering & Soil Mechanics Laboratory	0	0	3	1.5	3
3	CES652	Concrete Technology Laboratory	0	0	3	1.5	3
4	CES651	Environmental Engineering Laboratory & Computational Laboratory- I	0	0	3	1.5	3
5	CES751	Project - I	0	0	4	2	4
		<b>TOTAL</b>				<b>20</b>	

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

Program Name: Minor in Computer Science and Engineering

**CURRICULUM**

Sl. No	Course Code	Course Name	Pre-requisite	L-T-P	Credits
1	CSO441	Data Structures and Algorithms	Introduction to Computing	3-0-0	3
2	CSO443	Digital Computer Design	Introduction to Computing	3-0-0	3
2	CSO543	Computer Organisation	Logic Design/Digital logic/Digital Electronics	3-0-0	3
3	CSO544	Operating Systems	Computer Organisation / Digital Computer Design	3-0-0	3
4	CSO542	Database Management System	Data Structures and Algorithms	3-0-0	3
5*	CSE6XX	Elective I	As required	3-0-0	3
6*	CSE7XX	Elective II	As required	3-0-0	3
7	CSS352	Data Structures and Algorithms Laboratory	Data Structures and Algorithms (concurrently permitted)	0-0-4	2
8	CSS653	Database Management Systems Laboratory	Database Management Systems (concurrently permitted)	0-0-3	1.5
<b>Total Credits</b>					<b>21.5</b>

\*Electives I &amp; II should be from the Depth Electives offered to the B. Tech CSE students

**Semester-wise Plan of subjects**

Semester	Subject Codes	Credits Earned
Fourth	CSO441 CSO443	6
Fifth	CSO542 CSO543 CSS352	8
Sixth	CSE6XX CSS653	4.5
Seventh	CSE7XX	3

**DEPARTMENT OF CHEMICAL ENGINEERING**

Program Name: Minor in Chemical Engineering

**CURRICULUM**

Sl. No.	Subject Code	Name of the Subject	L	T	S	C	H
<b>Compulsory Core</b>							
1.	CHC403	Mass Transfer I	3	1	0	4	4
2.	CHC501	Chemical Reaction Engineering	3	1	0	4	4
3.	CHC601	Transport Phenomena	3	1	0	4	4
<b>Compulsory Laboratory</b>							
4.	CHS652	Chemical Reaction Engineering Laboratory	0	0	3	2	3
<b>Electives</b>							
5.	CHX7XX	Elective-I	3	1	0	4	4
6.	CHX7XX	Elective-II	3	1	0	4	4
<b>Total</b>			<b>15</b>	<b>5</b>	<b>3</b>	<b>22</b>	<b>23</b>

<b>List of Elective Subjects</b>							
Sl. No.	Subject Code	Name of the Subject	L	T	S	C	H
1.	CHC301	Process Calculations	3	1	0	4	4
2.	CHC302	Chemical Engineering Thermodynamics	3	1	0	4	4
3.	CHC402	Mechanical Operations	3	1	0	4	4
4.	CHC504	Instrumentation and Process Control	3	1	0	4	4
5.	CHC602	Petroleum Refining and Petrochemicals Engineering	3	1	0	4	4
6.	CHO441	Process Heat Transfer	3	0	0	3	3
7.	CHO541	Solid and Hazardous Waste Management	3	0	0	3	3
8.	CHO841	Bioengineering & Industrial applications	3	0	0	3	3
9.	CHO851	Energy, Environment & Sustainability	3	0	0	3	3

**DEPARTMENT OF CHEMISTRY**

Program Name: Minor in Chemistry and Industrial Applications

**CURRICULUM**

Sl No.	Subject Code	Subject	L-T-P	Credit point
1	CYM401	Power plant chemistry & corrosion Engineering	3-0-0	3
2	CYM501	Industrial chemistry	3-0-0	3
3	CYM502	Organometallic compounds: spectroscopic characterization and applications	3-0-0	3
4	CYM601	Analytical and environmental chemistry	3-0-0	3
5	CYM602	Spectroscopic Techniques and Experimental Electrochemistry	3-0-0	3
6	CYM701	Introduction to computational material design	3-0-0	3
7	CYM702	Natural Products and Drug design	3-0-0	3
			<b>Total</b>	<b>21</b>

## DEPARTMENT OF ELECTRONICS AND COMMUNICATION

Program Name: Minor in Electronics & Communication Engineering

### CURRICULUM

Semester - 4							
Sl. No	Subject Code	Subject	L	T	S	C	H
1	ECC402 / CSC302 / EEC403	Digital Circuits and Systems / Digital Logic Design / Digital Electronics	3	1/0	0	4/3	4/3
2	ECO441 / ECO841	Elective I	3	0	0	3	3
Semester - 5							
Sl. No		Subject	L	T	S	C	H
1	ECC302 / ECC331	Electronic Devices and Circuits - I / Analog Electronics	3	1	0	4	4
Semester - 6							
Sl. No		Subject	L	T	S	C	H
1	ECC403 / ECE616	Elective II	3	1/0	0	4/3	4/3
2	ECO843 / ECO853	Elective III	3	0	0	3	3
Semester - 7							
Sl. No		Subject	L	T	S	C	H
1	ECO742 / ECO743	Elective IV	3	0	0	3	3
2	ECM7XX	Micro-credit Course	0	0	3	2	3
		<b>TOTAL</b>	<b>18</b>	<b>2</b>	<b>2</b>	<b>23/ 21</b>	<b>24/ 22</b>

#### List of electives:

Elective - I		Elective - II	
Subject Code	Subject Name	Subject Code	Subject Name
ECO441	Communication Engineering	ECC403	Electromagnetic Theory and Transmission Lines
ECO841	Signal Processing	ECE616	VLSI Technology
Elective - III		Elective - IV	
Subject Code	Subject Name	Subject Code	Subject Name
ECO850	Communication Network	ECO742	Mobile Communication
ECO853	Electronic System Design	ECO743	Internet of Things

## DEPARTMENT OF ELECTRICAL ENGINEERING

Program Name: Minor in Electrical Engineering

### CURRICULUM

Sl No	Subject Code	Subject Name	Semester	Prerequisites	L-T-P	Credit
1	EEC301 / EEE710	Network Analysis and Synthesis ( <b>Except ECE</b> ) / Renewable Energy Systems ( <b>For ECE only</b> )	Odd	Basic Electrical Engineering	3-1-0 / 3-0-0	4 / 3
2	EEC302 / EEE713	Electrical and Electronic Measurement ( <b>Excluding the students who have already taken ECE621</b> ) / Electrical Drives ( <b>For ECE only</b> )	Odd	Basic Electrical Engineering / Electrical Machines, Power Electronics	3-1-0 / 3-0-0	4/3
3	EEC401	Power Systems-I	Even	Basic Electrical Engineering	3-1-0	4
4	EEC402 / EEC501	Electrical Machines-I ( <b>Except ME</b> ) / Electrical Machines-II ( <b>For ME only</b> )	Even / Odd	Basic Electrical Engineering / Electrical Machines	3-1-0	4
5	EEC504 / EEE615	Power Electronics ( <b>Excluding the students who have already taken ECE624</b> ) / Advanced Power Electronics ( <b>For ECE only</b> )	Odd / Even	Basic Electronics / Power Electronics	3-1-0 / 3-0-0	4 / 3
6	EES 552 / EES 651/	Electrical Machines Laboratory-I ( <b>Except ME</b> ) / Electrical Machines Laboratory-II ( <b>For ME only</b> )	Odd / Even	Basic Electrical Engineering	0-0-3	1.5
<b>Total Credit</b>						<b>21.5 / 18.5</b>

**Note:**

1. Electrical Machines-I (EEC402) and Electrical Machines Laboratory – I (EES 552) are for other than Mechanical Engineering students.
2. Electrical Machines-II (EEC501) and Electrical Machines Laboratory – II (EES 651) are only for Mechanical Engineering students.

**DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES**

Program Name: Minor in Economics

**CURRICULUM**

Total Credit Points - 20

Sl. No.	Sem.	Subject Code	Name of the Subject	L	T	S	C	H
1.	4 <sup>th</sup>	HSO4XX	Indian Economics	3	0	0	3	3
2.	5 <sup>th</sup>	HSMXXX	Public Finance	2	0	0	2	2
3.	5 <sup>th</sup>	HSO541	Statistical Techniques for Economics	3	0	0	3	3
4.	6 <sup>th</sup>	HSMXXX	Managerial Economics	2	0	0	2	2
5.	6 <sup>th</sup>	HSMXXX	Quantitative Economics	3	0	0	3	3
6.	7 <sup>th</sup>	HSO741	Development Economics & Sustainable Development	3	0	0	3	3
7.	8 <sup>th</sup>	HSMXXX	International Trade	2	0	0	2	2
8.	8 <sup>th</sup>	HSMXXX	Economics of Growth	2	0	0	2	2
<b>Total</b>				<b>20</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>20</b>

**DEPARTMENT OF MATHEMATICS****Program Name: Minor in Mathematics****CURRICULUM**

- ❖ **At least five subjects (with minimum 20 credit points) are to be chosen to earn a minor in “Mathematics” with at least one from each Group.**

**Group-A (At least one subject)**

Course Code	Name of the Subject	Prerequisites	L-T-P	Total Credit	Semester
MA1101	Complex Analysis	MEC	3-1-0	4	ODD
MA1104	Linear Algebra	MEC	3-1-0	4	ODD
MA1105	Real Analysis	MEC	3-1-0	4	ODD
MA4101	Topology	MEC, Real Analysis	3-1-0	4	EVEN
MA2102	Functional Analysis	MEC, Real Analysis	3-1-0	4	EVEN
MA2103	Modern Algebra	MEC	3-1-0	4	EVEN

**Group-B (At least one subject)**

Course Code	Name of the Subject	Prerequisites	L-T-P	Total Credit	Semester
MA1103	Ordinary and Partial Differential Equations	MEC	3-1-0	4	ODD
MA3102	Graph Theory	MEC	2-1-0	3	ODD
MA3103	Fluid Dynamics	MEC, Ordinary and Partial Differential Equations	3-1-0	4	ODD
MA2101	Integral Transforms and Integral Equations	MEC	3-1-0	4	EVEN
MA2104	General Mechanics and Variational Calculus	MEC, Ordinary and Partial Differential Equations	4-1-0	5	EVEN
MA2105	Numerical Analysis	MEC	3-1-0	4	EVEN

**Group-C (At least one subject)**

Course Code	Name of the Subject	Prerequisites	L-T-P	Total Credit	Semester
MA1102	Probability & Stochastic Processes	MEC	3-1-0	4	ODD
MA3101	Operations Research	MEC	3-1-0	4	ODD
MA9113	Mathematical Modeling	MEC, Ordinary and Partial Differential Equations	3-1-0	4	ODD
MA9116	Automata and Algorithms	MEC	3-1-0	4	ODD
MA4102	Generalized Functions and Wavelets	MEC	2-1-0	3	EVEN
MA9122	Algebraic Coding Theory	MEC, Modern Algebra	3-1-0	4	EVEN
MA9123	Dynamical Systems and Chaos Theory	MEC, Linear Algebra	3-1-0	4	EVEN

## DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING

**Program Name: Minor in Materials Science and Engineering**

### CURRICULUM

<b>Description</b>	Materials Science and Engineering is an interdisciplinary subject that uses basic science and engineering knowledge but has its special character. It is constantly developing new and exciting materials such as nanomaterials, high-temperature, and lightweight materials, green materials, and sustainable biomaterials for tissue engineering. Material Science combines a broad knowledge base and puts it to diverse practical and commercial use.						
Courses & Credit points	<b>Five (5) courses (min) and one lab (min) (Credit points:21)</b>						
	<b>Subject code</b>	<b>Subject name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>H</b>	<b>C</b>
<b>Section A</b> (Any Three) Total Credit to be earned: <b>12</b>	MMC301	Metallurgical Thermodynamics and Kinetics	3	1	0	4	4
	MMC302	Introduction to Metallurgy and Materials	3	1	0	4	4
	MMC402	Phase Transformation and Phase Equilibria	3	1	0	4	4
	MMC403	Materials Characterization	3	1	0	4	4
	MMC501	Manufacturing Processes	3	1	0	4	4
	MMC503	Fundamentals of Plastic Deformation & Strengthening of Materials	3	1	0	4	4
<b>Section B</b> (Any Two) Total Credit to be earned: <b>6</b>	MME611	Electronic and Thermal Properties of Materials	3	0	0	3	3
	MME614	Nano Science and Technology	3	0	0	3	3
	MME617	Metal Joining Processes	3	0	0	3	3
	MME615	Ceramic Technology	3	0	0	3	3
	MME710	Functional Materials	3	0	0	3	3
	MME712	Computational Materials Engineering	3	0	0	3	3
Laboratory (Any One, which is related to one choice of Section A) Total Credit to be earned: <b>3</b>	MMS351	Metallurgical Thermodynamics and Kinetics Lab	0	0	3	3	3
	MMS452	Phase Transformation and Phase Equilibria Lab	0	0	3	3	3
	MMS551	Manufacturing Processes Lab - I	0	0	3	3	3
	MMS553	Plastic Deformation & Strengthening of Materials Lab	0	0	3	3	3
	MMS653	Materials Characterization Lab-I	0	0	3	3	3

**DEPARTMENT OF MANAGEMENT STUDIES****Program Name: Minor in Financial Management****CURRICULUM**

<b>Semester</b>	<b>Subject Code</b>	<b>Name of the subject</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
Sem V	MS1003	Management Accounting	2	0	2	3
	MSM551	Financial Lab-I	0	0	2	1
Sem VI	MS2003	Financial Management	2	0	2	3
	MSM651	Financial Lab-II	0	0	2	1
Sem VII	MS9313	Banking Management	3	0	0	3
	MS9314	Investment and Portfolio Management	3	0	0	3
Sem VIII	MS9318	International Finance	3	0	0	3
	MS9320	Corporate Finance	3	0	0	3
<b>Total</b>						20

**DEPARTMENT OF MANAGEMENT STUDIES**

Program Name: Minor in Marketing Management

**CURRICULUM**

Semester	Subject Code	Name of the subject	L	T	P	Credits
Sem V	MS1002	Marketing Management	2	0	2	3
	MSM552	Marketing Lab-I	0	0	2	1
Sem VI	MS2007	Research Methodology	2	0	2	3
	MSM652	Marketing Lab-II	0	0	2	1
Sem VII (Any two will be decided by DAC, DMS)	MS9215	Digital Marketing	3	0	0	3
	MS9217	Marketing Research	3	0	0	3
	MS9211	Marketing Communications	3	0	0	3
	MS9212	Consumer Behaviour	3	0	0	3
Sem VIII (Any two will be decided by DAC, DMS)	MS9221	Marketing Analytics	3	0	0	3
	MS9223	Sales and Distribution Management	3	0	0	3
	MS9219	Service Marketing and Retail Management	3	0	0	3
<b>Total</b>						20

**DEPARTMENT OF MANAGEMENT STUDIES****Program Name: Minor in System and Operations Management****CURRICULUM**

<b>Semester</b>	<b>Subject Code</b>	<b>Name of the subject</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
Sem V	MS1004	Quantitative Techniques in Business	3	1	0	4
	MSM553	System Lab-I	0	0	2	1
Sem VI	MS2004	Operations research	2	0	2	3
	MSM653	System Lab-II	0	0	2	1
Sem VII	MS9413	Introduction to Data Science	3	0	0	3
	MS9416	Supply Chain Management	3	0	0	3
Sem VIII	MS9419	Logistics Management	3	0	0	3
	MS9420	Decision Modelling	3	0	0	3
<b>Total</b>						21

**DEPARTMENT OF PHYSICS**

Program Name: Minor in Physics

**CURRICULUM****Compulsory Courses**

Subject Code	Subject	L - T - P	Credit
PHM401	Classical Mechanics	3 - 1 - 0	4
PHM402	Quantum Mechanics	3 - 1 - 0	4
PHM501	Thermal and Statistical Physics	3 - 1 - 0	4
PHM502	Condensed Matter Physics	3 - 1 - 0	4
PHS651	Physics Laboratory	0 - 0 - 4	2
<b>TOTAL</b>			<b>18</b>

**Elective Courses**

Subject Code	Name of the Subject	L - T - P	Credit
PHM61X	Elective - I	3 - 1 - 0	4
<b>TOTAL</b>			<b>22</b>

**LIST OF ELECTIVE PAPERS**

Sl. No.	Subject Code	Name of the Subject	L-T-P	Credit
1	PHM610	Nuclear and Particle Physics	3 - 1 - 0	4
2	PHM611	Mathematical Physics	3 - 1 - 0	4
3	PHM612	Electrodynamics	3 - 1 - 0	4
4	PHM613	Electronics	3 - 1 - 0	4

# Annexure - 69.3.3

## NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

### Academic Section

Date: 27.12.2022

**Minutes of the meeting of UGAC and PGAC held jointly on 27.12.2022 (Tuesday) at 3.00 pm on Google meet platform.**

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

**Item # 1 To confirm the minutes of meeting of the UGAC and PGAC held on 15.12.2022.**

The minutes of the UGAC and PGAC meeting held on 15.12.2022 are confirmed except incorporation of revision in Minor Curriculum in Mathematics as suggested by the concerned DAC.

**Item # 2 To consider the publication of results for Odd semester 2022- 2023 – regular and Backlog examinations.**

The provisional result for Odd semester 2022- 2023 – regular and Backlog examinations (other than first year UG) is recommended for publication.

Since, supplementary examinations for Odd semester 2022- 2023 – regular and Backlog examinations (other than first year UG) will begin from January 09, 2023, deadline for submission of corrigendum result (if any) is finalized as January 04, 2023 and such result shall be published on January 06, 2023.

**Item # 3 To consider the matter of absence from odd semester 2022 – 2023 regular / backlog examinations and first semester midterm 2022 – 2023 examinations.**

The matter is considered in accordance with the regulations of the program.

The meeting ended with vote of thanks to the Chairman.



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

**Dean (Academic Courses)**

**Date: 27.12.2022**

# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

## MINOR CURRICULUM OF 2021 ONWARD UNDERGRADUATE ADMISSION BATCH



Recommended in UGAC	: 16/08/2021
Approved by the Senate	: 22/08/2021
Revised in UGAC	: 15/12/2022

**FEW IMPORTANT POINTS**

- (a) Allocation of students in different minor programs will be made centrally based on the choices given by the students before the start of the 4<sup>th</sup> Semester and once a Minor Program is allotted to a student, he/she may opt out from the program, however, changeover to any other minor programs is not possible.
- (b) Students having CGPA of more than or equal to 8.5 at the end of 3<sup>rd</sup> Semester are only eligible to apply. A CGPA in excess of 8.0 has 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 will cease to be active.
- (c) Minimum number of students required to float a minor program is 5, whereas, individual programs may have different maximum limit as mentioned in the table below.
- (d) A student cannot take more than 8 credits in a semester for Minor program. A student may cover the subjects as mentioned in respective Minor Curriculum either as a depth, elective or an open elective subject or as additional credits. He/she can earn up to 8 credits as depth / elective / open elective subjects, rest they will have to take as additional credits to earn a minor.
- (e) Students enrolled in Dual Degree, Integrated M.Sc. are permitted to pursue minor up to their 10th Semester, while the students of BTech should complete the minor requirements by 8th semester.
- (f) Separate SGPA and CGPA calculations will be given for Major programs and Programs including Minor courses. Minor courses will be separately indicated in Grade Card.
- (g) Degree Nomenclature will be different from the existing one. In those cases where the student has earned the required credits for a Minor in another discipline within the stipulated time, this will be mentioned in the degree certificate as:
- B.Tech. in Chemical Engineering with Minor in Electrical Engineering
  - B.Tech. in Chemical Engineering (under Dual Degree program) with Minor in Electrical Engg

Dept	Minor in	Credits	Curriculum for Minor		Who are not eligible	Maximum Permissible Students
			Theory	Lab / Sessional		
BT	Biotechnology	21	4 Core + 2 Elective	1 project	B. Tech. BT and DD-BT	10
CE	Civil Engineering	22	3 Core + 2 Electives	1 lab / project	B. Tech. CE	15
CS	Computer Science & Engineering	21.5	4 Core + 2 Electives	2 labs	B. Tech. CSE	10
CH	Chemical Engineering	22	3 Core + 2 Electives	1 lab	B. Tech. CH and DD-CH	10
CY	Chemistry in Industrial Applications	21	5 Core + 2 Elective	Industrial visit	--	20
EC	Electronics & Communication	23/21	2 Core + 4 Electives	1 lab	B. Tech. EC, <del>B. Tech. EE</del> , B. Tech. CSE	20
EE	Electrical Engineering	21.5	5 Core	2 labs	B. Tech. EE	20
HS	Economics	20	8 Core	No Labs	--	20
MA	Mathematics	20	5 Core	No Labs	--	10
MM	Materials Science & Engineering	21	3 Core + 2 Electives	1 lab	B. Tech. MM	10
MS	Financial Management	20	6 Core	2 labs	--	20
MS	Marketing Management	20	6 Core	2 labs	--	20
MS	Systems and Operations Management	21	6 Core	2 labs	--	20
PH	Physics	22	4 Core + 1 Electives	1 lab	--	20

**DEPARTMENT OF BIOTECHNOLOGY****Program Name: Minor in Biotechnology****CURRICULUM**

<b>Semester - 4</b>							
<b>Sl. No</b>	<b>Subject Code</b>	<b>Subject</b>	<b>L</b>	<b>T</b>	<b>S</b>	<b>C</b>	<b>H</b>
1	BTM401	Microbiology and Cell Biology	3	1	0	4	4
		<b>TOTAL</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>4</b>
<b>Semester -5</b>							
<b>Sl. No</b>	<b>Subject Code</b>	<b>Subject</b>	<b>L</b>	<b>T</b>	<b>S</b>	<b>C</b>	<b>H</b>
1	BTM501	Biochemistry and Enzyme Technology	3	1	0	4	4
2	BTO541	Introduction to Computational Biology	3	0	0	3	3
		<b>TOTAL</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>7</b>
<b>Semester - 6</b>							
<b>Sl. No</b>	<b>Subject Code</b>	<b>Subject</b>	<b>L</b>	<b>T</b>	<b>S</b>	<b>C</b>	<b>H</b>
1	BTM601	Molecular Biology and Immunology	3	1	0	4	4
2	BTM651	Project	0	0	2	2	2
		<b>TOTAL</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>6</b>
<b>Semester - 7</b>							
<b>Sl. No</b>	<b>Subject Code</b>	<b>Subject</b>	<b>L</b>	<b>T</b>	<b>S</b>	<b>C</b>	<b>H</b>
1	BTM701	Bioprocess Engineering Fundamentals	3	1	0	4	4
		<b>TOTAL</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>4</b>
		<b>TOTAL</b>	<b>15</b>	<b>4</b>	<b>2</b>	<b>21</b>	<b>21</b>

**List of electives:**

<b>Elective – I</b>		<b>Elective - II</b>	
<b>Subject Code</b>	<b>Subject Name</b>	<b>Subject Code</b>	<b>Subject Name</b>
BTE 610	Animal Biotechnology	BTE 711	Cancer Biology & Cell Signalling
BTE 613	Human Genomics	BTE 713	Biopharmaceutical Process Design
BTE 614	Molecular Virology	BTE 714	Bioenergy
BTE 615	Bio-metallurgy	BTE 715	Project Engineering for Biotechnology
BTE 616	Nano-biotechnology	BTE 716	Structural Biology
BTE 617	Marine Biotechnology	BTE 717	Environmental Biotechnology
BTE 618	Folding, Misfolding and Diseases	BTE 718	Proteomics and Protein Engineering
BTE 619	Engineering Resistance in Plants	BTE 719	Molecular Modelling & Drug Design
BTE 810	Plant Developmental Biology	BTE 720	Nano-therapeutics
BTE 811	Bioprocess Plant & Equipment Design	BTE 724	Application of Molecular Cloning
BTE 812	Medical & Pharmaceutical Biotechnology	BTE 721	Biomaterials
BTE 813	GM Crops	BTE 722	Vaccine Technology
BTE 814	Bioethics & IPR		
BTE 815	Environmental Microbiome		
	Machine learning for genomics		

**DEPARTMENT OF CIVIL ENGINEERING**

Program Name: Minor in Civil Engineering

**CURRICULUM**

Sl. No		Subject	L	T	S	C	H
<b>Group A (Compulsory)</b>							
1	CEC301	Solid Mechanics	3	1	0	4	4
2	CEC303	Building Construction & Concrete Technology	3	1	0	4	4
3	CEC401	Structural Analysis-I	3	1	0	4	4
<b>Group-B (Minimum Two)</b>							
1	CEC302	Fluid Mechanics	3	0	0	3	3
2	CEC402	Design of Concrete Structures	3	1	0	4	4
3	CEC502	Design of Steel Structure	3	1	0	4	4
4	CEC503	Soil Mechanics	3	0	0	3	3
5	CEC504	Transportation Engineering	3	1	0	4	4
6	CEC602	Foundation Engineering	3	0	0	3	3
7	CEC601	Water Resource Engineering	3	1	0	4	4
8	CEC603	Environmental Engineering	3	1	0	4	4
<b>Group-C (Minimum one)</b>							
1	CES554	Surveying Laboratory & Estimation Sessional	1	0	3	2.5	4
2	CES553	Transportation Engineering & Soil Mechanics Laboratory	0	0	3	1.5	3
3	CES652	Concrete Technology Laboratory	0	0	3	1.5	3
4	CES651	Environmental Engineering Laboratory & Computational Laboratory- I	0	0	3	1.5	3
5	CES751	Project - I	0	0	4	2	4
		<b>TOTAL</b>				<b>20</b>	

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

Program Name: Minor in Computer Science and Engineering

**CURRICULUM**

Sl. No	Course Code	Course Name	Pre-requisite	L-T-P	Credits
1	CSO441	Data Structures and Algorithms	Introduction to Computing	3-0-0	3
2	CSO443	Digital Computer Design	Introduction to Computing	3-0-0	3
2	CSO543	Computer Organisation	Logic Design/Digital logic/Digital Electronics	3-0-0	3
3	CSO544	Operating Systems	Computer Organisation / Digital Computer Design	3-0-0	3
4	CSO542	Database Management System	Data Structures and Algorithms	3-0-0	3
5*	CSE6XX	Elective I	As required	3-0-0	3
6*	CSE7XX	Elective II	As required	3-0-0	3
7	CSS352	Data Structures and Algorithms Laboratory	Data Structures and Algorithms (concurrently permitted)	0-0-4	2
8	CSS653	Database Management Systems Laboratory	Database Management Systems (concurrently permitted)	0-0-3	1.5
<b>Total Credits</b>					<b>21.5</b>

\*Electives I &amp; II should be from the Depth Electives offered to the B. Tech CSE students

**Semester-wise Plan of subjects**

Semester	Subject Codes	Credits Earned
Fourth	CSO441 CSO443	6
Fifth	CSO542 CSO543 CSS352	8
Sixth	CSE6XX CSS653	4.5
Seventh	CSE7XX	3

**DEPARTMENT OF CHEMICAL ENGINEERING**

Program Name: Minor in Chemical Engineering

**CURRICULUM**

Sl. No.	Subject Code	Name of the Subject	L	T	S	C	H
<b>Compulsory Core</b>							
1.	CHC403	Mass Transfer I	3	1	0	4	4
2.	CHC501	Chemical Reaction Engineering	3	1	0	4	4
3.	CHC601	Transport Phenomena	3	1	0	4	4
<b>Compulsory Laboratory</b>							
4.	CHS652	Chemical Reaction Engineering Laboratory	0	0	3	2	3
<b>Electives</b>							
5.	CHX7XX	Elective-I	3	1	0	4	4
6.	CHX7XX	Elective-II	3	1	0	4	4
<b>Total</b>			<b>15</b>	<b>5</b>	<b>3</b>	<b>22</b>	<b>23</b>

<b>List of Elective Subjects</b>							
Sl. No.	Subject Code	Name of the Subject	L	T	S	C	H
1.	CHC301	Process Calculations	3	1	0	4	4
2.	CHC302	Chemical Engineering Thermodynamics	3	1	0	4	4
3.	CHC402	Mechanical Operations	3	1	0	4	4
4.	CHC504	Instrumentation and Process Control	3	1	0	4	4
5.	CHC602	Petroleum Refining and Petrochemicals Engineering	3	1	0	4	4
6.	CHO441	Process Heat Transfer	3	0	0	3	3
7.	CHO541	Solid and Hazardous Waste Management	3	0	0	3	3
8.	CHO841	Bioengineering & Industrial applications	3	0	0	3	3
9.	CHO851	Energy, Environment & Sustainability	3	0	0	3	3

**DEPARTMENT OF CHEMISTRY**

Program Name: Minor in Chemistry and Industrial Applications

**CURRICULUM**

Sl No.	Subject Code	Subject	L-T-P	Credit point
1	CYM401	Power plant chemistry & corrosion Engineering	3-0-0	3
2	CYM501	Industrial chemistry	3-0-0	3
3	CYM502	Organometallic compounds: spectroscopic characterization and applications	3-0-0	3
4	CYM601	Analytical and environmental chemistry	3-0-0	3
5	CYM602	Spectroscopic Techniques and Experimental Electrochemistry	3-0-0	3
6	CYM701	Introduction to computational material design	3-0-0	3
7	CYM702	Natural Products and Drug design	3-0-0	3
			<b>Total</b>	<b>21</b>

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION**

Program Name: Minor in Electronics &amp; Communication Engineering

**CURRICULUM**

Semester - 4							
Sl. No	Subject Code	Subject	L	T	S	C	H
1	ECC402 / CSC302 / EEC403	Digital Circuits and Systems / Digital Logic Design / Digital Electronics	3	1/0	0	4/3	4/3
2	ECO441 / ECO841	Elective I	3	0	0	3	3
Semester - 5							
Sl. No		Subject	L	T	S	C	H
1	ECC302 / ECC331	Electronic Devices and Circuits - I / Analog Electronics	3	1	0	4	4
Semester - 6							
Sl. No		Subject	L	T	S	C	H
1	ECC403 / ECE616	Elective II	3	1/0	0	4/3	4/3
2	ECO843 / ECO853	Elective III	3	0	0	3	3
Semester - 7							
Sl. No		Subject	L	T	S	C	H
1	ECO742 / ECO743	Elective IV	3	0	0	3	3
2	ECM7XX	Micro-credit Course	0	0	3	2	3
		<b>TOTAL</b>	<b>18</b>	<b>2</b>	<b>2</b>	<b>23/ 21</b>	<b>24/ 22</b>

**List of electives:**

Elective - I		Elective - II	
Subject Code	Subject Name	Subject Code	Subject Name
ECO441	Communication Engineering	ECC403	Electromagnetic Theory and Transmission Lines
ECO841	Signal Processing	ECE616	VLSI Technology
Elective - III		Elective - IV	
Subject Code	Subject Name	Subject Code	Subject Name
ECO850	Communication Network	ECO742	Mobile Communication
ECO853	Electronic System Design	ECO743	Internet of Things

## DEPARTMENT OF ELECTRICAL ENGINEERING

Program Name: Minor in Electrical Engineering

### CURRICULUM

Sl No	Subject Code	Subject Name	Semester	Prerequisites	L-T-P	Credit
1	EEC301 / EEE710	Network Analysis and Synthesis ( <b>Except ECE</b> ) / Renewable Energy Systems ( <b>For ECE only</b> )	Odd	Basic Electrical Engineering	3-1-0 / 3-0-0	4 / 3
2	EEC302 / EEE713	Electrical and Electronic Measurement ( <b>Excluding the students who have already taken ECE621</b> ) / Electrical Drives ( <b>For ECE only</b> )	Odd	Basic Electrical Engineering / Electrical Machines, Power Electronics	3-1-0 / 3-0-0	4/3
3	EEC401	Power Systems-I	Even	Basic Electrical Engineering	3-1-0	4
4	EEC402 / EEC501	Electrical Machines-I ( <b>Except ME</b> ) / Electrical Machines-II ( <b>For ME only</b> )	Even / Odd	Basic Electrical Engineering / Electrical Machines	3-1-0	4
5	EEC504 / EEE615	Power Electronics ( <b>Excluding the students who have already taken ECE624</b> ) / Advanced Power Electronics ( <b>For ECE only</b> )	Odd / Even	Basic Electronics / Power Electronics	3-1-0 / 3-0-0	4 / 3
6	EES 552 / EES 651/	Electrical Machines Laboratory-I ( <b>Except ME</b> ) / Electrical Machines Laboratory-II ( <b>For ME only</b> )	Odd / Even	Basic Electrical Engineering	0-0-3	1.5
<b>Total Credit</b>						<b>21.5 / 18.5</b>

**Note:**

1. Electrical Machines-I (EEC402) and Electrical Machines Laboratory – I (EES 552) are for other than Mechanical Engineering students.
2. Electrical Machines-II (EEC501) and Electrical Machines Laboratory – II (EES 651) are only for Mechanical Engineering students.

**DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES**

Program Name: Minor in Economics

**CURRICULUM**

Total Credit Points - 20

Sl. No.	Sem.	Subject Code	Name of the Subject	L	T	S	C	H
1.	4 <sup>th</sup>	HSO4XX	Indian Economics	3	0	0	3	3
2.	5 <sup>th</sup>	HSMXXX	Public Finance	2	0	0	2	2
3.	5 <sup>th</sup>	HSO541	Statistical Techniques for Economics	3	0	0	3	3
4.	6 <sup>th</sup>	HSMXXX	Managerial Economics	2	0	0	2	2
5.	6 <sup>th</sup>	HSMXXX	Quantitative Economics	3	0	0	3	3
6.	7 <sup>th</sup>	HSO741	Development Economics & Sustainable Development	3	0	0	3	3
7.	8 <sup>th</sup>	HSMXXX	International Trade	2	0	0	2	2
8.	8 <sup>th</sup>	HSMXXX	Economics of Growth	2	0	0	2	2
<b>Total</b>				<b>20</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>20</b>

## DEPARTMENT OF MATHEMATICS

Program Name: Minor in Mathematics

### CURRICULUM

- ❖ At least five subjects (with minimum 20 credit points) are to be chosen to earn a minor in “Mathematics” with at least one from each Group.

#### Group-A (At least one subject)

Course Code	Name of the Subject	Prerequisites	L-T-P	Total Credit	Semester in which this course will be offered
MA1101	Complex Analysis		3-1-0	4	ODD
MA1104/ MAO542	Linear Algebra/ Linear Algebra		3-1-0/ 3-0-0	4/ 3	ODD/ ODD
MA1105	Real Analysis		3-1-0	4	ODD
MA4101	Topology	Real Analysis	3-1-0	4	EVEN
MA2102	Functional Analysis	Real Analysis	3-1-0	4	EVEN
MA2103	Modern Algebra		3-1-0	4	EVEN
MAO441	Discrete Mathematics		3-0-0	3	EVEN

#### Group-B (At least one subject)

Course Code	Name of the Subject	Prerequisites	L-T-P	Total Credit	Semester in which this course will be offered
MA1103	Ordinary and Partial Differential Equations		3-1-0	4	ODD
MA3102	Graph Theory		2-1-0	3	ODD
MA3103	Fluid Dynamics	Ordinary and Partial Differential Equations	3-1-0	4	ODD
MA2101	Integral Transforms and Integral Equations		3-1-0	4	EVEN
MAO541	Mathematical Methods for Engineers		3-0-0	3	ODD
MA2105/ MAO852	Numerical Analysis/ Advanced Numerical Analysis		3-1-0 / 3-0-0	4/ 3	EVEN/ EVEN

#### Group-C (At least one subject)

Course Code	Name of the Subject	Prerequisites	L-T-P	Total Credit	Semester in which this course will be offered
MA1102/ MAO442	Probability & Stochastic Processes / Probability & Stochastic Processes		3-1-0 / 3-0-0	4/ 3	ODD/ EVEN
MA3101/ MAO851	Operations Research/ Operations Research		3-1-0/ 3-0-0	4/ 3	ODD/ EVEN
MA9113	Mathematical Modeling	Ordinary and Partial Differential Equations	3-1-0	4	ODD
MA9116	Automata and Algorithms		3-1-0	4	ODD
MA4102	Generalized Functions and Wavelets		2-1-0	3	EVEN
MA9122	Algebraic Coding Theory	Modern Algebra	3-1-0	4	EVEN
MA9123	Dynamical Systems and Chaos Theory	Linear Algebra	3-1-0	4	EVEN

## DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING

**Program Name: Minor in Materials Science and Engineering**

### CURRICULUM

<b>Description</b>	Materials Science and Engineering is an interdisciplinary subject that uses basic science and engineering knowledge but has its special character. It is constantly developing new and exciting materials such as nanomaterials, high-temperature, and lightweight materials, green materials, and sustainable biomaterials for tissue engineering. Material Science combines a broad knowledge base and puts it to diverse practical and commercial use.						
Courses & Credit points	<b>Five (5) courses (min) and one lab (min) (Credit points:21)</b>						
	<b>Subject code</b>	<b>Subject name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>H</b>	<b>C</b>
<b>Section A</b> (Any Three) Total Credit to be earned: <b>12</b>	MMC301	Metallurgical Thermodynamics and Kinetics	3	1	0	4	4
	MMC302	Introduction to Metallurgy and Materials	3	1	0	4	4
	MMC402	Phase Transformation and Phase Equilibria	3	1	0	4	4
	MMC403	Materials Characterization	3	1	0	4	4
	MMC501	Manufacturing Processes	3	1	0	4	4
	MMC503	Fundamentals of Plastic Deformation & Strengthening of Materials	3	1	0	4	4
<b>Section B</b> (Any Two) Total Credit to be earned: <b>6</b>	MME611	Electronic and Thermal Properties of Materials	3	0	0	3	3
	MME614	Nano Science and Technology	3	0	0	3	3
	MME617	Metal Joining Processes	3	0	0	3	3
	MME615	Ceramic Technology	3	0	0	3	3
	MME710	Functional Materials	3	0	0	3	3
	MME712	Computational Materials Engineering	3	0	0	3	3
Laboratory (Any One, which is related to one choice of Section A) Total Credit to be earned: <b>3</b>	MMS351	Metallurgical Thermodynamics and Kinetics Lab	0	0	3	3	3
	MMS452	Phase Transformation and Phase Equilibria Lab	0	0	3	3	3
	MMS551	Manufacturing Processes Lab - I	0	0	3	3	3
	MMS553	Plastic Deformation & Strengthening of Materials Lab	0	0	3	3	3
	MMS653	Materials Characterization Lab-I	0	0	3	3	3

**DEPARTMENT OF MANAGEMENT STUDIES****Program Name: Minor in Financial Management****CURRICULUM**

<b>Semester</b>	<b>Subject Code</b>	<b>Name of the subject</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
Sem V	MS1003	Management Accounting	2	0	2	3
	MSM551	Financial Lab-I	0	0	2	1
Sem VI	MS2003	Financial Management	2	0	2	3
	MSM651	Financial Lab-II	0	0	2	1
Sem VII	MS9313	Banking Management	3	0	0	3
	MS9314	Investment and Portfolio Management	3	0	0	3
Sem VIII	MS9318	International Finance	3	0	0	3
	MS9320	Corporate Finance	3	0	0	3
<b>Total</b>						20

**DEPARTMENT OF MANAGEMENT STUDIES**

Program Name: Minor in Marketing Management

**CURRICULUM**

Semester	Subject Code	Name of the subject	L	T	P	Credits
Sem V	MS1002	Marketing Management	2	0	2	3
	MSM552	Marketing Lab-I	0	0	2	1
Sem VI	MS2007	Research Methodology	2	0	2	3
	MSM652	Marketing Lab-II	0	0	2	1
Sem VII (Any two will be decided by DAC, DMS)	MS9215	Digital Marketing	3	0	0	3
	MS9217	Marketing Research	3	0	0	3
	MS9211	Marketing Communications	3	0	0	3
	MS9212	Consumer Behaviour	3	0	0	3
Sem VIII (Any two will be decided by DAC, DMS)	MS9221	Marketing Analytics	3	0	0	3
	MS9223	Sales and Distribution Management	3	0	0	3
	MS9219	Service Marketing and Retail Management	3	0	0	3
<b>Total</b>						20

**DEPARTMENT OF MANAGEMENT STUDIES****Program Name: Minor in System and Operations Management****CURRICULUM**

<b>Semester</b>	<b>Subject Code</b>	<b>Name of the subject</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
Sem V	MS1004	Quantitative Techniques in Business	3	1	0	4
	MSM553	System Lab-I	0	0	2	1
Sem VI	MS2004	Operations research	2	0	2	3
	MSM653	System Lab-II	0	0	2	1
Sem VII	MS9413	Introduction to Data Science	3	0	0	3
	MS9416	Supply Chain Management	3	0	0	3
Sem VIII	MS9419	Logistics Management	3	0	0	3
	MS9420	Decision Modelling	3	0	0	3
<b>Total</b>						21

**DEPARTMENT OF PHYSICS**

Program Name: Minor in Physics

**CURRICULUM****Compulsory Courses**

Subject Code	Subject	L - T - P	Credit
PHM401	Classical Mechanics	3 - 1 - 0	4
PHM402	Quantum Mechanics	3 - 1 - 0	4
PHM501	Thermal and Statistical Physics	3 - 1 - 0	4
PHM502	Condensed Matter Physics	3 - 1 - 0	4
PHS651	Physics Laboratory	0 - 0 - 4	2
<b>TOTAL</b>			<b>18</b>

**Elective Courses**

Subject Code	Name of the Subject	L - T - P	Credit
PHM61X	Elective - I	3 - 1 - 0	4
<b>TOTAL</b>			<b>22</b>

**LIST OF ELECTIVE PAPERS**

Sl. No.	Subject Code	Name of the Subject	L-T-P	Credit
1	PHM610	Nuclear and Particle Physics	3 - 1 - 0	4
2	PHM611	Mathematical Physics	3 - 1 - 0	4
3	PHM612	Electrodynamics	3 - 1 - 0	4
4	PHM613	Electronics	3 - 1 - 0	4

# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

Academic Section

## Annexure - 69.5.1

Date: 23.11.2022

Minutes of the meeting of Research Academic Committee (RAC) held on 23.11.2022 (Wednesday) at 03.00 pm.

The Chairman welcomed the members to the meeting and the agenda was placed for discussion.

**Item # 1 Confirmation of the minutes of the meeting of RAC held on 07.09.2022 and 30.09.2022 (via email circulation)**

The minutes of the RAC meetings held on 07.09.2022 and 30.09.2022 (via email circulation) are confirmed.

**Item # 2 To consider registration for Ph.D. Programme**

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	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	CE	22	16	22	Dr. A. K.	28.09.2022

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		Prasad Yadav					Samanta	
22	20CH1104	Bulti Kandar	CH	16	16	16	Dr. K. C. Ghanta	28.09.2022
							Dr. S. Dutta	
23	21HS1501	Shibaji Bose	HS	20	20	20	Dr. P. P. Sengupta	12.10.2022
							Dr. A. Modak	
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

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/MA/2015/00665	MA	Krishnendu Adhikary	Newsboy Problem under Some Uncertain Paradigms	Dr. S. Kar	10.08.2022
2	NITD/PhD/BT/2016/00792	BT	Pritam Biswas	Activation of Monocytes and Cancer cells by Interleukin-13 (IL-13) and Its effect on cellular function	Dr. A. Bhattarcharjee	29.08.2022
3	NITD/PhD/CS/2018/01035	CS	Suvadip Hazra	Theory and Applications of Cellular Automata for Detection and Mitigation of Hardware Trojan Attacks Targeting Cache Performance in a Many-core System	Dr. M. Dalui	12.09.2022
4	NITD/PhD/CH/2016/00809	CH	Jithender Naik L	Investigation on Bubble Dynamics in Natural Circulation Boiling Loop: Visualization Technique	Dr. S. Paruya	12.09.2022
5	NITD/PhD/CS/2017/00878	CS	Anjan Bandyopadhyay	Cloud and Fog Computing: A Mechanism Design Perspective	Dr. S. Mukhopadhyay	15.09.2022
6	NITD/PhD/PH/2018/01073	PH	Koushik Mondal	Investigations on Synthesis, Linear and Nonlinear Optical Properties of Some Noble Metal Nanoparticles and Nanocomposites	Dr. P. Kumbhakar	16.09.2022
7	NITD/PhD/BT/2018/01044	BT	Madhusmita Ojha	Investigation of the function of Mitogen activated protein Kinase Kinase Kinase 20 (MKKK20) in Arabidopsis seedling development	Dr. S. Chattopadhyay	19.09.2022
8	NITD/PhD/EC/	EC	Ananya	Synthesis of Different	Dr. S. K. Mandal	20.09.2022

PIC

	2017/00956		Mukherjee	Antenna Array Geometries Using Evolutionary Algorithms and Time Modulation Strategies	Dr. R. Ghatak	
9	19RMA045	MA	Sanjit Bhowmick	Linear complementary dual codes over finite commutative Frobenius rings	Dr. S. Bagchi Dr. R. Bandi, IIT Naya Raipur	21.09.2022
10	NITD/PhD/CS/ 2017/00948	CS	Suchandra Banerjee	Floorplanning and Placement in VLSI Circuits	Dr. S. Roy	24.09.2022
11	NITD/PhD/CS/ 2017/00892	CS	Sudeshna Kundu (Mondal)	SAT Based Rectilinear Steiner Tree Construction and its Applications in Global Routing	Dr. S. Roy Dr. S. Mukherjee, NIT Silchar	26.09.2022
12	NITD/PhD/CS/ 2017/00979	CS	Praveen Kumar Sharma	A Cost-effective Framework for Indoor and Outdoor Air Quality Monitoring and Prediction	Dr. T. De Dr. S. Saha	27.09.2022
13	NITD/PhD/PH /2017/00837	PH	Monalisa Char	Development of a Cu-SAC305 based lead free solder joint interface with improved reliability and environmental stability	Dr.A.K. Chakraborty Dr. A. Kar, JBNSTS-Kolkata	27.09.2022
14	NITD/PhD/IT/ 2016/00804	CS	Dhaneshwar Mardi	The Impact of Rational Party in Multiparty Computation and the Counteracts	Dr. J. Howlader	28.09.2022
15	NITD/PhD/EC/ 2018/00999	EC	Punam Tiwary	Development of Chemiresistive Ethanol sensors using Nanostructured Metal Oxide/Hydroxide Films	Dr. R. Mahapatra Dr. A. K. Chakraborty	29.09.2022
16	NITD/PhD/CS/ 2018/01061	CS	Trushna Parida	Linux Memory Forensics: Methods and Techniques	Dr. S. Das	29.09.2022

**The above mentioned candidates (From Sl. No. 1 to 16) were already approved in RAC meeting (by circulation) dated 30.09.2022 and PhD Degrees were awarded in the 18<sup>th</sup> Convocation, held on 22.10.2022.**

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

The award of the PhD degree to the above mentioned three scholars (sl. No. 1, 2 and 3 given at the end of the Table) are noted on the dates as mentioned against the respective scholar, to be reported to the Senate for recommendation.

RK

**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	Valid from	No. of Times
1	Dwip Narayan Mukherjee	14/ECE/1501	NITD/PhD/EC/2016/00834	24.10.2016	1 yr.	24.10.2022	2 <sup>nd</sup>
2	Jayanta Pal	15/EC/1506	NITD/PhD/EC/2017/00971	18.10.2017	1 yr.	18.10.2022	1 <sup>st</sup>
3	Soumen Ghosh	15/EC/1505	NITD/PhD/EC/2017/00970	18.10.2017	1 yr.	18.10.2022	1 <sup>st</sup>
4	Partha Sarkar	15/EC/1507	NITD/PhD/EC/2017/00918	30.05.2017	1 yr.	30.05.2022	1 <sup>st</sup>
5	Anaya Ghosh	15/CHE/1105	NITD/PhD/CH/2016/00782	19.09.2016	1 yr.	19.09.2022	2 <sup>nd</sup>
6	Arpita Das	16CE1304	NITD/PhD/CE/2017/00950	09.10.2017	1 yr.	09.10.2022	1 <sup>st</sup>
7	Deepro Sen	16/EE/1502	NITD/PhD/EE/2017/00931	22.09.2017	1 yr.	22.09.2022	1 <sup>st</sup>
8	Oliva roy	15/HSS/1106	NITD/PhD/HS/2016/00724	10.02.2016	1 yr.	10.02.2022	2 <sup>nd</sup>
9	Tanushree Ghosh	14/CHE/1502	NITD/PhD/ChE/2014/00539 <b>*(Pre-submission sem. for PhD thesis given on 14.09.2022)</b>	26.09.2014	3 months	26.09.2022	4 <sup>th</sup>
10	Rohit Sharma	15/EC/1106	NITD/PhD/EC/2016/00811	27.09.2016	1 yr.	27.09.2022	2 <sup>nd</sup>
11	Ankita Mukherjee	15/CHE/1103	NITD/PhD/CH/2016/00808	27.09.2016	1 yr.	27.09.2022	2 <sup>nd</sup>
12	Biswajit Kamila	13/CHE/1107	NITD/PhD/ChE/2014/00522 <b>*(Pre-submission sem. for PhD thesis given on 09.09.2022)</b>	12.09.2014	3 months	12.09.2022	4 <sup>th</sup>
13	Shipra Mukhopadhyay	15/CY/1103	NITD/PhD/CY/2016/00812	27.09.2016	1 yr.	27.09.2022	2 <sup>nd</sup>
14	Ashis Kumar Das	15/EE/1101	NITD/PhD/EE/2016/00801	27.09.2016	6 months	27.09.2022	2 <sup>nd</sup>
15	Parikshit Roy	16CE1103	NITD/PhD/CE/2017/00944	03.10.2017	1 yr.	03.10.2022	1 <sup>st</sup>
16	Dipanita Deb	16MS1304	NITD/PhD/MS/2017/00966 <b>*(Pre-submission sem. for PhD thesis given on 11.10.2022)</b>	13.10.2017	1 yr.	13.10.2022	1 <sup>st</sup>
17	Subhadra Debroy	15/EC/1503	NITD/PhD/EC/2017/00941	26.09.2017	1 yr.	26.09.2022	1 <sup>st</sup>
18	Surajit Batabyal	15/EC/1504	NITD/PhD/EC/2017/00942	26.09.2017	1 yr.	26.09.2022	1 <sup>st</sup>
19	Koustav Roy	15/CHE/1510	NITD/PhD/CH/2017/00976	13.11.2017	1 yr.	13.11.2022	1 <sup>st</sup>
20	Shyam Sundar Jash	15/EC/1109	NITD/PhD/EC/2017/00973	30.10.2017	1 yr.	30.10.2022	1 <sup>st</sup>
21	Teressa Longjam	16/CS/1501	NITD/PhD/CS/2017/00982	08.11.2017	1 yr.	08.11.2022	1 <sup>st</sup>
22	Swamini Saini	15/BT/1502	NITD/PhD/BT/2017/00975	08.11.2017	1 yr.	08.11.2022	1 <sup>st</sup>
23	Lokenath Chakraborty	15/ESS/1501	NITD/PhD/ES/2017/00872	20.02.2017	6 months	19.08.2022	2 <sup>nd</sup>
24	Joyshree Maji	16PH1301	NITD/PhD/PH/2017/00845	13.01.2017	1 yr.	13.01.2022	1 <sup>st</sup>

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 for period of registration also for academic year 2022-2023 on specific recommendation of the respective DSC due to COVID19 situation.

RK

**Item # 5****To consider the appeal for discontinuation from PhD Program:**

- Vivek Rahi (Roll No. 21MM1105)-No Dues Certificates from Hostel, Library, Department and Scholarship Section are not submitted.
- Nilkamal Bhunia (Roll No. 18EC1509)- No Dues Certificates from Hostel, Library, Department are not submitted.
- Sreeram Srinivasan(Roll No. 22BT1108)- No Dues Certificates from Hostel, Library, Department and Scholarship Section are not submitted.
- Anirban Bhattacharya (Roll No. 20BT1101)- No Dues Certificates from Hostel, Library, Department and Scholarship Section 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 # 6****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	Valid from	No. of Times
1	Debabrata Kumar Das	20EC1502	19.10.2020	1 yr.	19.10.2022	1 <sup>st</sup>
2	Anuj Kumar Pandey	19EE1501	26.07.2019	6 <sup>th</sup> months	01.07.2022	2 <sup>nd</sup>

The matter of Debabrata Kumar Das is recommended for approval.

However the matter of Anuj Kumar Pandey may be considered after submission of a declaration recommended by the DSC to the Dean (Academic Research) regarding completion of all the required formalities of pre-registration seminar within next one month.

**Item # 7****To consider the matter regarding the approval of reconstitution of DSC:**

- Pravanjan Bera (Roll No. 18ME1506, Reg. No. 21RME018)- inclusion of co-supervisor Dr. Debabrata Das, Asst. Prof., Department of Mechanical Engineering, Asansol Engineering College.
- Satish Kumar (Roll No. 21EC1103)- inclusion of co-supervisor Dr. Gopi Ram, Asst. Prof., Dept. of ECE, NIT Warangal.
- Amrita Bhattacharya (Roll No. 16MS1306, Reg. No. NITD/PhD/MS/2017/00987)- change of non-departmental faculty member Dr. Tamal Mandal (CH) in place of Dr. P. P. Sengupta (Retd-Prof. HS).
- Saswati Roy (Roll No. 12/MS/1504, Reg. No. NITD/PhD/MS/2014/00563)- change of Chairperson DSC Dr. Gautam Bandyopadhyay (MS) in place of Dr. Kaushik Mandal (MS) and change of non-departmental faculty member Dr. Seema Sarkar Mondal (MA) in place of Dr. P. P. Sengupta (Retd -Prof. HS).
- Madhumita Sardar (Roll No. 17CS1108, Reg. No. 19RCS038)- inclusion of co-supervisor Dr. Srabani Mukhopadhyaya, Asso. Prof., Dept. of CSE, BIT Mesra, Ranchi.
- Prajna Paramita Pradhan (Roll No. 16CS1103, Reg. No. NITD/PhD/CS/2018/01013)- change of non-departmental faculty member Dr. Rajat Mahapatra (EC) in place of Dr. Suvrojit Das (CS).
- Santanu Dutta (Roll No. 18MS1505)- change of non-departmental faculty member Dr. Sujit Shankar Panja (CY) in place of Dr. P. P. Sengupta (Retd-Prof. HS).
- Koustav Roy (Roll No. 15/CHE/1510, Reg. No. NITD/PhD/CH/2017/00976)- Change of departmental faculty member Dr. Tamal Mandal (CH) in place of Dr. Parthapratim Gupta (CH) and change of non-departmental faculty member Dr. Apurba Layek (ME) in place of Dr. Chiranjib Koley (EE).
- Chhanda Mondal Roy (Roll No. 20CH1502)- Inclusion of Co-Supervisor Dr. Dipankar Pal, Asst. Prof., Chemical Engg., Indian Institute of Petroleum & Energy, Visakhapatnam.

- Biswaranjan Mishra (Roll No. 14/EE/1103, Reg. No. NITD/PhD/EE/2015/00661)- Change of departmental faculty members i) Dr. Partha Sarathi Bhowmik in place of Dr. S. P. Ghoshal (Retd -Prof. EE) ii) Dr. Aniruddha Bhattacharya in place of Dr. Sankar Narayan Mahato.
- Somnath Bhowmik (Roll No. 20CS1501)- change of non-departmental faculty member Dr. Anupam De (MS) in place of Dr. P. P. Sengupta (Retd -Prof. HS).
- Pranab Hazra (Roll No. 20EE1501)- Inclusion of co-supervisor Dr. Ashis Kumar Dhara (EE) and change of one departmental faculty member Dr. P. S. Bhowmik in place of Dr. Ashis Kumar Dhara.

The matter is recommended for approval.

**Item # 8 To consider an appeal from HoD, Humanities and Social Sciences regarding the modalities for classes of Research Methodology course.**

Resolved that

- A meeting will be held with the Head of the Departments and concern Faculty members to be convened by the Head, HSS to draw guidelines regarding the matter.
- The above said drawn guidelines to be discussed at the departmental level.
- The observations of the discussion at the departmental level will be subsequently placed in the RAC for discussion.

**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 matter is discussed and referred to the Senate for valuable guidance in this regard.

**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 regarding mandatory documentation of hostel and mess clearance of the previous semester at the time of semester registration of PhD students from the office of Dean (SW)/Chief Warden is recommended.

**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 is recommended for approval on implementation for the admitted students from the next ODD semester 2023-2024 onwards.

**Item # 12 To consider the matter of Arvind Kumar Jaiswal (Roll No. 15/MME/1105, Date of Admission 14.08.2015, Reg. No. NITD/PhD/MME/2017/00842 dt. 11.01.2017, Supervisor(s): i. Dr. Barnali Maji ii. Dr. Joydeep Maity) regarding extension of period of registration for 1 yr. from 11.01.2022 (with repeated irregularities in semester registration earlier).**

The matter is recommended for approval provided the documentation as per the provisions laid down under PhD regulations and procedures as normally followed at the office of the Dean (Academic Research) are maintained. This matter cannot be cited as a precedence.

RR

**Item # 13** To consider the request of Sanjib Kumar Jana (Roll No. 16CH1506) regarding semester registration and PhD registration.

The matter is discussed and RAC opined for readmission of the candidate in the next academic year. However, it is referred to the Senate for guidance and approval.

**Item # 14** To consider the matter regarding entry of marks for Course Work examination during odd semester 2022-2023.

The module will be made operational and marks are to be entered as per the given guidelines with accordance to the credit points.

The meeting ended with vote of thanks to the Chairman.

*R Kumar Mahanta 23/11/2022*

Dean (Academic Research)

Date: 23.11.2022

Minutes of the meeting of Research Academic Committee (RAC) held on 16.12.2022 (Friday) at 11.00 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 23.11.2022.**

The minutes of the RAC meetings held on 23.11.2022 are confirmed.

**Item # 2 To consider the publication of advertisement for admission to various regular PhD programs (Even Semester/2022-2023).**

The matter is recommended for approval (Annexure I).

**Item # 3 To consider registration for Ph.D. programme**

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	18EC1505	Anu Samanta	EC	16	16	18	Dr. A. K. Mal, Dr. I. Hatai, SRM Univ. A.P.	15.11.2022
2	20CH1504	Narottam Behera	CH	16	16	16	Dr. S.K. Lahiri, Dr. B. Das	29.11.2022
3	20EE1101	Rupali Brahmachary	EE	12	12	12	Dr. A. Bhattacharya	02.12.2022
4	20EE1102	Manoj Saha	EE	12	12	12	Dr. S. S. Thakur	02.12.2022
5	20BT1113	Nandita Ghosh	BT	20	20	20	Dr. S. Mondal	02.12.2022
6	19EE1501	Anuj Kumar Pandey	EE	12	12	12	Dr. I. Ahmed	14.12.2022

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 # 4 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/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

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 # 5 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	Valid from	No. of Times
1	B. M. Sangeetha	16/CH/1501	NITD/PhD/CH/2018/01008	19.01.2018	1 yr.	19.01.2023	1 <sup>st</sup>

2	Arun Kumar Singh	14/ECE/1503	NITD/PhD/EC/2016/00830 *(Pre-submission sem. for PhD thesis given on 21.10.2022)	13.10.2016	2 yrs.	13.10.2021	1 <sup>st</sup>
3	Soumya Jyoti Chatterjee	16/ME/1503	NITD/PhD/ME/2017/00858	24.01.2017	1 yr.	24.01.2023	2 <sup>nd</sup>
4	Priyanka Mukherjee	16/CY/1506	NITD/PhD/CY/2017/00840	11.01.2017	1 yr.	11.01.2023	2 <sup>nd</sup>
5	Moutusi Mondal	16/IT/1501	NITD/PhD/CS/2017/00990	11.12.2017	1 yr.	11.12.2022	1 <sup>st</sup>
6	Vineeta Prasad	16/ES/1501	NITD/PhD/ES/2018/01019	28.02.2018	1 yr.	28.02.2023	1 <sup>st</sup>
7	Debi Prasad Das	13/CE/1503	NITD/PhD/CE/2016/00700	08.01.2016	6 months	08.01.2023	4 <sup>th</sup>
8	Sushma	14/IT/1104	NITD/PhD/IT/2015/00648	16.09.2015	1 yr.	16.09.2022	2 <sup>nd</sup>
9	Subhash Karmakar	16/MS/1506	NITD/PhD/MS/2016/00816	29.09.2016	6 months	29.09.2022	2 <sup>nd</sup>

The matter (except that of Arun Kumar Singh, Debi Prasad Das and Sushma) is recommended for approval as the formalities in this regard are fulfilled.

- Arun Kumar Singh – The matter is recommended but the candidate will have to give a pre submission seminar after according approval of the Senate.
- Debi Prasad Das – The matter is recommended for extension up to 07.07.2023 and no further request for extension will be entertained.
- Sushma - The matter is recommended for extension up to 15.09.2023 and no further request for extension will be entertained.

Further it is recommended for approval by the Senate for relaxation of one year extension in period of registration in the academic year 2022-2023 also on specific recommendation of the respective DSC due to COVID19 situation.

**Item # 6 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 upto	No. of Times
1	Tamoghna Mandal	19CS1106	26.07.2019	December 2022	1 <sup>st</sup>
2	Banashree Mandal	20CS1101	07.10.2020	April 2023	1 <sup>st</sup>
3	Nirmalya Tripathi	20ME1503	09.10.2020	May 2023	1 <sup>st</sup>

The matter (except that of Tamoghna Mandal) is recommended for approval.  
The matter of Tamoghna Mandal is referred to the Senate.

**Item # 7 To consider the matter regarding the approval of reconstitution of DSC:**

Sushma (Roll No. 14/IT/1104, Reg. No. NITD/PhD/IT/2015/00648 dated: 16.09.2015)- change of non-departmental faculty member

Dr. Ashis Kumar Mal (EC) in place of Dr. P. P. Sengupta (Retd. -Prof. HS).

The matter is recommended for approval

**Item # 8 To consider the matter of Sreeram Srinivasan (Roll No. 22BT1108) regarding refund of admission fee and other fees.**

No refund will be made in this matter. A refund policy in line with the Postgraduate regulations may be adopted for PhD program.

The meeting ended with vote of thanks to the Chairman.

*R. K. N. N. N. N. N.*  
16/12/2022  
Dean (Academic Research)  
Date: 16.12.2022

# Annexure - 69.5.3

**NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR**  
**Academic Section**

Date: 27.12.2022

**Minutes of the meeting of Research Academic Committee (RAC) held on 27.12.2022 (Tuesday) at 3.35 pm on Google meet platform.**

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 16.12.2022.**

The minutes of the RAC meetings held on 16.12.2022 are confirmed.

**Item # 2 To consider the matter on publication of course work results for Odd semester 2022- 2023.**

The provisional result of course work results for Odd semester 2022- 2023 is recommended for publication.

The meeting ended with vote of thanks to the Chairman.



**Dean (Academic Research)**

**Date: 27.12.2022**

# Annexure - 69.6.1

## 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 party without 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.

LLY.

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**  
**National Institute of Technology Durgapur**  
**Mahatma Gandhi Avenue, Durgapur**  
**PIN-713209, West Bengal**

\_\_\_\_\_  
**Director**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**WITNESSES**

1. \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

2. \_\_\_\_\_

**Date:**

**Place:**

**Memorandum of Understanding**  
**Academic and Research Collaboration**  
**between**  
**National Institute of Technology Durgapur, India**  
**and**  
**Indian Institute of Technology Madras, Chennai, India**

**National Institute of Technology Durgapur** and Indian Institute of Technology Madras have agreed to the following protocols, governing their collaboration on academic and research related activities:

### **Scope**

The scope of collaboration on academic and research activities in this Memorandum of Understanding includes the following categories:

- Academic and Research collaboration in the areas of mutual interest.
- Exchange of academic information, scholarly information, materials, and publications.
- Exchange of students and faculty.
- Sponsorship of cooperative seminars, workshops, and other academic meetings.

### **Student Exchange**

Pursuant to the agreement for academic exchange, National Institute of Technology \_\_\_\_\_ and Indian Institute of Technology Madras will exchange students according to the terms laid out in Annexure 1. It is desired by both parties that there will be a significant flow of students in both directions.

### **Research Collaboration**

Faculty from both institutions will collaborate in the supervision of exchange students and in joint research in disciplines of mutual interest. All such joint research activities will be governed by the terms laid out in Annexure 2.

### **Admission of the top 10% of the students of National Institute of Technology \_\_\_\_\_ to direct PhD at IIT Madras (subjected to availability at IITM)**

National Institute of Technology Durgapur and IIT Madras agree to facilitate the top 10% of students (subjected to availability at IITM), at the end of 6<sup>th</sup> semester of National Institute of Technology Durgapur to seek admission to the direct PhD program of IIT Madras, and enable successful candidates to pursue the 7<sup>th</sup> and 8<sup>th</sup> semesters of their BTech program at IIT Madras, according to the terms laid out in Annexure 3.

### **Commencement, renewal, termination, and amendment**

This MOU will come into force upon affixing of the signatures of the representatives of the partner institutions and will remain in effect for five years. This MOU may be renewed upon its expiry, with the agreement of both partner institutions.

If either partner institution wishes to terminate the MOU at the end of the five years period, it must notify the other institution not less than six months prior to the expiry of the MOU.

This MOU or its renewal and the actions taken under it may be reviewed at any time. Modifications may be made by mutual agreement and any amendment or extension to the agreement may be formalized by the exchange of letters between the two parties.

Signed:

Signed:

SIGNATURE:

SIGNATURE:

Prof. \_\_\_\_\_  
Director  
**National Institute of  
Technology Durgapur, India**

Prof. V. Kamakoti  
Director  
**Indian Institute of Technology  
Madras  
Chennai, Tamil Nadu 600036,  
India**

DATE:

DATE:

## Annexure 1

1. The institution where the student is admitted to earn a degree is the home institution and the institution to which the student is sent as an exchange student is the host institution.
2. Students under the student exchange program will be classified as special exchange students. Special exchange students will be permitted to take courses on credit/audit, as well as participate in research activities/project work.
3. In any case, the consent of the teacher/project supervisors/research supervisors at the host institution is required. Such consent will take into account among other things whether the student has successfully completed the pre-requisites for the course/project.
4. The Host Institution of students enrolled in this exchange program shall not levy tuition fees. Home Institution may continue to levy fees as applicable.
5. Course credits and grades earned will be determined by the home institution based on the grade report from the host institution.
6. The number of students and time duration will be worked out on a case-by-case basis.
7. Participants may not spend more than one year normally in the exchange program.
8. Participants, when they are in the host institution, will be subject to the rules and regulations of the host institution.

### **Selection and nomination**

The selection and nomination of students is open throughout the academic year. The student nomination should be accompanied by:

- Curriculum vitae, with an official grade card/mark sheet.
- Statement of aptitude from a member of the student's school/faculty.
- A specific outline of the program of study at the host institution and a statement of objectives of the student.

When a nomination is forwarded by the home institution, it is presumed that the sending institution considers the student suitable for the proposed program and consents to send the student if selected by the host institution.

The host institution will evaluate the nomination and determine their suitability for selection under the Student Exchange Program.

Where the exchange student is pursuing a research or implementation project as part of the B.Tech, M.Tech, M.A., MBA, M.S., M.Sc., or PhD (or equivalent) degree program, the host institution will provide a suitable faculty member to jointly mentor (along with the supervisor in the home institution) the exchange student in formulating the research project or jointly supervising the exchange student in the event that a research project has already been identified.

The host institution will inform the home institution of any academic or other problems that may arise during the period of the student's residence in the host institution. The host institution will take appropriate action under its established policy and procedures, in consultation with the home institution to deal with such problems.

## **Annexure 2**

1. Proposals for collaborative research work under this Memorandum will be submitted with the prior approval of the Head of each institution, or their nominee.
2. Each institution will nominate one of its members as its representative in charge of the cooperative program. Individual programs of work under this Memorandum will be jointly planned and conducted by the nominees of both parties.
3. Progress of work of any individual program will be reviewed and approved by designated authorities of both parties.
4. The final approval of any project will depend on the availability of guaranteed support funds.
5. Neither National Institute of Technology \_\_\_\_\_ nor Indian Institute of Technology Madras will be held responsible for any liability to the other party, and neither party shall be required to purchase any insurance against loss or damage to any property due to activities to which this agreement relates.

Every collaboration will have its own agreement/contract that addresses issues such as IPR, funding pattern, disclosure of information, etc.

\*\*\*\*\*

### Annexure 3

#### Admission of the top 10% of BTech students of National Institute of Technology Durgapur to Direct PhD program at IITM (subjected to availability at IITM)

#### Extract of Senate Norms for top 10% of BTech students of National Institute of Technology Durgapur seeking admission to PhD program at IITM.

- a) Top 10% of the B. Tech students from other Institutions (which agree to participate in the program) who are in their 3rd year, with a minimum CGPA of 8.0 and without backlog/failures, will be eligible to apply for the Direct PhD (subject to availability at IITM).
- b) Selected students will move to IIT Madras in their 4th year.
- c) Credits earned during the 7<sup>th</sup> and 8<sup>th</sup> semesters at IIT Madras shall have equivalence to the credit needed for the 4th year of the B. Tech program. The credits will be transferred to the student's home institution for the award of the BTech degree.
- d) After successfully completing the 7<sup>th</sup> and 8<sup>th</sup> semesters with CGPA > 8.0 at IIT Madras, and being selected for admission to the direct PhD program, these students are eligible for HTRA for five years from the date of joining the Direct PhD program. Students from CFTIs having a CGPA of 8 and above, will be eligible for the award of HTRA without the requirement of GATE. Students admitted from non-CFTIs are required to qualify in GATE for becoming eligible for the award of HTRA.
- e) The direct PhD students must complete the comprehensive viva within 3 semesters after joining the direct PhD program of IIT Madras.
- f) If a student earns a CGPA < 8.0 in the courses in the 7<sup>th</sup> and 8<sup>th</sup> semesters at IIT Madras, the student will be transferred back to the home institution along with credits earned.
- g) If a student is not found fit to continue in the PhD program by their doctoral committee, they will be allowed to drop out any time after the 1<sup>st</sup> year of PhD, at which point the B. Tech credits will be transferred to the parent institute.

#### Specific Operational aspects agreed to by National Institute of Technology Durgapur and IITM

1. **National Institute of Technology Durgapur** will make an internal announcement to all the students who are in the top 10% of their class at the end of their 5th semester, with a minimum CGPA of 8.0 and without backlogs/failures, and encourage such students to apply for admission into a Direct PhD program at IIT Madras to those Department(s) in which they meet

the eligibility norms for the regular PhD program **(will be subjected to availability at IITM)**, through the online portal between 1<sup>st</sup> March and 30<sup>th</sup> March every year.

2. **National Institute of Technology Durgapur** will encourage and recommend such students to opt for the summer fellowship of IITM at the end of their 6<sup>th</sup> semester.
3. **National Institute of Technology Durgapur** will forward the list of students who are within the top 10% of their class, with a minimum CGPA of 8.0 and without backlogs/failures, along with their contact details, to the Dean (Academic Research), IIT Madras soon after the 6<sup>th</sup>-semester results are declared.
4. IIT Madras will forward the list of students selected for direct PhD admission to **National Institute of Technology Durgapur** and also inform the respective students.
5. Selected students of **National Institute of Technology Durgapur** will move to IIT Madras at the end of 6<sup>th</sup> Semester and undergo paid summer fellowship at IIT Madras. On successful completion of the summer fellowship and on a favorable recommendation of the Head of Department, they may be permitted to pursue their 7<sup>th</sup> and 8<sup>th</sup> semesters at IIT Madras.
6. **National Institute of Technology Durgapur** will permit these students (selected for direct PhD program **based on availability at IITM**) to pursue the final year of their B. Tech program (7<sup>th</sup> and 8<sup>th</sup> semester) at IIT Madras.
7. **National Institute of Technology Durgapur** will provide some flexibility in the curriculum for these students to facilitate them to complete the credits to be earned towards the award of the B Tech degree. Detailed planning of the courses to be taken at IIT Madras will be jointly decided by the faculty advisor of the student at **National Institute of Technology Durgapur** and the guide-designate at IIT Madras
8. These students should earn a minimum CGPA of 8.0 at the end of 8<sup>th</sup> semester at IIT Madras, to become eligible to continue in the direct PhD program. Otherwise, the student will be transferred back to **National Institute of Technology Durgapur** along with the credits earned.
9. These students are not eligible for campus placement through IIT Madras at the end of their first year, of study at IIT Madras, which will be the end of their 8<sup>th</sup> semester.
10. The student will pay the tuition fee to **National Institute of Technology Durgapur** during their 7<sup>th</sup> and 8<sup>th</sup> semesters. After joining as a direct PhD student, the student will pay the tuition fee appropriate for PhD scholars as per regulations of IIT Madras, to IIT Madras.
11. With the concurrence of the guide-designate at IITM and the Doctoral Committee, faculty members from **National Institute of Technology Durgapur** may serve as co-guides for these students, whenever possible IITM encourages such a practice, but the decision is left to the discretion of the Guide-designate.

12. These students shall come under the purview of the guidelines/regulations for the 7<sup>th</sup> and 8<sup>th</sup> semester BTech of **National Institute of Technology Durgapur** in their 7<sup>th</sup> and 8<sup>th</sup> semesters, and under the PhD ordinances and Regulations of IIT Madras once they join the direct PhD.
13. For candidates who fail to complete the Comprehensive viva-voce exam, the option to convert to an MS program as per regulation R.21 in the PhD ordinances and regulations of IIT Madras, will be available.
14. If a student is not found fit to continue in the PhD program by their Doctoral Committee, they will be allowed to drop out any time after the 1<sup>st</sup> year of the direct PhD, at which point the 7<sup>th</sup> and 8<sup>th</sup> semester credits will be transferred to **National Institute of Technology Durgapur** for the award of the B.Tech degree.

**MEMORANDUM OF UNDERSTANDING**

**BETWEEN**

**TECHNOLOGY INNOVATION HUB,  
IIIT HYDERABAD (iHub-Data)**

**AND**

## **[Name of Institute/University]**

Wishing to establish formal relations between the three institutions in the areas of academic programs and other associated activities between (a) Technology Innovation Hub, IIIT Hyderabad and (c) [Name of institute/university willing to offer B Tech (minor) program in Modern Machine Learning], hereby enter into an understanding to cooperate and work together for academic collaboration on offering an undergraduate technology complimentary program, for a period of four academic years from the year of entering into the agreement.

THE MEMORANDUM OF UNDERSTANDING (THE “MoU”) is made on this XX day of XXXX 2022 at Hyderabad by and between:

**Technology Innovation Hub of IIIT Hyderabad**, having its registered office currently at Prof C R Rao Road, Gachibowli, Telangana, represented by Prof U Deva Priyakumar, Academic Director, iHub-Data, hereinafter referred to as iHub-Data, and which shall include all its nominees, assignees and successors.

And

[Name of your institute/university] having its registered office at \_\_\_\_\_, represented by \_\_\_\_\_ (*insert name and designation*), hereinafter referred to as [xxxx], and which shall include all its nominees, assignees and successors.

### **WHEREAS:**

- A. iHub-Data – The Technology Innovation Hub at IIITH proposes to take some significant steps towards realizing partnerships with a tremendous scope for building large teams, spanning multiple institutions in the country to realize data-driven research through academic programs.
- B. [A brief description of your institute/University]

- C. iHub-Data, and [xxxx] are collaborating to develop strong human resource training development programs to facilitate enhanced levels of output in a specialised domain of undergraduate engineering program.
- D. iHub-Data, and [xxxx] are entering into this MoU to arrive at a common understanding pertaining to their respective roles and responsibilities with regard to this collaborative effort.

**NOW IT IS HEREBY AGREED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:**

**1. SCOPE OF THE MoU**

The MoU details the terms and conditions, and area of collaboration which is extending academic resources needed for an undergraduate minor program in engineering. This MoU is not intended to be of legal force and effect, in any manner whatsoever, and shall not create a legal relationship between the parties.

**2. FINANCIAL ARRANGEMENT**

iHub-Data and [xxxx] have decided to execute an academic program agreed upon mutually, by contributing their knowledge and expertise to such program. Each party shall invest its own resources, as required towards realising the work envisaged, with a willingness to share accompanying costs, benefits or risks of such academic programs. The collaborating institutes should renew the MoU at the end of its expiry term. Institute [xxxx] entering into MoU with iHub-Data are legally bound to oblige the conditions stipulated in Statement of Work (SoW) for four years. Details of this would be as mentioned in the SoW, attached herein.

**3. BROAD AREAS OF COOPERATION**

- A. To work towards administering an undergraduate minor program in engineering in the area of modern machine learning.

- B. iHub-Data and [xxxx], will involve jointly towards forging relationships, enhance academic cooperation towards creating, improving or offering a undergraduate minor program in engineering in modern machine learning.
- C. Seek to establish coordination framework through which academic programs could be reworked continuously and improved in accordance with the demand of changing times.

#### 4. RESPONSIBILITIES OF iHUB-DATA AND [xxxx]

- A. Each party shall share information relevant to the potential collaborative academic support mechanisms that seek to improve quality of tertiary technical education.
- B. Any other collaborative effort that each party may deem fit, from time to time.
- C. There shall be a **Statement of Work** (SoW) to the MoU for the academic program containing details of the terms and conditions, specific objectives, deliverables, financial arrangement, detailed timelines, milestones and other obligations of iHub-Data and [xxxx] as applicable to each program.
- D. Each party shall undertake and complete the work on the program(s) as per schedule of work prepared separately. The period of completion of work could however be extended to such further periods, as may be mutually agreed upon, by the parties without any liability on either party.
- E. Each party shall separately or jointly submit a mid-term progress report and a detailed report for each program to any other statutory authority.

#### 5. COMPLETION

- A. The work envisaged to be done by iHub-Data/[xxxx] shall be deemed to have been successfully completed by the iHub-Data/[xxxx] on submission of all requisite interim or final projects/fulfilment of its/their responsibilities as detailed in the SoW.

B. The academic program shall be deemed to have been successfully completed on satisfactory fulfilment of criteria fixed by each party or any other criteria mutually agreed by the parties hereto.

## 6. RESULTS OF PROGRAM

Any intellectual property rights patents/design/trademark/copyrights obtained by the parties hereto pertaining to the program prior to signing of the MoU shall remain the property of the respective party.

## 7. ACTIVITIES AND SPECIFIC REQUIREMENTS

A. It is hereby clarified that by way of entering into this MoU, the parties are not making any commitment other than to work together in an endeavor to promote undergraduate education and improve relationships with the Institution.

B. The Parties agree that the Activities would be identified based on the mutual discussion of the Parties. Nothing in this MoU binds the Institution to perform any Activities unless the Parties in writing execute a binding agreement (“**Program Agreement**”). Until the Program Agreement is in place, the parties may choose in good faith to carry out the necessary activities based on a mutually agreed Statement of Work (**SoW**).

C. The parties may use resources, assistance or support provided by the other party only in accordance with the terms outlined and for the purposes expressly stated in the SoW or as per the Program Agreement. Any deviation from the use of resources, assistance or support, as stated in the Specific Requirements would be as mutually agreed among the Parties in writing.

## 8. CONFIDENTIAL INFORMATION

During the tenure of the MoU and for a period not exceeding **four** years thereafter, each party undertakes on behalf of their sub-contractors or employees or representatives or associates to maintain strict confidentiality and

prevent disclosure thereof, of all the information and data exchanged/generated pertaining to the work under this MoU for any purposes other than that in accordance with MoU.

## **9. UTILIZATION OF INTELLECTUAL PROPERTY DEVELOPMENT**

- A. iHub-Data and [xxxx] shall retain respective rights over licensing of intellectual property used for the program and created prior to the agreement, and the same would remain with the respective creators or authors.
- B. Any new project or derivative, created out of the codes distributed shall be with the respective authors, who should respect the licensing conditions under which such codes had been released.

## **10. FORCE MAJEURE**

Neither party shall be held responsible for non-fulfilment of their respective obligations under this MoU due to the exigency of one or more of the force majeure events such as but not limited to acts of nature, war, flood, earthquakes, strike, lockouts, epidemics, civil commotion, etc. provided on the occurrence and cessation of any such events, the party affected thereby shall give a notice in writing to the other parties within one month of such occurrence or cessation. If the force majeure conditions continue beyond six months, the parties shall then mutually decide the future course of action.

## **11. EFFECTIVE DATE, DURATION AND TERMINATION OF THE MoU**

- A. The MoU shall be effective from the date of signing and shall remain in force for a block period of four years from the said date. Further extension of the MoU will be considered for another period of four years on terms and conditions, mutually agreed upon.
- B. The MoU shall terminate on the expiry of the said period, unless extended by each of the parties.
- C. During the tenure of the MoU, parties hereto can terminate the MoU either for breach of any of the terms and conditions of this MoU or otherwise by

giving three month's notice in writing to the defaulting party. Failure of either party to terminate the MoU on account of breach or default by the other shall not constitute a waiver of that party's right to terminate this MoU.

D. In the event of termination, the payment conditions as mentioned in SoW shall be honoured. The rights over controlled distribution of academic contents would cease to exist with the institute or university entering into this MoU.

E. The MoU arrived among the parties hereto for the utilization of the intellectual property, shall survive the termination of the MoU.

## **12. Miscellaneous**

A. Amendments to the MoU: No amendment or modification of this MoU shall be valid unless the same is made in writing by each of the parties or their authorized representatives and specifically stating the same to be an amendment of this MoU. The modifications/changes shall be effective from the date on which they are made/executed, unless otherwise agreed to.

B. Assignment of the MoU: The right and/or liabilities arising to any party under this MoU shall not be assigned except with the written consent of the other party and subject to such terms and conditions as may be mutually agreed upon.

C. Limitation of Liability and Indemnity: The Parties mutually agree that to the extent permitted by law neither Party will be liable to the other for any direct, consequential, indirect or special damages arising out of or related to the performance of Services under this Agreement, except with respect to Material Breaches of this Agreement.

D. Survival. All provisions of this MoU which by their nature are intended to survive its Term will remain in force after any termination or expiration of this MoU including.

E. This MoU shall be construed, interpreted and governed by the Laws of Republic of India and the courts of Hyderabad, India and New Delhi, India

shall have exclusive jurisdiction over any disputes that arises out of this MoU or SoW.

In witness where of the parties hereto have executed this MoU on this\_\_\_\_\_ day \_\_\_\_\_of the month\_\_\_\_\_ and this\_\_\_\_\_ year above written and has caused the same and the said duplicate to be executed as hereinafter appearing.

**For iHUB-DATA**

Name & Designation:

Date:

Witness:

1.

2.

**For [xxxx]**

Name & Designation:

Date:

Witness:

1.

2.

[This page is intentionally left blank]

Annexure  
**STATEMENT OF WORK**

This Statement of Work (“SoW”) dated [\_\_\_\_], is entered into pursuant to the Memorandum Of Understanding dated (“MoU”) between Technology Innovation Hub (iHub-Data), IIIT Hyderabad and [xxxx]

All terms not otherwise defined herein have the meaning ascribed to them in the MoU. The parties iHub-Data and [xxxx] agree to the details provided in this SoW in accordance with the following requirements and schedules. All the legal terms and conditions for this SoW shall be governed by the MoU. In case of any conflict between the terms and conditions of this SoW and the terms and conditions of the MoU, the terms and conditions of this SoW shall prevail.

**Engagement Mode:** [Syllabus and contents for B Tech (minor) in Modern Machine Learning]

**1. Title of the Program:** Offering an academic program leading to B Tech (minor) in Modern Machine Learning. This program deemed equivalent to a typical 20 University Credits would introduce theoretical insights in modern machine learning. It would be backed up by practical sessions, using open source software tools, recap with state of the art algorithms and architectures, and would conclude with a credit-based project work by the prospective student that would demonstrate application capabilities of theoretical insights gained as part of this program.

**2. Objectives:** The objectives of the executive training program include

A. Improve tertiary technical education in India, by offering high quality standalone educational programs,

B. Enable members of faculty and students to undertake assignments with higher degree of confidence backed up by a thorough understanding of foundational knowledge, and

C. Enhance scope for job opportunities, entrepreneurial capabilities or higher education for undergraduate students.

**3. About the Program:** B Tech (Minor) program is envisaged to run concurrently alongwith a regular B. Tech program. Students from any discipline are encouraged to undertake the program. The 20-credit program will conclude with a student Project that would be evaluated by the institute running the program.

The course outline and suggested schedule of courses would be enlisted in the syllabus of the Minor Program.

**4. Responsibilities:** Faculty members from IITTH would create and curate the syllabus and contents for the 20-credit Minor Degree program.

The institute offering the program would release three of its members of faculty from the disciplines of Computer Science, Electronics and Mathematics streams (or allied streams) for supervising the course delivery and evaluation. The members, would need to qualify a written examination conducted by iHub-Data, to ensure that instructional standards are matched with the rigour of the academic program.

The institute should undertake to release these members of faculty for any in-campus training, at IITTH, if required during the period of MoU. The institute should offer to avail sufficient support from Academic Board of its own, or from the University to which it is affiliated for the purpose of availing regulatory academic recognition, if any.

iHub-Data would maintain the contents, create tutorial support for the contents and suggest a framework to offer the program. iHub-Data would screen members of faculty for supporting its program, in a learning-on-the-fly mode, by conducting appropriate tests/evaluation to select the members of faculty. Once the faculty members are selected, the members would be trained on the requisite contents on a weekly-basis.

**5. Award of Degree:** The degree would be awarded by the host institute running the program or under the seal of the University to which it is affiliated, or under its own, if the institute is authorised to do so.

**6. Financial Obligations:** The institute entering into this agreement, offers to pay an amount of **Rs 12000** per student enrolled to TIH as part of its financial obligation in supporting the 20-credit program. The validity of this SoW would be for a block period of **four years**.

In witness where of the parties hereto have executed this SoW on this \_\_\_\_\_ day \_\_\_\_\_ of the month \_\_\_\_\_ and this \_\_\_\_\_ year above written and has caused the same and the said duplicate to be executed as hereinafter appearing.

**For iHub-Data**

Name & Designation:

Date:

Witness:

1.

2.

**For [xxxx]**

Name & Designation:

Date:

Witness:

1.

2.

# Annexure - 69.6.4

## **Sub: Expression of Interest to sign a MOU**

University of Engineering and Management, Kolkata was established in the year 2014 by virtue of the Act of State Govt. and with both UGC & AICTE approvals in the year 2015. UEMK is a part of the prestigious IEM-UEM group, which is an acclaimed educational group amongst the industry-centered academic training organisations of today. UEMK has already set sublime standards in addressing the technical and managerial resource shortage in the new era of dynamic globalisation and has risen to fame for its strong foundation in teaching and R&D in multifaceted areas. The University in its journey of 7 years have received many recognitions and accolades from various government and reputed private enterprises.

UEMK offers full-time programs in - Engineering, Management, Computer Applications, Law, Hotel & Hospitality Management at the UG, PG & Doctoral levels. The Courses in Engineering includes B. Tech. programs in – Computer Science, Electronics & Communication Engg., Electrical Engg., Mechanical Engg. & Biotechnology. The Business Administration department offers BBA & MBA programs. The Computer Applications department offers BCA & MCA programs. In addition, the Law dept. offers Integrated BBA L.L.B (5 years) & LL. M. (2 years) with specialisations in Corporate & Financial Laws/ Intellectual Property Rights; Hotel & Hospitality Management offers BHM (3 Years). In addition, Ph. D. in various disciplines is also on offer. The University has employed more than 200 experienced teaching faculty to educate and train 5000+ students.

As per NEP 2020, we are trying to completely reorient ourselves as a multidisciplinary University in Research & Education. In order to have our journey to attain the International acceptance, we have a series of MoU's with institutions of International repute. The brief profile of the University has been sent as an attachment to this mail. We desire to create Centres of Excellence in some of our departments like – Computer Science, Electronics & Communication Engineering, Biotechnology and Management where there is a large scope of interdisciplinary research activities. We are eagerly looking forward for effective collaboration activities with your esteemed institute - NIT,Durgapur .

We are looking forward for a positive response from your end.

----- X -----



Nilotpal Banerjee <nilotpal.banerjee@me.nitdgp.ac.in>

## Inward - Fwd: Proposal for signing MOU

3 messages

Director NIT Durgapur <director@admin.nitdgp.ac.in>

Wed, Oct 12, 2022 at 6:26 PM

To: "Anupam Basu (অনুপম বসু)" <anupambas@gmail.com>, Dean Academic Research <deanar@admin.nitdgp.ac.in>, Nilotpal Banerjee <nilotpal.banerjee@me.nitdgp.ac.in>

----- Forwarded message -----

From: **Prof. (Dr.) Sajal Dasgupta** <sajal.dasgupta@uem.edu.in>

Date: Wed, Oct 12, 2022 at 5:42 PM

Subject: Proposal for signing MOU

To: [director@admin.nitdgp.ac.in](mailto:director@admin.nitdgp.ac.in) <director@admin.nitdgp.ac.in>

Cc: Rajiv Ganguly <rajiv.ganguly@uem.edu.in>

Dear Dr. Basu,

As discussed with you, it is my immense pleasure to forward you our proposed covering Expression of Interest and a brief profile of the University of Engineering and Management, Kolkata to initiate procedure for drawing a formal Memorandum of Understanding (MOU) between NIT, Durgapur (Institute of National Importance) and University of Engineering and Management, Kolkata.

Looking forward for your kind cooperation and favourable action.

With thanks,

Prof.(Dr.) S. Dasgupta  
Vice-Chancellor

### 2 attachments

**EOI.pdf**  
114K

**UEMK writeup.pdf**  
1362K

Anupam Basu (অনুপম বসু) <anupambas@gmail.com>

Wed, Oct 12, 2022 at 9:16 PM

To: nilotpal banerjee <nilotpal.banerjee@me.nitdgp.ac.in>

They want MoU for specific departments as mentioned.

[Quoted text hidden]

### 2 attachments

**EOI.pdf**  
114K

**UEMK writeup.pdf**  
1362K

nilotpal.banerjee@me.nitdgp.ac.in <nilotpal.banerjee@me.nitdgp.ac.in>

Tue, Nov 8, 2022 at 12:56 PM

Reply-To: "nilotpal.banerjee@me.nitdgp.ac.in" <nilotpal.banerjee@me.nitdgp.ac.in>

To: Pathik Kumbhakar <pathik.kumbhakar@phy.nitdgp.ac.in>, Subhrabrata Choudhury <subhrabrata@cse.nitdgp.ac.in>, "P. Gupta" <parthapratim.gupta@che.nitdgp.ac.in>, Nilotpal Banerjee <nilotpalnit@gmail.com>

Please go through the trailing mails and post your valuable comments.

Regards,  
NB

Sent from Yahoo Mail on Android

[Quoted text hidden]

---

**2 attachments**

 **EOI.pdf**  
114K

 **UEMK writeup.pdf**  
1362K

## MEMORANDUM OF UNDERSTANDING

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

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

**(B) Brainware University, Barasat, West Bengal, INDIA**

National Institute of Technology Durgapur and Brainware University, Barasat, Kolkata 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 5 years from the date of signing of the agreement and may be renewed for a further period of 5 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 party without 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.

## Responsibilities of the Parties

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.

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**  
**National Institute of Technology Durgapur**  
**Mahatma Gandhi Avenue, Durgapur**  
**PIN-713209, West Bengal**

\_\_\_\_\_  
**Registrar**  
**Brainware University, Barasat**  
**Kolkata, PIN -700125, West Bengal**

### WITNESSES

1. \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

2. \_\_\_\_\_

**Date:**

**Place:**

# Annexure - 69.6.6

## The resolution of the meeting of the MoU committee held on 13<sup>th</sup> January at 5.30 PM

Members present:

1. Dean (AR) & Chairman, MoU committee
2. Convenor, MoU committee
3. Prof. P. Gupta, Member, MoU committee
4. Dean (AC), Invitee

The following resolutions were taken.

1. The committee highly recommended the signing of MoU with Indian Statistical Institute, Kolkata, a draft of which is attached (Annexure – I).
2. The proposed MoU with IIT Madras on student exchange and direct PhD schemes has quite a few complicated issues. These will put a number of additional constraints on the existing UG academic management system, which is already stretched to the limit due to the recent introduction of final semester internship and minor program. The matter may be discussed by the Senate.
3. The proposed MoU with IIIT Hyderabad is also likely to complicate the UG academic management system. Moreover, it calls for release of three faculty members for the minor program, conduct of selection test for them by IIIT and payment to be made by NIT Durgapur to IIIT for participation of students, which do not seem to be acceptable to the MoU committee members. The matter may be discussed by the Senate.
4. In the previous (Extra ordinary meeting of The Senate held on 29<sup>th</sup> November 2022) meeting four (04) proposals of forming MOU with TIFAC, IITM, UEM & Brainware University were sent. The proposal from TIFAC has already been discussed in the Senate.
5. The Registrar is requested consider the remaining three along with proposals from ISI, Kolkata and IIIT, Hyderabad.



**NITIE**  
National Institute of  
Industrial Engineering

Annexure - 69.7



## PM GATI SHAKTI

### NITIE MUMBAI AS A HUB FOR CAPACITY BUILDING UNDER PM GATI SHAKTI SCHEME

As part of the celebrations of 75 years of Independence (Azadi Ka Amrit Mahotsav), our Honourable Prime Minister Shri Narendra Modi announced that the Centre will launch 'PM Gati Shakti Master Plan,' an Rs. One hundred lakh-crore projects for developing 'holistic infrastructure.' PM Gati Shakti was launched formally in October 2021. It is designed as a National Master Plan for Multi-modal Connectivity, a digital platform to bring 16 Ministries, including Railways, Civil Aviation, MEITY, Shipping, and Road Transport, together for integrated planning and coordinated implementation of infrastructure connectivity projects. As per the Government of India, The Gati Shakti scheme is based on six pillars - comprehensiveness, prioritization, optimization, synchronization, analytical, and dynamics." PM GatiShakti to generate multiple employment opportunities cut down on logistics costs, improve supply chains and make local goods globally competitive"

National Institute of Industrial Engineering (NITIE) Mumbai, under the Ministry of Education, has carved a distinct and robust profile as a provider of high-quality education, training, and capacity and capability building. It is a well-sought-after destination by the industry for Logistics and Supply Chain Management. National Institute of Industrial Engineering [NITIE] is delighted and proud to be designated as the nodal hub for capacity building in Logistics and Supply chain Management to promote the PM GatiShakti Master plan by the Ministry of Education (MoE).

**PM Gati Shakti Workshop Brochure**

**E book on Launch of National Logistics Policy**

**Application of Geospatial Technology in Logistics Courses**

Following is the list of the courses:

1. **Agri Food Supply Chain Management**
2. **Air Cargo Logistics Management**
3. **Digital Innovations & Technology in Supply Chain Management**
4. **E-commerce Supply Chain**
5. **Health Care Supply Chain**
6. **Humanitarian Logistics**
7. **Multimodal Transportation Systems**
8. **Port Management**
9. **Retail Supply Chain Management**
10. **Shipping Logistics Management**
11. **Supply Chain Finance**
12. **Sustainable Supply Chain**
13. **Transportation Systems & Network Design**
14. **Warehouse Automation**



**NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR**  
MAHATMA GANDHI AVENUE, DURGAPUR-713209  
(West Bengal), INDIA, [www.nitdgp.ac.in](http://www.nitdgp.ac.in)  
Office of Dean (Student Welfare)

REGISTRAR OFFICE  
DATE 28/12/2022 TIME 5:56 AM

Annexure - 69.8

No. NITD/DSW/IOM/45/2022

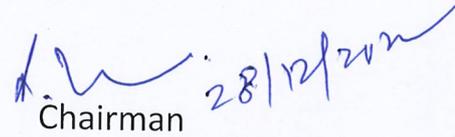
Date: 28.12.2022

**INTER OFFICE MEMO**

From: Chairman  
(Assessment of Endowment  
of Gold Medal Committee)

To: Secretary of Senate

Please find enclosed the resolution of the meeting of assessment of Endowment of Gold Medal Committee for your perusal.

 28/12/2022

Chairman  
(Assessment of Endowment  
of Gold Medal Committee)

Copy to:

File Copy.



# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

MAHATMA GANDHI AVENUE, DURGAPUR-713209

(West Bengal), INDIA, [www.nitdgp.ac.in](http://www.nitdgp.ac.in)

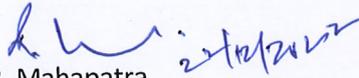
Office of Dean (Student Welfare)

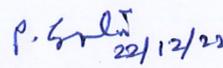
22.12.2022

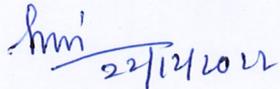
## RESOLUTION

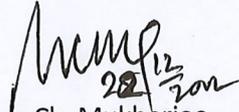
A meeting of the Committee constituted 'for assessment of the endowment of gold medal and to frame the norms in which one can offer the gold medal to recall the memory' was held on 22<sup>nd</sup> December, 2022 at 11:30 A.M. at the Academic Board Room of the Institute. The following was resolved:

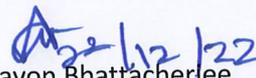
- 1) The Competent Authority of the Institute may constitute a committee comprising of faculty members to coordinate the activities related to the Endowment Gold Medals to be awarded to the students of NIT Durgapur, including the assessment of the new proposals received.
- 2) The norms applicable to the award of the Institute Gold Medal as per the Academic Regulations shall also be applicable to the recipient/s of the Endowment Gold Medals.
- 3) After receiving an approval from the Institute, an Endowment corpus of Rs.3,00,000/- (Rupees Three lakhs) shall be deposited by the donor of the new Endowment Gold Medal to the Institute, from the interest of which the gold medal will be awarded each year during the Convocation ceremony.
- 4) The Endowment corpus requirement for the new Endowment Gold Medal proposals to be received in the future shall be reviewed every three years.

  
Prof. R. Mahapatra  
Dean (Student Welfare)  
Chairman

  
Prof. P. Gupta  
Member

  
Prof. N.B. Hui  
Dean (Academic Courses)  
Member

  
Dr. Uday Ch. Mukherjee,  
Joint Registrar (F&A)  
Member

  
Mr. Sayon Bhattacharjee  
Assistant Registrar (Scholarship)  
Convenor



राष्ट्रीय प्रौद्योगिकी संस्थान दुर्गापुर  
NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR  
MAHATMA GANDHI AVENUE, DURGAPUR-713209

West Bengal, INDIA, [www.nitdgp.ac.in](http://www.nitdgp.ac.in)

An Autonomous Institute of the Govt. of India under of Ministry of Education  
(Shiksha Mantralaya)

NITD/Estt./Gold Medal /2022

Date- 16/12/2022

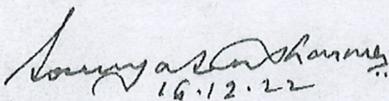
**OFFICE ORDER**

As approved by the Competent Authority of the Institute, a Committee is hereby constituted comprising the following members for assessment the endowment of Gold Medal and to frame the norms in which any one can offer the Gold Medal to recall the memory.

The committee members are as follows:

Sl.	Name and Designation	Remarks
01	Dean (SW)	Chairman
02	Prof. P Gupta	Member
03	Dean (Academic Courses)	Member
04	Dr. Uday Ch. Mukherjee, Joint Registrar (F&A)	Member
05	Mr. Sayon Bhattacharjee, Assistant Registrar (Scholarship)	Convener

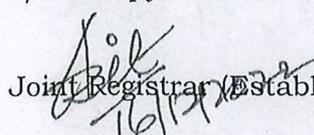
The Committee will submit its report to the Secretary of Senate within 2-3 weeks from the date of issuance of this order.

  
16.12.22

Registrar

Copy forwarded for information to:-

- 1) Director
- 2) Head, Department of Chemistry
- 3) Concerned Committee members
- 5) Director's Secretariat/Registrar's Secretariat
- 6) File copy

  
Joint Registrar (Establishment)

Date: 28/11/2022

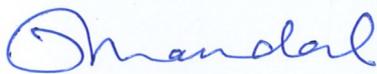
1. Tamal Mandal - Omandal 28/11/2022
2. Partha Sarathee Bhowmik - EE Dept. - Prsk 28/11/2022
3. S. Bhattacharjee - CSE dept - Prsk 28/11
4. Anjan Ghosh. Ans 28/11/22
- ~~4. Anjan Ghosh~~
5. Arindam Modak Ans 28/11/22
6. Anita Pal — APd 28/11/2022
7. Gopinath Halder — Ans 28/11/2022

**Summer Course Proposal**

The Continuing Education Cell of the Institute proposes to introduce the following Self-Financed Summer Course for undergraduate and postgraduate students, research scholars, and faculty members of NIT Durgapur and other colleges, universities and institutes (including schools) during the forthcoming summer recess of the Institute in 2023.

- Name of the Course: XXXX
- Course Coordinator: YYYY
- Course Duration: 40 hours
- Classes per day: 2 hours per day, from 11 am to 1 pm, from Monday to Friday
- Mode: Offline/Online/Hybrid
- Credits earned on successful completion of the course: 3
- Course fee: Rs 7000/- per student
- Course fee includes: Attending classes, interacting with the course coordinator, and receiving certificate
- Certificate signatories: Director NIT Durgapur, Chairperson CEC, and Course Coordinator
- Student Intake: 40
- Honorarium to the Coordinator: Rs 4000/- per student
- Remuneration to Non-Teaching Staff: Rs 200/- per student (for offline course only)
- Overhead Charges: As per NIT Durgapur norms
- Process for Course Fee Payment: To the bank account of CEC
- Process for Registration: Online filling-in of form
- Selection Process: First come first served basis
- Residual Earnings: To be used for academic activities limited to seminars, conferences, workshops, invited talks, and memorials lectures.
- Condition for using Residual Fund: The Faculty Member/Department requesting such funds should have offered such course/s; the fund should be distributed proportionately among the applicants in a particular financial year, beginning with 2024-25.

The CEC submits the proposal for your kind approval.



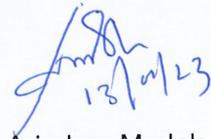
Prof. Tamal Mandal

Chairperson

13/01/2022

Dr Anita Pal

Deputy Chairperson

  
13/01/23

Dr Arindam Modak

Deputy Chairperson