



भारतीय प्रौद्योगिकी संस्थान गुवाहाटी
INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI

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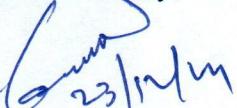
All the Senate Members
IIT Guwahati

Sub. – Minutes of the 180th Meeting of the Senate of IIT Guwahati

Sir/Madam,

The Minutes of the 180th Senate meeting, which was held on 20th December, 2024 at 03.00 P.M. in the Senate Hall of the Administrative Building, is enclosed herewith for your information.

Yours sincerely,


(Diganta Goswami)
Registrar (I/C) and Secretary, Senate

MINUTES

OF

180TH MEETING OF THE SENATE

OF

INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI



03.00 P.M.
20TH DECEMBER (FRIDAY), 2024
SENATE HALL
ADMINISTRATIVE BUILDING
IIT GUWAHATI

Minutes of the 180th Meeting of the Senate held on 20th December, 2024
Indian Institute of Technology Guwahati

The One Hundred and Eightieth (180th) meeting of the Senate of the Institute was held on 20-12-2024 and the following members were present.

Sl. No.	Name	Academic Division/Designation
1.	Prof. Devendra Jalihal	Director & Chairman, Senate
2.	Prof. Brahma Deo	External Member
3.	Prof. Sukumar Nandi	Computer Science and Engineering
4.	Prof. Abu Taleb Khan	Chemistry
5.	Prof. Alika Khare	Physics
6.	Prof. Uday Shanker Dixit	Mechanical Engineering & Head of the Centre for Indian Knowledge Systems
7.	Prof. Rajiv Tiwari	Mechanical Engineering
8.	Prof. Samarendra Dandapat	Electronics and Electrical Engineering
9.	Prof. Sajal Kanti Deb	Civil Engineering
10.	Prof. Santosha Kumar Dwivedy	Mechanical Engineering
11.	Prof. Debabrata Chakraborty	Mechanical Engineering
12.	Prof. Pranab Goswami	Biosciences and Bioengineering
13.	Prof. Rajaram Swaminathan	Biosciences and Bioengineering
14.	Prof. Seenipandian Ravi	Physics
15.	Prof. Ratnajit Bhattacharjee	Electronics and Electrical Engineering & Head of the Mehta Family School of Data Science and Artificial Intelligence
16.	Prof. Diganta Goswami	Computer Science and Engineering & Registrar (In-charge)
17.	Prof. Swaroop Nandan Bora	Mathematics
18.	Prof. Siddhartha Sankar Ghosh	Biosciences and Bioengineering
19.	Prof. Parameswar K Iyer	Chemistry
20.	Prof. M. Guru Prem Prasad	Mathematics
21.	Prof. Rakhi Chaturvedi	Biosciences and Bioengineering & Head of the Department
22.	Prof. Veeranki Venkata Dasu	Biosciences and Bioengineering
23.	Prof. Latha Rangan	Biosciences and Bioengineering
24.	Prof. Harshal Bhalchandra Nemade	Electronics and Electrical Engineering & Head of the Department
25.	Prof. Baleshwar Singh	Civil Engineering
26.	Prof. Arbind Kumar Singh	Civil Engineering
27.	Prof. Sajith Gopalan	Computer Science and Engineering
28.	Prof. Anugrah Singh	Chemical Engineering
29.	Prof. Ashish Kumar Gupta	Chemistry
30.	Prof. G Krishnamoorthy	Chemistry
31.	Prof. Sukanta Pati	Mathematics
32.	Prof. Hemangee Kalpesh Kapoor	Computer Science and Engineering
33.	Prof. Subrata Kumar Majumder	Chemical Engineering
34.	Prof. Teiborlang Lyngdoh Rytathiang	Civil Engineering
35.	Prof. Senthilvelan Selvaraj	Mechanical Engineering
36.	Prof. Subramani Kanagaraj	Mechanical Engineering & Head of Jyoti and Bhupat Mehta School of Health Sciences and Technology
37.	Prof. Subhendu Sekhar Bag	Chemistry
38.	Prof. Shyamanta Moni Hazarika	Mechanical Engineering & Head of the Department
39.	Prof. Bosanta Ranjan Boruah	Physics & Head of the Department
40.	Prof. Ranjan Tamuli	Biosciences and Bioengineering
41.	Prof. Shaik Rafi Ahamed	Electronics and Electrical Engineering
42.	Prof. Manas Kamal Bhuyan	Electronics and Electrical Engineering
43.	Prof. Praveen Kumar	Electronics and Electrical Engineering
44.	Prof. Chandan Das	Chemical Engineering
45.	Prof. Tapas Kumar Mandal	Chemical Engineering
46.	Prof. Nanda Kishore	Chemical Engineering

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Sl. No.	Name	Academic Division/Designation
47.	Prof. Vimal Katiyar	Chemical Engineering
48.	Prof. Chunchu Mallikarjuna	Civil Engineering
49.	Prof. Bulu Pradhan	Civil Engineering & Associate Dean of Academic Affairs (Postgraduate)
50.	Prof. Hemant B. Kaushik	Civil Engineering & Associate Dean of Academic Affairs (Online Programmes)
51.	Prof. Ajay Kalamdhad	Civil Engineering
52.	Prof. Kanduru Venkata Krishna	Mathematics & Dean of Academic Affairs
53.	Prof. Siddhartha Pratim Chakrabarty	Mathematics
54.	Prof. Shakuntala Mahanta	Humanities and Social Sciences
55.	Prof. Tarak Nath Dey	Physics
56.	Prof. Chivukula Vasudeva Sastri	Chemistry
57.	Prof. Debapratim Das	Chemistry
58.	Prof. Biman Behari Mandal	Biosciences and Bioengineering
59.	Prof. Ramabadran Ganesh Narayanan	Mechanical Engineering & Head of the Centre for Intelligent Cyber-Physical Systems
60.	Prof. Amaresh Dalal	Mechanical Engineering
61.	Prof. Karuna Kalita	Mechanical Engineering
62.	Prof. Ashok Kumar Dasmahapatra	Chemical Engineering
63.	Prof. Bimlesh Kumar	Civil Engineering
64.	Prof. Laishram Boeing Singh	Civil Engineering
65.	Prof. Debarshi Das	Humanities and Social Sciences
66.	Prof. Rajshree Bedamatta	Humanities and Social Sciences
67.	Prof. Priyankoo Sarmah	Humanities and Social Sciences & Head of the Department
68.	Prof. Rupam Barman	Mathematics & Associate Dean of Academic Affairs (Undergraduate)
69.	Prof. Lal Mohan Kundu	Chemistry
70.	Prof. Sumana Dutta	Chemistry
71.	Prof. Santabrata Das	Physics
72.	Prof. Satyajit Panda	Mechanical Engineering
73.	Prof. Swarup Bag	Mechanical Engineering
74.	Prof. Suresh Arvindakshan Kartha	Civil Engineering & Head of the Centre for Sustainable Water Research
75.	Prof. Bithiah Grace Jaganathan	Biosciences and Bioengineering
76.	Prof. Manish Kumar	Biosciences and Bioengineering
77.	Prof. Sougata Karmakar,	Design & Head of the Department
78.	Prof. Ashish Anand	Computer Science and Engineering
79.	Prof. Gagan Kumar	Physics
80.	Prof. Sudip Mitra	School of Agro and Rural Technology & Head of the School
81.	Prof. Bidisha Som	Humanities and Social Science
82.	Prof. Poonam Kumari	Mechanical Engineering
83.	Prof. Deepak Sharma	Mechanical Engineering
84.	Prof. Manabendra Sarma	Chemistry
85.	Prof. Vijayasaradhi Vedula	Computer Science and Engineering
86.	Prof. Gaurav Trivedi	Electronics and Electrical Engineering
87.	Prof. Soumitra Nandi	Physics
88.	Prof. Raghvendra Gupta	Chemical Engineering
89.	Dr. Akshai Kumar A. S, Associate Professor	Chemistry & Head of the Centre for Nanotechnology

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The agenda of the meeting was taken up as under.

Item 1: **Confirmation of the Minutes of the 179th Meeting of the Senate held on 24th October, 2024.**

The drafts of the Minutes of the abovementioned meeting was circulated among the members for comments/observations.

The Senate examined the minutes as above and found the same acceptable.

R.180/1/2024 The Senate **RESOLVED** that the Minutes of the 179th Meeting of the Senate held on 24th October, 2024 be **APPROVED**.

Item 2: **Action Taken Report on the decision of the 179th Meeting of the Senate held on 24th October, 2024.**

The Senate examined the Action Taken Report on the decisions of the abovementioned meetings as placed in **Annexure 180/2** (Page No. 1-2) and found the same acceptable.

R.180/2/2024 The Senate **RESOLVED** that the Action Taken Report on the decisions of the Minutes of the 179th Meeting of the Senate held on 24th October, 2024 be **APPROVED**.

Item 3: **To consider the proposal for 4-year undergraduate programme BS in Biomedical Science and Engineering from the JBM School of Health Sciences and Technology.**

As per resolution R.179/11/2024 of the Senate dated 24.10.2024, the Senate in principle approved the proposal for starting a 4-Year Bachelor of Science (BS) programmes from JBM School of Health Sciences and Technology. The school submitted a comprehensive proposal with course structure and admission criteria for BS in Biomedical Science and Engineering. The proposal was scrutinized by IUPC in two meetings and gave feedback on the proposal. The IUPC in its joint meeting with IPPC held on 16.12.2024 recommended the proposal, as placed in **Annexure 180/3** (Page No. 3-12), to place it to the Senate for approval.

The Senate considered the proposal and deliberated at length on the content, admissions, prospects, etc., of the programme. While approving the proposal, the Senate made the following suggestions:

- Finetune the titles of the courses at the time of framing the detailed syllabi.
- Ensure the syllabus of the GATE paper Biomedical Engineering is covered in the curriculum.
- Explore the possibility of giving course numbers with the course codes of respective departments so that the concerned departments' help is ensured for teaching.

Accordingly, the Senate approved the proposal and recommended to place it to the BoG for approval.

R.180/3/2024

The Senate **RESOLVED** that the proposal for 4-year undergraduate programme Bachelor of Science (BS) in Biomedical Science and Engineering from the JBM School of Health Sciences and Technology be **APPROVED** and **RECOMMENDED** to the **BoG** for approval.

Item 4:

To consider the proposals of course mapping towards credits for a full semester B.Tech project at an external organization from

- (i) Department of Mathematics,**
- (ii) Department of Electronics and Electrical Engineering.**

The Senate, in its 164th meeting held on 18.11.2022, approved the proposal for enabling the option for a semester-visit to an external organization for pursuing project or internship by undergraduate students in their 7th or 8th semester. Further, as per resolution R.165/13/2023, the Senate resolved that at least 30 credits can be awarded to undergraduate projects pursued at external organization during the semester-visit. The Academic Divisions were asked to submit the proposals with the number of credits along with the list of courses in the curriculum in lieu of which the project can be pursued.

In view of the above, the Department of Mathematics and the Department of Electronics and Electrical Engineering submitted proposals for course mapping to pursue BTech project at an external organization.

- i) The Department of Mathematics recommended BTech project at an external organization only in the 8th Semester, as there are some compulsory courses in the 7th semester of BTech in Mathematics and Computing programme. The Department mapped MA499 Project-II, Department Electives-III & IV and Open Elective towards earning 30 credits for BTech project at external organization.
- ii) The Department of Electronics and Electrical Engineering recommended three Department Electives and one Open Elective towards earning 30 credits for BTech project at external organization. These courses are identical in both 7th and 8th semesters of both BTech in ECE and BTech in EEE programmes, and the students can visit in either of the semesters. It was opined that, although the BTP is optional in the curricula of BTech programmes in the Department of EEE, the policy enables awarding credits to BTP done at external organization.
- iii) Further, the Department informed that four students, viz., Anindya Biswas (210108004), Jakkula Spandhan Srirag (210102040), Vagisha Raj (210102094) and Hrishikesh (210102038), secured internship opportunity at an external organization in the core areas and hence they were deprived of campus placement opportunities. The students have an option to pursue BTech project at the respective external organizations. Accordingly, as a one-time exception, the Department recommended to allow these five students to do appropriate NPTEL-MOOC in place of 8th semester HSS elective. The Department also recommended the same for Arka Datta (200102013), who took one year drop for pursuing start-up and he has planned to do the BTech project at external organization in Jan-May 2025 Semester and complete the requirements of the degree.

The IUPC in its joint meeting with IPPC held on 16.12.2024 scrutinized the proposals and recommended them to the Senate for approval. It was suggested that a new course number for 30 credit project with appropriate title can be assigned.

The Senate considered the proposals and approved the same after a due deliberation. The Department of EEE was suggested to pursue with the Department of HSS for submitting a proposal of NPTEL-MOOC in place of 8th semester HSS elective, which will be applicable only for above-mentioned five students.

R.180/4/2024 The Senate **RESOLVED** that the following regarding course mapping towards credits for a full semester B.Tech project at an external organization be **APPROVED**:

- (i) For BTech M&C students, MA499 Project-II, Department Electives-III & IV and Open Elective are mapped towards earning 30 credits for BTech project at external organization in the 8th semester.
- (ii) For BTech ECE as well as EEE students, three Department Electives and one Open Elective are mapped towards earning 30 credits for BTech project at external organization in any one of 7th or 8th semesters.
- (iii) As a one-time exception, Anindya Biswas (210108004), Jakkula Spandhan Srirag (210102040), Vagisha Raj (210102094), Hrishikesh (210102038) and Arka Datta (200102013) are permitted to take one HSS elective on NPTEL-MOOC in place of 8th semester HSS elective.

Item 5: **To consider the proposal for revision of Dual MTech + PhD Programme from the Department of Computer Science and Engineering.**

Currently, the department of CSE is offering the dual MTech+PhD programme for candidates with UG degree in any discipline other than CSE and IT. The Department of CSE submitted a proposal, as per **Annexure 180/5** (Page No. 13-14), for revision of existing dual degree programme which will be opened to candidates from all disciplines including CSE/IT and will be admitted in both July and December sessions under the PhD programme. The Department proposed a revision of course structure for the dual degree programme. The PhD students with UG degree who complete the proposed coursework will be awarded MTech in CSE.

The IPPC in its joint meeting with IUPC held on 16.12.2024 scrutinized the proposal and recommended the same to the Senate for approval. Further, the Joint Committee suggested the Department to submit the revised eligibility criteria for the programme.

In view of the resolution R.179/6/2024 of the Senate and the provisions of dual degree Master's+PhD programme of the Institute, the Senate considered the proposal and approved the same.

R.180/5/2024 The Senate **RESOLVED** that the proposal for revision of Dual MTech + PhD Programme from the Department of Computer Science and Engineering be **APPROVED**.

Item 6: **To consider the proposal from the Department of Electronics and Electrical Engineering for extending the Dual MS(Engg.) + PhD Programme to PhD students with UG degree.**

The Department of Electronics and Electrical Engineering submitted a proposal for extending the course structure of existing Dual MS(Engg.)+PhD programme in the Department to PhD students (including those who are already enrolled) for earning MS(Engineering) in EEE. In line with the existing dual degree programme, there will not be any specialization for the Master's degree. The Joint Committee considered the course work proposal and recommended to the Senate for approval.

In view of the resolution R.179/6/2024 of the Senate and the provisions of dual degree Master's+PhD programme of the Institute, the Senate considered the proposal and approved the same.

R.180/6/2024 The Senate **RESOLVED** that the proposal from the Department of Electronics and Electrical Engineering for extending the Dual MS(Engg.) + PhD Programme to PhD students with UG degree be **APPROVED**.

Item 7: **To consider the proposal from the Department of Biosciences and Bioengineering for the course work of currently enrolled PhD students with UG degree to earn a master's degree.**

Considering the provisions of the Institute for awarding master's degree to PhD students with UG degree, the Department of BSBE submitted a proposal for awarding MTech in Biotechnology to currently enrolled students, subject to fulfillment of the following:

Aspiring students need to necessarily take do the compulsory courses from any of the existing MTech Programmes in Biotechnology or Bioengineering or from both to complete the remaining credits. The courses are BT501, BT502, BT503, BT503, BT504, BT510 and BT520 of MTech in Biotechnology, and BT521, BT522, BT523, BT524, BT530, BT540 and BT645 of MTech in Bioengineering. In case of shortfall of the aforementioned compulsory courses, the students can take some of the following courses to complete the credit requirement: BT601, BT607, BT608, BT609, BT616, BT617, BT619, BT624, BT630, BT631, BT632, BT633, BT635, BT638 and BT642.

The IPPC in its joint meeting with IUPC held on 16.12.2024 scrutinized the proposal and recommended the same to the Senate for approval.

In view of the resolution R.179/6/2024 of the Senate and the provisions of dual degree Master's+PhD programme of the Institute, the Senate considered the proposal and approved the same.

R.180/7/2024 The Senate **RESOLVED** that the proposal from the Department of Biosciences and Bioengineering for the course work of currently enrolled PhD students with UG degree to earn MTech in Biotechnology be **APPROVED**.

Item 8: **To consider the proposal from the School of Agro and Rural Technology for the course work of PhD students with UG degree to earn a master's degree.**

The School of Agro and Rural Technology submitted a proposal for course work of PhD students with UG degree to earn MTech degree in Rural Technology. For this purpose, the School recommended that a desirous PhD student with UG degree needs to earn 54 credits through the compulsory courses of current curriculum of MTech in Rural Technology and the remaining 18 credits shall be through any of the courses applicable to PhD students.

The IPPC in its joint meeting with IUPC held on 16.12.2024 scrutinized the proposal and recommended the same to the Senate for approval.

In view of the resolution R.179/6/2024 of the Senate and the provisions of dual degree Master's+PhD programme of the Institute, the Senate considered the proposal and approved the same.

R.180/8/2024 The Senate **RESOLVED** that the proposal from the School of Agro and Rural Technology for the course work of PhD students with UG degree to earn MTech in Rural Technology be **APPROVED**.

Item 9: **To consider the proposal from the Department of Civil Engineering for the course work of PhD students with UG degree to earn a master's degree.**

The Department of Civil Engineering submitted a proposal for course work of PhD students with UG degree. The Department recommended that a PhD student with UG degree who wishes to earn a Master's degree needs to earn 48 credits through the courses prescribed for respective specialization of existing MTech programme in the department and the remaining 24 credits shall be through any of the courses applicable to PhD students. The Department recommended to award Master of Science (MS) degree in Civil Engineering with the respective specialization.

The IPPC in its joint meeting with IUPC held on 16.12.2024 scrutinized the proposal and recommended the same to the Senate for approval.

In view of the resolution R.179/6/2024 of the Senate and the provisions of dual degree Master's+PhD programme of the Institute, the Senate considered the proposal and approved the same.

R.180/9/2024 The Senate **RESOLVED** that the proposal from the Department of Civil Engineering for the course work of PhD students with UG degree to earn MS in Civil Engineering with the respective specialization be **APPROVED** and **RECOMMENDED** to place the same to BoG for approval.

Item 10: **To consider the proposal from the Department of Chemistry for the course work of PhD students with UG degree to earn a master's degree.**

The Department of Chemistry submitted a proposal for course work of PhD students with UG degree. The Department recommended the following courses for course work of a PhD student with UG degree to earn 48 credits out of 72 credits for Master's degree: CH601, CH613, CH614, CH617, CH618, CH623, CH625, CH626, CH627, CH628, CH629, CH631, CH633, CH634, CH637, CH639 and CH645. The remaining credits can be earned through any course of level 5 and above offered by any academic division. For such students, the Department recommended to award Master of Science (MS) degree in Chemistry.

The IPPC in its joint meeting with IUPC held on 16.12.2024 scrutinized the proposal and recommended the same to the Senate for approval.

In view of the resolution R.179/6/2024 of the Senate and the provisions of dual degree Master's+PhD programme of the Institute, the Senate considered the proposal and approved the same.

R.180/10/2024 The Senate **RESOLVED** that the proposal from the Department of Chemistry for the course work of PhD students with UG degree to earn MS in Chemistry be **APPROVED** and **RECOMMENDED** to place the same to BoG for approval.

Item 11: **To consider the proposal for Dual MS + PhD Programme from the Centre for Linguistic Science and Technology.**

The Centre for LST submitted a proposal for new MS + PhD dual degree programme. The IPPC in its joint meeting with IUPC held on 16.12.2024 scrutinized the proposal and suggested certain modification and finalized the proposal as placed in **Annexure 180/11** (Page No. 15). Accordingly, the Joint Committee recommended the proposal of dual MS in Linguistic Science and Technology + PhD to the Senate for approval.

In view of the resolution R.179/6/2024 of the Senate and the provisions of dual degree Master's+PhD programme of the Institute, the Senate considered the proposal and approved the same.

R.180/11/2024 The Senate **RESOLVED** that the proposal from the Centre for Linguistic Science and Technology for dual degree MS in Linguistic Science and Technology + PhD be **APPROVED** and **RECOMMENDED** to place the same to **BoG** for approval.

Item 12: **To consider the proposal for awarding master's degree to the PhD students who converted from their studentship from master's degree programme.**

A regular student of IITG who is continuing in MTech/MDes/MS(R) programme with CPI 8.0 at the end of second semester can enroll into PhD programme of the respective academic division at the beginning of the third semester. As per the prevailing norms, such students can receive only PhD degree. However, in view of the recent provisions of the Institute for awarding master's degree to PhD students with UG degree, there are requests from such PhD students for awarding master's degree. In this connection, it is proposed to extend the provision of awarding the concerned master's degree, MTech/MDes/MS(R) in which the student was originally admitted, subject to completing the remaining credits of through PhD course work.

The Senate considered the proposal and approved the same. Further, the Senate recommended the proposal to place to the BoG for amendment of respective clauses in the ordinances.

R.180/12/2024 The Senate **RESOLVED** that the proposal for awarding master's degree to the PhD students who converted from their studentship from master's degree programme be **APPROVED** and **RECOMMENDED** to place the same to **BoG** for approval.

Item 13: **To consider the following proposals from the Department of Mathematics regarding MSc programmes.**

- ii) **For MSc in Mathematics and Computing:**
 - Renumbering the course MA599 Project 0-0-14-14.
 - Permission to do open elective either in 3rd semester or 4th semester.
- iii) **For both MSc in Mathematics and MSc in Mathematics and Computing:**
 - Permission to do an additional elective course in the second semester.

The Department of Mathematics submitted a proposal on the abovementioned matters. The IPPC in its joint meeting with IUPC held on 16.12.2024 scrutinized the proposal and recommended the following to the Senate for approval:

- MA599 Project of MSc in Mathematics and Computing may be renumbered as MA598 Project with the same credit structure 0-0-14-14.
- A student of MSc in Mathematics and Computing can have option for registering an Open Elective in 3rd semester instead of existing 4th semester.
- Depending on the performance in the 1st semester, which is ascertained by the faculty advisor, a student of MSc in Mathematics or MSc in Mathematics and Computing can opt for additional course load of one elective course in 2nd semester (by preponing an elective from 3rd semester or 4th semester).

The Senate considered the proposal and approved the same.

R.180/13/2024 The Senate **RESOLVED** that the proposals from proposals from the Department of Mathematics regarding MSc programmes as stated above be **APPROVED**.

Item 14: **To consider the proposal for delegating certain matters to the Chairman, IPPC.**

In order to bring ease in administration, the following matters that are currently handled by the Chairman, Senate are proposed to delegate to Chairman, IPPC:

- i) Leave approvals Doctoral/MTech/MDes/MS(R) students
- ii) Appointment of Co-supervisors for MTech/MDes/MS(R) students from outside the Institute
- iii) Semester Drop for Doctoral students.
- iv) Permission to Master's/Doctoral students for staying outside the campus.
- v) Appointment of external examiners of PhD theses.

Details of the respective clauses are placed in **Annexure 180/14** (Page No. 16).

Further, in the clause 8.3 of PhD ordinances, the sentence "*The Chairman, Senate may permit a student to change his/her Supervisor(s) for valid reasons. Mutual consent of the student and supervisor(s) and recommendations of the DPPC and IPPC are required.*" is proposed to replace with "On valid grounds, the Chairman, IPPC may

permit the change of supervisor(s) of a student within three years from the date of admission into PhD programme. Mutual consent of the student and supervisor(s) and recommendations of the DPPC are required.”

In line with the above proposals, Semester Drop approval for all students may be delegated to Chairman, IUPC/IPPC, as the case may be. Upon approval, the same will be reported to the Senate.

The Senate considered the proposal and approved the same. Further, the Senate recommended the proposal to place to the BoG for amendment of respective clauses in the ordinances.

R.180/14/2024 The Senate **RESOLVED** that the proposal for delegating certain matters to the Chairman, IPPC as stated above be **APPROVED** and **RECOMMENDED** to place the same to **BoG** for approval.

Item 15: **Any other item with permission of the Chair.**

To consider the students' proposal of postponement of supplementary examinations of Monsoon Semester, 2024.

The students' representatives submitted a proposal as placed in **Annexure 180/15** (Page No. **17**) for postponement of supplementary examinations of Monsoon Semester, 2024. Mr. Hitesh Ramrakhiyani, General Secretary, SAB, attended the meeting and expressed the students' views.

The Senate reiterated that the Academic Calendar was announced before the beginning of the calendar year 2024 and the students' representative are on the Academic Calendar Committee. Further, in the continuous assessment system, students are aware of their performance in the course and failing in a course is not in general a surprise. The Senate strongly objected the way the proposal is made by the students' representatives. However, considering the circumstances of the proposal, the Senate decided to postpone the supplementary examination to the first week of Winter

Semester, 2025, as a one-time exception. Further, the Senate suggested the students' representatives to inform the students to take necessary measures for not bringing such agenda in the future.

- R.180/15/2024** The Senate **RESOLVED** that the students' proposal of postponement of supplementary examinations of Monsoon Semester, 2024 as stated above be **APPROVED**.

Item 16: **Matters sought to be placed for information before the Senate.**

- 16a)** **To report the reinstatement of Sambashiva Reddy Appidi, PhD, Dept. of HSS, Roll No. 176141107.**

The Senate found that Sambashiva Reddy Appidi, Roll No. 176141107, a PhD student of Dept. of HSS, appealed for reinstatement in the July-Nov 2024 semester. The studentship of the student was cancelled vide Ref. Pers/Cert/176141107 dated 12.03.2024 due to consistent lack of progress in research.

Subsequently, Sambashiva has received a job offer and again appealed for reinstatement with a request to change his student category from full-time to part-time. The appeal was approved by the Chairman, Senate.

- R.180/16(a)/20** The Senate **RESOLVED** that the approval on reinstatement of Sambashiva Reddy Appidi, PhD, Dept. of HSS, Roll No. 176141107 be **NOTED**.

- 16b)** **To report about the approval of IADC recommendations on students involved in malpractices during the End Sem Examinations of Monsoon Semester (July-Nov), 2024.**

The Institute Academic Disciplinary Committee (IADC) examined few cases of violation of rules/occurrence of malpractices during Monsoon (July-Nov) Semester, 2024 in the meeting held on 13-12-2024. The summary of recommendations is placed at **Annexure 180/16(b) (Page No. 18-22)**. The Chairman, Senate approved the recommendations of the cases, except case 10. For case 10, the matter was referred to SDC while keeping the results of the concerned students withheld.

R.180/16(a)/20 The Senate **RESOLVED** that the approval on the IADC recommendations on Disciplinary Matters during End Sem Examinations of Monsoon Semester (July-Nov), 2024 be **NOTED**.

16c) **To report the proposal related to Swayam NPTEL MOOC from Prof. M. G. P. Prasad, Department of Mathematics.**

The Senate vide Resolution No. **R.179/8/2024** dated 24-10-2024 **RESOLVED** to get the feedback from academic divisions on the proposal related to Swayam NPTEL MOOC from Prof. M. G. P. Prasad along with the recommendations of IUPC/IPPC and **APPROVED** to authorise the Chairman, Senate to take a decision on the matter.

Based on above, the matter was circulated to all the Academic Divisions for feedback on 31-10-2024. Accordingly, 11 Academic Divisions including 7 Departments have responded and all of them have agreed on the proposal. Therefore, the proposal was approved by the Chairman, Senate.

R.180/16(c)/20 The Senate **RESOLVED** that the approval on the proposal related to Swayam NPTEL MOOC from Prof. M. G. P. Prasad, Department of Mathematics be **NOTED**.

16d) **To report about recommendation of Senate committee for supervisor change of following two PhD students:**

1. Rajendra Adak, Roll No. 196154008, SART
2. Rameshwar Shukla, Roll No. 236106022, BSBE

Considering the requests of abovementioned two PhD students for supervisor change, a senate committee with the following composition was constituted to review their appeals.

1. Prof. Chitralekha Mahanta, Department of Electronics and Electrical Engineering (Convener)
2. Prof. V. Venkata Dasu, Department of BSBE
3. Prof. U. K. Saha, Department of Mechanical Engineering

Subsequently, Rajendra Adak, Roll No. 196154008, SART had withdrawn his request for supervisor change and resigned from the programme. The Senate committee reviewed the matter of Rameshwar Shukla, Roll No. 236106022, BSBE and recommended the supervisor change. The recommendation of the senate committee was approved by the Chairman, Senate.

R.180/16(d)/20 The Senate **RESOLVED** that the approval on the recommendation of Senate **24** committee for supervisor change of Rajendra Adak, Roll No. 196154008, SART And Rameshwar Shukla, Roll No. 236106022, BSBE be **NOTED**.

16e) **To report about the selection Prof. Chandan Mukherjee, Dept. of Chemistry as a Nominee of the Senate to the BoG as the term of Prof. Mohammad Jawed will expire on 31.12.2024.**

As the term of Prof. Mohammad Jawed as the nominee of the Senate to the BOG of the Institute will be completed on 31.12.2024, following the due process, Prof. Chandan Mukherjee, Dept. of Chemistry has been elected as the Senate Nominee to the Board of Governors of IIT Guwahati for a period of two years, i.e., from 1st January 2025 to 31st December 2026.

R.180/16(e)/20 The Senate **RESOLVED** that the selection Prof. Chandan Mukherjee, Dept. of **24** Chemistry as a Nominee of the Senate to the BoG as the term of Prof. Mohammad Jawed will expire on 31.12.2024 be **NOTED**.

16f) **To report about approval on the results of the Monsoon Semester, 2024.**

The joint committee of the 153rd IUPC and 145th IPPC held on 05.12.2024 considered the results of the Monsoon Semester (July-Nov), 2024 as placed at **Annexure 180/16(f) (Page No. 23-39)** and recommended for approval. The results have been approved by the Chairman, Senate.

R.180/16(f)/20 The Senate **RESOLVED** that the approval on the results of the Monsoon Semester, **24** 2024 be **NOTED**.

16g) Reporting matters from the joint meeting of 154th IUPC and 146th IPPC held on 16.12.2024.

The following matters have been approved in the joint meeting of 154th IUPC and 146th IPPC held on 16.12.2024 as placed in **Annexure 180/16(g) (Page No. 40-43)**.

Sl. No.	Item	Resolution
1.	To consider the proposal from the Department of Mathematics for permission to a list of NPTEL MOOC.	APPROVED
2.	To consider the proposal from the Department of Computer Science and Engineering for permission to a list of NPTEL MOOC.	APPROVED
3.	To consider the proposal for two elective courses EN681 Automotive Vehicles (3-0-0-6) and EN682 Renewable Energy based Smart Grid (3-0-0-6), from the School of Energy Science and Engineering.	APPROVED

R.180/16(g)/20 The Senate **RESOLVED** that the matters from the joint meeting of 154th IUPC and 146th IPPC held on 16.12.2024 be **NOTED**.

16h) To report about the approval of DDC recommendations on students involved in malpractices during the End Sem Examinations of Monsoon Semester (July-Nov), 2024.

Considering the reported malpractices in the End-Sem Examinations of Monsoon Semester, 2024, the DDCs of concerned academic divisions have submitted the recommendations. The recommendations approved by Chairman, IADC are placed at **Annexure 180/16(h) (Page No. 44-45)**.

R.180/16(h)/20 The Senate **RESOLVED** that the approval of DDC recommendations on students involved in malpractices during the End Sem Examinations of Monsoon Semester (July-Nov), 2024 be **NOTED**.

The meeting ended with thanks to the Chair.

ANNEXURE

TO THE
MINUTES OF THE
180TH MEETING OF THE SENATE
OF
INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI



03.00 P.M.
20TH DECEMBER (FRIDAY), 2024
SENATE HALL
ADMINISTRATIVE BUILDING
IIT GUWAHATI


INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
Academic Affairs Section
Sub.: Follow-up actions regarding 179th Meeting of the Senate, dated 24.10.2024

Resolution No.	Agenda Item	Status of Action Taken/ Action Needed to be taken
R.179/1/2024	Confirmation of the Minutes of the (i) 177 th Meeting of the Senate held on 29 th August, 2024. (ii) 178 th (Special) Meeting of the Senate held on 18 th September, 2024	To be placed to the BoG.
R.179/2/2024	Action Taken Report on the decision of the (i) 177 th Meeting of the Senate held on 29 th August, 2024. (ii) 178 th (Special) Meeting of the Senate held on 18 th September, 2024	No action is required.
R.179/3/2024	To consider the list of graduating students who have completed their requirement for award of PhD Degrees after the 26 th Convocation.	Approved by the BoG. Accordingly, degree certificates have been prepared.
R.179/4/2024	To consider the proposal of Academic Calendar for the Year 2025.	Academic Calendar was circulated.
R.179/5/2024	To consider the follow-up proposal regarding course deregistration due to attendance.	Approved by the BoG. Accordingly, a Notice has been issued.
R.179/6/2024	To consider the proposal for awarding Master's degree to PhD students admitted with UG degree.	Placed and approved in the BoG. Accordingly, a Notice has been issued.
R.179/7/2024	To consider the proposal for reviving the scheme of allowing BTech students from NITs to study their final year at IITG and join the PhD programme.	The matter is under consideration for implementation.
R.179/8/2024	To consider the proposal related to Swayam NPTEL MOOC from Prof. M. G. P. Prasad, Department of Mathematics.	Departmental feedback was obtained and the proposal has been approved by the Chair and is being implemented
R.179/9/2024	To consider the proposal on academic matters in the draft Student Entrepreneurship Policy.	Intimated the concerned
R.179/10/2024	To consider the proposal from the School of Agro and Rural Technology for revision of curriculum of MTech in Rural Technology.	Updated the curriculum in the records.
R.179/11/2024	To consider the proposal for two new UG programs (i) BTech in Biomedical Engineering and (ii) BS in Biomedical Sciences and Engineering from JBM School of Health Sciences and Technology.	The School has submitted a comprehensive proposal on BS in Biomedical Science and Engineering.
R.179/12/2024	To consider the proposal from the Department of Mathematics for including four new NPTEL MOOC.	Included in the list of approved courses.
R.179/13/2024	To consider request from Rajib Das (Roll No. 224104604), MTech, Dept. of CE, for change of studentship category.	The student was intimated.

<u>R.179/14/2024</u>	To consider the proposal from the Centre for Sustainable Polymers for considering the grade of final phase project of Siddhanta Bishi (Roll No. 224358007), a student of MS(R) in Polymer Science and Technology.	The student was intimated.
<u>R.179/15/2024</u>	To consider the proposal for increasing the credit limit of a trimester for online BSc(Hons) degree programmes and additional opportunities.	Will be placed to the BoG for Approval.
<u>R.179/16/2024</u>	To consider the selection of a new nominee of the Senate to the Board of Governors, since the term of Prof. Mohammad Jawed will expire on 31.12.2024.	The election for new nominee of the Senate to the Board of Governors was conducted and Prof. Chandan Mukherjee, Department of Chemistry has been elected as Member of the BoG as Senate nominee.
<u>R.179/17/2024</u>	To consider the proposal for revision of course Structure of the M.Tech in Robotics & AI from the Centre for Intelligent Cyber Physical Systems.	Updated the curriculum in the records.
<u>R.179/18a)/2024</u>	To report about granting permission for Academic leave for longer duration.	Reporting item only.
<u>R.179/18b)/2024</u>	To report semester extension for Ph.D students (Ph.D Form-29).	Reporting item only.
<u>R.179/18c)/2024</u>	Appointment of Local Supervisors from external organization (Ph.D. Form-11B)	Reporting item only.
<u>R.179/18d)/2024</u>	To report about granting permission for Semester leave/drop or Non-Academic Leave.	Reporting item only.
<u>R.179/18e)/2024</u>	To report the reinstatement of studentship of PhD Students.	Reporting item only.
<u>R.179/18f)/2024</u>	To report the approval of the IADC recommendation on Disciplinary Matters during July-November 2024 Mid-Semester Examination.	Reporting item only.
<u>R.179/18g)/2024</u>	To report about completion of PhD by Research Scholars (Form 17).	Reporting item only.
<u>R.179/18h)/2024</u>	Reporting matters from IUPC and IPPC Meetings: <ol style="list-style-type: none"> To report matters from the joint meeting of 145th IUPC and 139th IPPC To report matters from the meeting of the 140th IPPC To report matters from the joint meeting of 146th IUPC and 141st IPPC To report matters from the meeting of the 148th IUPC 	Reporting item only.
<u>R.179/19)/2024</u>	Any other item with the permission of the Chair. <ol style="list-style-type: none"> To report the results of the third trimester (May – Sep 2024 Cohort 1) of BSc(Hons) in DS&AI online degree programme. To report matters from the joint meeting of 151st IUPC and 144th IPPC. 	Reporting item only.

**Proposal for 4-Year Bachelor of Science Program in Biomedical Science and Engineering
from
Jyoti and Bhupat Mehta School of Health Sciences and Technology**

Preamble: The healthcare sector in India is evolving at a rapid pace and has enormous potential to grow making the country self-reliant and contribute towards the goal of universal healthcare. In the National Medical Devices Policy, 2023 the Government of India envisions the country to emerge as a global leader in the manufacturing and innovation of medical devices capturing 10-12% global market share in next 25 years. To realize this goal, there is a pressing need to train human resources who understand the science and engineering behind the existing devices and are equipped and passionate about addressing the challenges faced by the healthcare industry. The Jyoti and Bhupat Mehta School of Health Sciences and Technology proposes to introduce an undergraduate program, Bachelor of Science in Biomedical Science and Engineering starting from the Academic Year 2025-26. The students will be introduced to the basic concepts in multidisciplinary areas related to biomedical engineering using a synergistic combination of theory, experiments and project-based courses. The program has been designed for the students to have a strong foundation of language, computing, mathematics, physics, chemistry, electronics, and biology in the first two semesters. Following this, they will be exposed to the fundamental and translational aspects of health sciences and engineering, bioengineering, electronics, chemical sciences and engineering, and translation in the semester III to VI. Finally, in the last two semesters the curriculum is designed in such a manner that the students can specialize in the various upcoming areas of biomedical engineering. The students graduating with B. S. in Biomedical Sciences and Engineering are expected to fulfil the human resources requirement of the country's growing need of professionals trained in the multidisciplinary area of biomedical engineering.

Number of seats: 20

Eligibility Criteria:

1. A candidate should have appeared for the Class XII (or equivalent) examination for the first time in the year of admission or in the previous year. For example, for the admission in the year 2025, the candidate should have appeared the Class XII (or equivalent) examination for first time in the year 2024 or in 2025.
2. The candidate must have the subjects Physics, Chemistry, Mathematics and Biology in Class XII and should have scored a minimum 75% aggregate marks in the aforementioned subjects at the time of admission.
3. The candidate must have qualified for IISER Admission test (IAT) in the year of admission.

Course structure of 4-Year B.S. program in Biomedical Science and Engineering

Course No	Semester-I Course Name	L	T	P	C	Course No	Semester-II Course Name	L	T	P	C
HT101	Linear Algebra and Vector Calculus	2	1	0	6	HT 111	Differential Equations	2	1	0	6
HT102	Physics	2	1	0	6	HT 112	Digital system design	3	0	2	8
HT103	Chemistry	3	0	0	6	HT 113	Biochemistry	2	1	0	6
HT104	Basic Electrical Sciences	3	1	0	8	HT 114	Human Anatomy and Physiology	3	0	0	6
HT105	Introduction to Computing	3	0	0	6	HT 115	Engineering Mechanics	3	1	0	8
HT106	Organisation of Human Body	3	0	0	6	HT116	CAD Laboratory	1	0	3	5
HT107	Computing Laboratory	0	0	3	3						
		16	3	3	41					14	3
xxx	\$English Communication	2	0	2	0	SA1xx	Students Activity Course-I	0	0	2	0
Course No	Semester-III Course Name	L	T	P	C	Course No	Semester-IV Course Name	L	T	P	C
HT201	Probability and Statistics	2	1	0	6	HT211	Biomedical Instrumentation	2	0	2	6
HT202	Thermodynamics	2	1	0	6	HT212	Medicinal Chemistry	3	0	0	6
HT203	Molecular and Cell Biology	3	0	0	6	HT213	Signals and systems	2	1	0	6
HT204	Analog Integrated Circuits	3	0	0	6	HT214	Diagnostics and Therapeutic Devices	2	1	0	6
HT205	Solid Mechanics	2	1	0	6	HT215	Optics and Medical Imaging	3	0	0	6
HT 206	Introduction to Data Science	2	0	2	6	HT216	Regulatory Affairs and Entrepreneurship	1	0	2	4
HT 207	Biomedical Lab 1	0	0	3	3	HT 217	Biomedical Lab 2	0	0	3	3
HT 208	Prototyping lab	0	0	3	3	HS1xx	HSS Elective - I	3	0	0	6
		14	3	8	42					16	2
											7
SA2xx	Students Activity Course - II	0	0	2	0	SA3xx	Students Activity Course-III	0	0	2	0
Course No	Semester-V Course Name	L	T	P	C	Course No	Semester-VI Course Name	L	T	P	C
HT301	Finite Element and Numerical Methods	2	0	2	6	HT311	Informatics and AI in Medicine	2	0	2	6
HT302	Sensors and Actuators	2	0	2	6	HT312	Pharmacology and Toxicology	3	0	0	6
HT303	Digital signal processing	2	0	2	6	HT313	Quantitative Human Physiology	3	0	0	6
HT304	Fluid mechanics	3	0	0	6	HT314	Transport Phenomena in Physiological Systems	3	1	0	8
HT305	Medical Microbiology and Immunology	3	0	0	6	HT315	Biomechanics and Biomaterials	3	0	0	6
HT306	Biomedical Lab 3	0	0	3	3	HT316	Biomedical Lab 4	0	0	3	3
HT307	Clinical Immersion	0	0	3	3	HTXXX	Discipline Elective - I	3	0	0	6
HS1XX	HSS Elective - II	3	0	0	6						
		15	0	12	42					17	1
SA4xx	Students Activity Course-IV	0	0	2	0	HT318	Summer Training (PP/NP)	0	0	0	0
HT308	Technical Writing and Presentation	0	0	2	0						
<i>Summer training in Engineering academic/ medical Academia/Medical Device industry is preferred</i>											
Course No	Semester-VII Course Name	L	T	P	C	Course No	Semester-VIII Course Name	L	T	P	C
HT498	Project - I	0	0	12	12	HT499	Project - II	0	0	12	12
HTxxx	Discipline Elective - II	3	0	0	6	HTxxx	Discipline Elective - III	3	0	0	6
xxx	Open Elective-I	3	0	0	6	HTxxx	Discipline Elective - IV	3	0	0	6
HS2xx	HSS Elective-III	3	0	0	6	xxx	Open Elective-II	3	0	0	6
						HS2xx	HSS Elective-IV	3	0	0	6
		9	0	12	30					12	0
											36

\$As applicable to IITG UG (B Tech) curriculum.

Total Credits:

Sem	I	II	III	IV	V	VI	VII	VIII	Total
Credits	41	39	42	43	42	41	30	36	314

Science course	Engineering course	Humanities and Language courses, Electives, Skill development program	Pre-clinical	Para-clinical	clinical
Differential Equations	Basic Electrical Sciences	English Communication	Human Anatomy and Physiology	Molecular and Cell Biology	Clinical Immersion Program
Linear Algebra and Vector Calculus	Digital system design	Technical Writing and Presentation	Medicinal Chemistry	Medical Microbiology and Immunology	Project - I
Probability and Statistics	Analog Integrated Circuits	HSS Elective - I	Biochemistry	Diagnostics and Therapeutic Devices	Project - II
Finite Element and Numerical Methods	Biomedical Instrumentation	HSS Elective - II	Quantitative Human Physiology	Pharmacology and Toxicology	
Physics	Signals and Systems	HSS Elective – III	Summer training in Engineering Academic/ medical Academia/ Medical Device industry	Regulatory Affairs and Entrepreneurship	
Chemistry	Optics and Medical Imaging	HSS Elective – IV			
Organisation of Human Body	Sensors and Actuators				
	Digital signal processing	School elective-I			
	Introduction to Computing	School Elective - II			
	Computing Laboratory	School Elective - III			
	Introduction to Data Science	School Elective - IV			
	Informatics and AI in Medicine	Open Elective-I			
	Engineering Mechanics	Open Elective-II			
	Thermodynamics				
	Solid Mechanics	Clinical Immersion			
	Fluid mechanics	Technical Writing and Presentation			
	Transport Phenomena in Physiological Systems	Summer Training			
	Biomechanics and Biomaterials	Regulatory Affairs and Entrepreneurship			
	Biomedical Lab 1				
	Biomedical Lab 2				
	Biomedical Lab 3				
	Biomedical Lab 4				
	Prototyping lab				
	CAD Laboratory				

Observations:

- 4 mathematics courses including Probability and Statistics and Finite Element and Numerical Methods
- 3 basic courses (Physics, Chemistry and Organisation of Human Body)
- 4 computer Science and AI related course namely Introduction to Computing, Computing Laboratory, Introduction to Data Science and Informatics and AI in Medicine
- 8 Electronics related courses from 1st sem to 6th sem, Basic Electrical Sciences, Digital system design, Analog Integrated Circuits, Signals and Systems, Optics and Medical Imaging, Biomedical Instrumentation, Sensors and Actuators, and Digital signal processing,
- 6 Mechanical related courses from 1st sem to 6th sem, Engineering Mechanics, Thermodynamics, Solid Mechanics, Fluid mechanics, Transport Phenomena in Physiological Systems and Biomechanics and Biomaterials
- 2 design and prototyping laboratory courses
- 4 Humanity courses
- 4 school electives
- 2 open electives
- 4 Biomedical laboratory courses
- 4 pre-clinical courses namely Human Anatomy and Physiology, Medicinal Chemistry, Biochemistry, and Quantitative Human Physiology
- 4 para-clinical courses namely Molecular and Cell Biology, Medical Microbiology and Immunology, Diagnostics and Therapeutic Devices, Pharmacology and Toxicology
- 3 clinical courses namely Clinical Immersion Program, Project-I and Project-II
- 5 skill development courses (2 credit courses and 3 non-credit courses) namely English Communication, Regulatory Affairs and Entrepreneurship, Clinical Immersion, Technical Writing and Presentation, and Summer Training
- 4 Students Activity Courses (non-credit)

**Course content for Bachelor of Science (BS) Program in Biomedical Science and Engineering from
Jyoti and Bhupat Mehta School of Health Sciences and Technology**

1st semester course plan in brief:

SL No	Course number and its name	Brief content of the course
1	HT101 Linear Algebra and Vector Calculus	It covers systems of linear algebra, methods od solving systems of linear equations, Eigen values and Eigen vectors, Multiple integrals, Vector Calculus, Equations of 3D geometry, Green's theorem and Stokes's theorem.
2	HT102 Physics	It covers Classical mechanics, Lagrangian mechanics, Electromagnetic theory, Quantum mechanics, special relativity.
3	HT103 Chemistry	It covers Principles of thermodynamics, materials chemistry, 3D structure of organic compounds, molecular structure in 2D and 3D representations, conformational analysis, nucleophilic and electrophilic reactions, Analytical techniques in Chemistry, Characterization of chemicals and drugs
4	HT104 Basic Electrical Sciences	It covers DC analysis, AC circuit analysis, RLC relationship, Impendence and admittance, Transient analysis, Polyphase circuits, magnetic circuit, inductance, RC and RL circuits, motors and transformers
5	HT105 Introduction to Computing	Introduction to computer, Concepts of programming using C and Python and introduction to object-orientated programming
6	HT106 Organisation of Human Body	Essential elements of life, cells, tissue, organs, basics of cell types, biomolecules, Cellular systems, Cellular structure in a human body, tissue system, Organ level organization, introduction to different organs.
7	HT107 Computing Laboratory	Programming skill development accordance with HT 105, i..e C and Python will be covered in the programme development
8	English Communication	General proficiency in English and Communication skills. Listening, reading, vocabulary, grammar and writing

2nd semester course plan in brief:

SL No	Course number and its name	Brief content of the course
1	HT 111 Differential Equations	Ordinary differential equations, first order equations, higher order linear differential equations, Cauchy Euler equation, Linear differential equation, Introduction to partial differential equations, wave equation, heat equation, diffusion equation, complex variables
2	HT 112 Digital system design	Digital Electronics, GATE level combination circuits, multiplexer, encoder, GATE level sequential circuits, synchronous finite state machine, logic devices, Embedded systems: Fundamentals and Arduino programming basics.
3	HT 113 Biochemistry	Introduction to Biochemistry, Bioenergetics and metabolism, pathways in cell, Disorders of biomolecules metabolism.
4	HT 114 Human Anatomy and Physiology	General Physiology, Nerve and Muscle, Gastro-intestine, Cardiovascular, Respiratory system, Renal system, Endocrine, Reproductive system, Neurophysiology, Anatomy: Anatomical terminology, General features of bones & Joints, General features of Muscle, General features of skin and fascia, General features of the cardiovascular system, General Features of lymphatic system, Introduction to the nervous system, Features of individual bones, Forearm & hand, Hip Joint, Knee joint, Back of Leg & Sole, Heart & Pericardium, Lungs & Trachea, Thorax, Deep structures in the neck, Head & neck Joints, Vertebral column, Sectional Anatomy, Histology & Embryology
5	HT 115 Engineering Mechanics	Introduction to Biomechanics and Rigid body mechanics, Force, system and Equilibrium, Centre of mass stability, kinematics of rigid body, joint mechanics and torques in Biomechanics, Work, Energy and power in human movement, Application of rigid body mechanics in Biomechanics
6	HT116 CAD Laboratory	Fundamentals of Engineering drawing and overview of Computer Aided drafting, Theory of projection, projection of points, lines, planes and solids, 2-Dimensional drawing and 3-Dimensional drawing
7	SA101 Students Activity Course-I	As per existing course structure of B.Tech program of IITG

3rd semester course plan in brief:

SL No	Course number and its name	Brief content of the course
1	HT201 Probability and Statistics	Overview and Descriptive Statistics, Probability, Axioms, Interpretations, and Properties of Probability, Discrete Random Variables and Probability Distributions, Continuous Random Variables and Probability Distributions, Joint Probability Distributions and Random Samples, Point Estimation, Statistical Intervals Based on a Single Sample, Tests of Hypotheses Based on a Single Sample, Inferences Based on Two Samples, The Analysis of Variance, Simple Linear Regression and Correlation, Nonlinear and Multiple Regression
2	HT202 Thermodynamics	Thermodynamic systems; States, processes, Zeroth law; Properties of pure substances and steam, Mollier diagram; Heat and work transfer, First law and its applications to closed and open systems; Second law, Carnot cycle, entropy, corollaries of the second law; irreversibility and exergy analysis; Thermodynamic property relations; Properties of mixtures of ideal gases; and characteristic constants for mixture
3	HT203 Molecular and Cell Biology	Life Begins with Cells, Protein Structure and Function, From Gene to Protein: Basic Molecular Genetic Mechanisms, Biomembranes and Cell Architecture, Integrating Cells into Tissues, Transport of Ions and Small Molecules across Cell Membranes, Cellular Energetics, Molecular Genetic Techniques and Genomics, Gene and Chromosome Structure, Signaling at the Cell Surface, Integrating Signals with Gene Controls, Vesicular Traffic, Secretion, and Endocytosis, Cytoskeleton, Cell Birth, Lineage, and Death
4	HT204 Analog Integrated Circuits	Small-Signal Equivalent Circuits, Discrete Circuits, Frequency Response of Amplifiers, Feedback Amplifiers, Power Amplifiers, Integrated Circuits, and their Applications
5	HT205 Solid Mechanics	Analysis of stresses in solids: principal stresses, analysis of deformation of solids, constitutive relations for isotropic materials, theories of failure for isotropic materials, axially loaded members, shear force and bending moment diagrams, stresses due to bending of beam elements, torsion of circular shafts, combined stresses in beam elements due to bending, torsion and axial loads, deflection of beam elements, stresses in thin cylinders and pressure vessels, buckling of columns
6	HT 206 Introduction to Data Science	Overview of Data Science, Programming, Data collection and management, Data collection and curation, Concepts in data management, Data cleaning, exploration, plots, Exploratory data analysis, Model building, training, evaluation, Model training and performance analysis, Data storytelling, introduction to data structure.
7	HT 207 Biomedical Lab 1	The courses which are not having either tutorial or practical classes will be considered for the laboratory courses.
8	HT 208 Prototyping lab	Solid works/Fusion 360, drawing, slicing and printing. Different types of polymer 3D printers, FDM, SLA and SLS will be attempted along with metallic 3D printers.
9	SA201 Students Activity Course - II	As per existing course structure of B.Tech program of IITG

4th semester course plan in brief:

SL No	Course number and its name	Brief content of the course
1	HT211 Biomedical Instrumentation	Bio potential electrodes, Electrode-electrolyte interface, electrode-skin interface, Types of electrodes, Electrode configurations, Bio signal characteristics – frequency and amplitude ranges. EEG, unipolar, bipolar and average mode. EMG, ERG and EOG, Bio-amplifier, transformer and optical isolation. Measurement of non-electrical parameter, Temperature, respiration rate and pulse rate measurements. Blood Pressure, Pressure amplifiers, Blood flow and cardiac output measurement, Bio-Chemical Measurement, Biochemical sensors, Blood glucose sensors - Blood gas analyzers, colorimeter, flame photometer, spectrophotometer, blood cell counter, auto analyzer
2	HT212 Medicinal Chemistry	Drugs and drug targets: an overview, structure and function of Protein, Enzymes, Receptors, and Nucleic acids, Pharmacodynamics and pharmacokinetics, drug targets – Enzymes, Receptors and Nucleic acids, Drug discovery, design, and development
3	HT213 Signals and systems	Signals, classification of signals, signal operations, signal properties, elementary signals, Signal representation, Fourier series representation, Parseval's relation, time-bandwidth product; discrete-time Fourier transform and its properties, Laplace transform, Sampling, Time and frequency characterization of signals. Systems, classification of systems, system properties, continuous-time linear time invariant (LTI) and discrete-time linear shift invariant (LSI) systems, response to an arbitrary input, system representation using differential and difference equations, Eigen functions of LTI/ LSI systems
4	HT214 Diagnostics and Therapeutic Devices	Cardiac Equipment, Neurological Equipment, Muscular and Bio-Mechanical Measurements, Respiratory Measurement System, Sensory Measurement. Maintenance, Repair, Trouble shooting of major equipment, Patient Monitoring and Bio-Telemetry, Diathermy, Ultrasonic Equipment, Extra corporeal Device and Special Diagnostic Techniques, and Patient Safety
5	HT215 Optics and Medical Imaging	Imaging principles, Skeletal radiography, Chest and abdomen, Accident and emergency, Breast imaging, Paediatric imaging, Contrast studies, CT, MRI, Nuclear Medicine Imaging and Ultrasound Electromagnetic Theory in the Optical Domain, Geometrical Theory of Optical Imaging, Diffraction Theory of Optical Imaging
6	HT216 Regulatory Affairs and Entrepreneurship	Organizational structure and functions of FDA and EMA, Code of Federal Regulations, Regulations for clinical studies, Post approval regulatory affairs, Medical devices in diagnosis and therapeutics, Role of International Medical Device Regulators Forum, Existing regulations on registration of medical devices in India. Quality management system for medical devices, ISO 13485 International and national standards for medical devices; Future of medical devices in India, Assessment of quality, effectiveness and risks; Reporting of adverse events; Post-marketing surveillance
7	HT 217 Biomedical Lab 2	The courses which are not having either tutorial or practical classes will be considered for the laboratory courses.
8	HS1xx HSS Elective - I	As per existing course structure of B.Tech program of IITG
9	SA202 Students Activity Course-III	As per existing course structure of B.Tech program of IITG

5th semester course plan in brief:

SL No	Course number and its name	Brief content of the course
1	HT301 Finite Element and Numerical Methods	<p>Introduction to finite element method, comparison with finite difference method, Rayleigh-Ritz and Galerkin methods, Finite element analysis of 1-D problems, 2D problems, finite element modelling of single variable problems, triangular and rectangular elements; Applications in heat transfer, fluid mechanics and solid mechanics.</p> <p>Introduction to numerical methods, Solutions of Linear Algebraic Equations, Solution of Eigenvalue Problems; Numerical quadrature – Newton-Cotes, Gauss quadrature, Multiple integrals; Initial and boundary value problems – Classification of ODEs, Convergence and numerical stability analysis, Solution of higher order equations, Multistep methods,</p>
2	HT302 Sensors and Actuators	<p>Introduction to Sensors and Actuators, Sensors, Actuators, Control, Instrumentation, and Design, Component Interconnection and Signal Conditioning, Modulators and demodulators, Performance Specification and Analysis, Analog Sensors and Transducers, Digital Transducers, Stepper motors, Continuous-Drive Actuators, Mechanical Transmission Components, Modeling and Simulation for Physical System, Electromechanical Systems and MEMS, Rotational and Translational MEMS</p>
3	HT303 Digital Signal Processing	<p>Review of discrete time signals, systems and transforms. Z-transform and its application, Discrete Fourier Transform (DFT), Frequency selective filters, Structures for discrete-time systems, Windowing Techniques, Design of FIR and IIR filters using window functions.</p>
4	HT304 Fluid mechanics	<p>Fluid Statics, Forces on submerged bodies, Buoyancy and Floatation, Stability of floating bodies, Pressure distribution in rigid body motion, Deformation of fluid element, Vorticity, Reynolds Transport Theorem, Integral form of conservation laws, Differential form of conservation laws, Elementary derivation of Navier-Stokes equations, Couette flow and Poiseulle flow, Bernoulli equation and applications, Dimensional analysis</p>
5	HT305 Medical Microbiology and Immunology	<p>General Microbiology: Morphology and Physiology of Bacteria, Sterilization and Disinfection, Culture Methods, Laboratory Identification of Bacteria and Taxonomy, Genetic Engineering and Molecular Methods, Antimicrobial Agents, Immunology: Antigen–Antibody Reactions, Structure and Function of Immune System, Immunodeficiency, Autoimmunity, Immunology of Transplantation and Malignancy, Immunohematology, Bacteriology, Virology, Mycology.</p>
6	HT306 Biomedical Lab 3	<p>The courses which are not having either tutorial or practical classes will be considered for the laboratory courses.</p>
7	HT307 Clinical Immersion	<p>Visit to nearby medical institutes and hospitals. Interact with different physician and discuss with different issues including surgical problems.</p>
8	HS1XX HSS Elective - II	<p>As per existing course structure of B.Tech program of IITG</p>
9	SA4xx Students Activity Course-IV	<p>As per existing course structure of B.Tech program of IITG</p>
10	HT308 Technical Writing and Presentation	<p>Modes of technical communication, Copyright issues in technical writing: Proper procedure in citing already published works, Common mistakes of English in scientific documents. Writing a good review paper. Writing of abstract, synopsis, cover letters, responses, discussion and keywords</p>

6th semester course plan in brief:

SL No	Course number and its name	Brief content of the course
1	HT311 Informatics and AI in Medicine	AI in Health Care, Potential Trade-Offs and Unintended Consequences of AI, AI Model Development and Validation, Deploying AI in Clinical Settings, Foundational Topics in Medical informatics, Bioinformatics Challenges and Opportunities, Managing Information Security and Privacy in Health Care Data Mining, Information and Knowledge Management, Text Mining and Data Mining, Ethical and Social Challenges of Electronic Health Information, Biomedical Ontologies, Information Retrieval and Digital Libraries
2	HT312 Pharmacology and Toxicology	General Pharmacological Principles: Sources and Nature of Drugs, Principles and Modes of Drug Administration, Drug Absorption and Bioavailability, Drug Metabolism, Drug Elimination, Mechanisms of Drug Action, Drug Transporters, Adverse Effects and Pharmacovigilance, Drug Interactions, Special Topics in Pharmacology, Pharmacogenetics, Pharmacogenomics, and Personalized Medicine, Pharmacoepidemiology, Pharmacoeconomics, Gene Therapy, Stem Cell Therapy, Toxicology, Molecular Biology in Pharmacology
3	HT313 Quantitative Human Physiology	Physical and Chemical Foundations of Physiology, Membranes, Transport, and Metabolism, Physiology of Excitable Cells, The Nervous System, The Cardiovascular System, Respiratory Physiology, Renal Physiology, Gastrointestinal Physiology, Endocrine Physiology,
4	HT314 Transport Phenomena in Physiological Systems	Principles of Diffusion, Osmotic Pressure, Solvent Permeability, and Solute Transport, Rheology of Blood and Transport, Gas and Transport , Pharmacokinetic study, Tissue Design, Bioartificial Organ Design, Bioheat Transport
5	HT315 Biomechanics and Biomaterials	Kinematics of muscles and joints - free-body diagrams and equilibrium, forces and stresses in joints, biomechanical analysis of joints, Gait analysis; Hard Tissues - Definition of Stress and Strain, Deformation Mechanics, structure and mechanical properties of bone - cortical and cancellous bones; Soft Tissues - Structure, functions, material properties, viscoelastic properties, Maxwell and Voight models; Biofluid mechanics - Flow properties of blood in the intact human cardiovascular system. Basic properties of biomaterials - Metallic, Ceramic, Polymeric and Composite; Fundamental characteristics of implants - biocompatibility, bioactivity, biodegradability; Basics of drug delivery; Basics of tissue engineering. Biomaterial characterization techniques
6	HT316 Biomedical Lab 4	The courses which are not having either tutorial or practical classes will be considered for the laboratory courses.
7	HTxxx Discipline Elective - I	Depending on the verticals, a suitable elective will be proposed.
8	HT318 Summer Training	Students will be asked to do summer training program at different academic institutes, medical institutes, research labs, industries depending on their interest.

7th and 8th semester courses are School electives, Open electives, HSS electives and Project work.

Prospects in Biomedical Science and Engineering

Bioinformatics & AI

- 4 Mathematics Courses
- 4 Computer Science and AI Courses
- 4 Pre-Clinical Courses
- 4 Para-Clinical Courses
- 3 Clinical Courses
- 6 Electives

Bioinstrumentation

- 4 Mathematics Courses
- 8 Electronics and Electrical Domain Courses
- 4 Pre-Clinical Courses
- 4 Para-Clinical Courses
- 3 Clinical Courses
- 4 Biomedical Laboratory Courses
- 6 Electives

Biomedical Devices

- 4 Mathematics Courses
- 6 Mechanical Domain Courses
- 8 Electronics and Electrical Domain Courses
- 4 Pre-Clinical Courses
- 4 Para-Clinical Courses
- 3 Clinical Courses
- 2 Design and Prototyping Laboratory Courses
- 6 Electives

Pharmacology

- 4 Mathematics Courses
- 4 Pre-Clinical Courses
- 4 Para-Clinical Courses
- 3 Clinical Courses
- 4 Biomedical Laboratory Courses
- 6 Electives



Indian Institute of Technology Guwahati
Department of Computer Science and Engineering

Notesheet

10th December 2024

Subject : Proposal for curriculum revision of M.Tech. + Ph.D. Dual Degree programme

The following revision is proposed to our existing M.Tech. + Ph.D. Dual Degree programme.

1. Candidates from any discipline can join our programme, including C.S.E. Previously, the programme was offered to students from disciplines other than computer science.
2. Admission to the programme will be conducted both for July and December session. Previously, admission was offered only in July.
3. The total course credit is reduced to 72. Previously, the total credit stood at 77.
4. The following table contains the revised syllabus for the programme.

Semester I		
CS 5xx	Design and Analysis of Algorithms	3-0-0-6
CS 5xx	Data Structure Laboratory	0-2-2-6
CS 5xx	Digital Logic and Computer Architecture	3-0-0-6
CS 5xx	Mathematics for Computer Science	3-0-0-6
CS 5xx	System Software Laboratory	0-1-4-6
Total		30

Semester II		
CS 5xx	Machine Learning	3-0-0-6
CS 5xxMH	Operating Systems	3-0-0-3
CS 5xxMH	Database Systems	3-0-0-3
CS xxx	Departmental Elective	3-0-0-6
CS xxx	Departmental Elective	3-0-0-6
Total		24
Semester III		
CS xxx	Departmental Elective	3-0-0-6
XX xxx	Elective	3-0-0-6
CS xxx	Mini Project	3-0-0-6
Total		18

The proposal is placed for necessary approval.

DPPC Secretary, CSE

HoD, CSE

**Proposal for Dual degree MS in Linguistic Science and Technology and PhD from
the Centre for Linguistic Science and Technology**

Academic Division: Centre for Linguistic Science and Technology

Name of the Programme: Dual Degree **Master of Science (M.S.)** in Linguistic Science and Technology and **Doctor of Philosophy.**

Eligibility Criteria:

- Four-year Bachelor's degree in any discipline, with a minimum CPI of 6.0 or 60% of marks, and a valid GATE/UGC/CSIR NET-JRF score in any subject.
- If the qualifying BE/BTech degree is from an IIT with CPI 8.0, the valid GATE/UGC NET-JRF score requirement is exempted.

Admission: Both in July and December sessions under the PhD Programme

Course Work: Each student needs to complete Six (06) Core Courses and Six (06) Elective Courses in three Semesters. The DPPC Secretary and/or Supervisor shall suggest the courses applicable to PhD students for elective courses.

- **Core Courses:** 46 Credit (* existing courses)

The following five core courses will be taken over three semesters.

1. LS501 Mathematics and Statistics (2-2-0-8) *
2. LS521 Phonetics and Speech Signal Processing (2-0-4-8) *
3. LS551 Introduction to Language Science (2-2-0-8) *
4. LSXXX Programming for Language Studies (2-0-4-8)
5. LSXXX Machine Learning for Language Studies (2-0-4-8)
6. LSXXX Technical Paper Writing and Research Methodologies (2-0-2-6)

- **Elective Courses:** 36 Credit

Six electives courses will be taken over three semesters, from a pool of electives offered at institute level.

- **Total Credits:** 46+ 36 = 82 in three semesters

- **Composition** of the courses in each semester, broadly, will be as following:

Semester 1: Two Core Courses + Two Elective Courses

Semester 2: Two Core Courses + Two Elective Courses

Semester 3: Two Core Courses + Two Elective Courses

Delegation of Matters to Chairman, IPPC

The following matters that are currently handled by the Chairman, Senate are proposed to delegate to Chairman, IPPC. Respective clauses in the academic ordinances along with the highlighted changes are given below.

PhD/Dual Degree Ordinances:

Clause 5.1 (and 7.3.1 of Dual Degree). Leave Rules: Academic leave exceeding 30 days ~~but up to a maximum of 60 days~~ in a calendar year is approved by the Chairman, IPPC on recommendation of the Thesis Supervisor/Faculty Advisor/DPPC Secretary and the HoD. **In Clause 7.3.3 of Dual Degree:** On recommendations of the Supervisor, the DPPC secretary, ~~and~~ HoD, ~~and~~ the Chairman, IPPC ~~the Chairman, Senate~~ approves such an academic leave. Such cases are also to be reported to the Senate.

Clause 8.3 (and 10.2 of Dual Degree). The Chairman, Senate may permit a student to change his/her Supervisor(s) for valid reasons. Mutual consent of the student and supervisor(s) and recommendations of the DPPC and IPPC are required. Such cases are reported to the Senate. **Change to:** On valid grounds, the Chairman, IPPC may permit the change of supervisor(s) of a student ~~within three years from the date of admission into PhD programme~~. Mutual consent of the student and supervisor(s) and recommendations of the DPPC are required. Such cases are reported to the Senate.

Clause 14.4 (and 16.6 of Dual Degree). Semester drop: Up to two semesters may be dropped in the entire duration of the PhD Programme, on bona fide grounds. Except on medical grounds, semester drop is not permissible before successful completion of Comprehensive Examination by a student. ~~On recommendation of the Supervisor, Chairman, DPPC and Chairman, IPPC, the Chairman, Senate approves a semester drop (Change to: On recommendation of the Supervisor and Chairman, DPPC, the Chairman, IPPC approves a semester drop)~~. Cases of semester drop are reported to the Senate. No assistantship is provided during the period of a semester drop. The period of semester drop is not counted in the prescribed time limit for completion of the PhD Programme.

Clause 19.2. At least fifteen days prior to the submission of the thesis, the DC submits to the Chairman, DPPC a panel of eight examiners, four each from India and abroad. The Chairman, DPPC forwards it to the Chairman, IPPC ~~for approval~~. ~~The Chairman, IPPC will recommend the same to the Chairman, Senate, for approval~~.

MTech/MDes/MS(R) Ordinances:

In Clause 9.2.3 (and 8.2.3 of MS(R)). Leave Rules: On recommendations of the Thesis Supervisor, the DPPC secretary, ~~and~~ HoD, ~~and~~ the Chairman, IPPC, ~~the Chairman, Senate~~ approves such an academic leave. Such cases are also to be reported to the Senate.

Clause 11.7.7 (and 10.7.7 of MS(R)). With prior approval of the Chairman, ~~IPPC, Senate~~ on the recommendation of the Chairman DPPC/CPMC and Chairman IPPC, a student may be allowed to have a co-supervisor from outside the institute, in exceptional cases.

In Clause 4.2 of MSc/MA, 6.2 of MTech/MDes, 5.2 of MS(R) 4.2 of Dual Degree Ordinances:
Under special circumstances, the ~~Director~~ Chairman, IPPC may permit a student to reside with his/her Parent/Guardian in the Institute Campus or within a reasonable distance from the Institute.



Urgent Request for Adjustment of Supplementary Examination Schedule

From General Secretary, Students' Welfare Board <gensec_welfare@iitg.ac.in>

Date Fri 20-12-2024 13:44

To Dean of Academic Affairs <doaa@iitg.ac.in>; Associate Dean (UG), Academic Affairs <adoaaug@iitg.ac.in>

Cc Dean of Students' Affairs <dos@iitg.ac.in>; Chairperson, Students' Welfare Board-1 <chrwb1@iitg.ac.in>; Associate Dean Students' Affairs 1 <adosa_1@iitg.ac.in>; Associate Dean Students' Affairs 2 <adosa_2@iitg.ac.in>; Grp_SAC_Executives <Grp_sac_executives@iitg.ac.in>

Dear Sir,

I am writing to express our deep concerns regarding the scheduling and the recent financial adjustments associated with the supplementary examinations slated for December 26th to 31st. While we appreciate that the dates were initially indicated in the academic calendar, the specific courses requiring supplementary exams were only announced on December 13th. This announcement has placed considerable financial and logistical pressure on our students and their families, especially given the costly travel expenses during this peak season.

Our students are currently facing significant challenges in securing affordable transportation back to campus, which is compounded by the recent increase in examination fees. These factors together are creating an undue burden, affecting their welfare and academic focus. We believe that adjusting the examination dates to after the course registration period could alleviate much of this stress, without causing harm to the academic process or schedule.

Attached, you will find a survey form completed by the student body, which clearly indicates that a majority are struggling to find reasonable travel options to return to campus for these exams. This data strongly supports the need for a reconsideration of the current examination timetable.

https://docs.google.com/spreadsheets/d/1yr9wg1gtKU_z8GTb69hVKowxumOeahWj5T34YWhEa3I/edit?usp=sharing

https://docs.google.com/spreadsheets/d/1yr9wg1gtKU_z8GTb69hVKowxumOeahWj5T34YWhEa3I/edit?usp=sharing

We respectfully request that the administration consider this matter with urgency and propose that the supplementary examinations be rescheduled to a more suitable date post-course registration. Such an adjustment would be in the best interest of student welfare.

Thank you for your attention to this pressing issue. We are hopeful for a favorable response and are ready to assist in facilitating a smooth transition to the proposed changes.

Best regards,



Ujjawal Chhajer
General Secretary,
Students' Welfare Board
 "Reviving Faith, Inspiring Hearts"

gensec_welfare@iitg.ac.in

<https://iitg.ac.in/stud/gymkhana/welfareBoard/>

General Secretary Welfare Board Office, New SAC,
 IITG

Summary of the Recommendations of IADC on the Reported Malpractices in the End-Sem Exams, Monsoon Semester, 2024

The Institute Academic Disciplinary Committee (IADC) meeting was held on 13.12.2024 to review certain recommendations of Departmental Disciplinary Committees on reported matters of violation of rules/occurrence of malpractices during July- November, 2024 End- Semester Examination. IADC noted that, 22(Twenty-Two) cases were reported out of which 14 cases were recommended FD grade by the Departments. Out of 22 matters 16 (Sixteen) recommendations were reviewed and recommended following:

Sl. No.	Particulars/Name, Roll No., and Programme of the student	Nature of complaint(s) received from Invigilators	Details of enclosed documents/evidence material	Reporting Faculty	DDC Recommendation	IADC Recommendation
1.	Kunal Anil Patare, Roll No. 244103221, MTech, Mechanical Engineering	Kunal and Mohit were discussing during the Examination of ME 512 which was held on 2/11/2024 at L4	Form FAC-AA-01 and Recommendation of the DDC	Dr. Vinay Wagh, Mathematics and Prof. P. Paily Roy, EEE	Students to be counselled /issued letter of warning from the Department. One Semester disciplinary probation under DPPC	Having a discussion with Faculty Invigilators present during the examination, it was determined that the students in question were promptly warned and relocated within the exam hall. This intervention effectively ceased the disruptive behavior. In light of these findings, the Committee recommended that the students be warned through a letter.
2.	Mohit Singh, Roll No. 244103222, MTech, Mechanical Engineering	A small chit paper with some equation was found with him.. .	Form FAC-AA-01, chit paper with some equation and Recommendation of the DDC	Dr. Pranab Kumar Mondal, ME	FD grade in ME 512	In addition, the student must pay a penalty amounting to his one month's stipend/ fellowship, i.e. Rs. 12,400/- to institute fund.
3.	Prem Kumar Elthuri, Roll No. 244103206, MTech, Mechanical Engineering					

Sl. No.	Particulars/Name, Roll No., and Programme of the student	Nature of complaint(s) received from Invigilators	Details of enclosed documents/evidence material	Reporting Faculty	DDC Recommendation	IADC Recommendation
4.	Shreya Sen, Roll No. 220103101, BTech, Mechanical Engineering	The student had taken the answer script of HS 126 out of the Exam Hall at the end of the Examination and returned it after getting an email from the course Instructor. The Examination was held on 23/11/2024 at L2	Form FAC-AA-0101 and Recommendation of the DDC	Dr. Bhaskar Jyoti Neog, HSS	Lowering of one grade in HS 126	The student may be awarded "FD" grade in HS 126 course.
5.	Vedika Garg, Roll No. 210102096, BTech, Electronics and Communication Engineering	The student was carrying cheat sheet during the examination (No material evidence was found) of EE 646 held on 17/11/2024 at Room No. 2203. It was reported to the IADC that the student destroyed the evidence immediately when she was caught.	Form FAC-AA-0101 and Recommendation of the DDC	Dr. Rishikesh Kulkarni, EEE	FP (without enabling the option of supplementary examination) in EE 646	The student may be awarded "FD" grade in EE 646 course.
6.	Joffin Koshy, Roll No. 230103043, BTech, Mechanical Engineering	The student was found using smart watch having all lecture slides and formulas during MA 201 Examination held on 17/11/2024 at 1G1.	<ul style="list-style-type: none"> • Form FAC-AA-01 • Recommendation of the DDC • The smart watch which is in custody 	Prof. Bhupen Deka, Mathematics	Two grades less in MA 201	<ul style="list-style-type: none"> • The student may be awarded "FD" grade in MA 201 course. • His results will not be declared until his parents visit the Institute to meet the concerned authority. • The matter to be referred to Students' Affairs Section for counselling and other needful.

Sl. No.	Particulars/Name, Roll No., and Programme of the student	Nature of complaint(s) received from Invigilators	Details of enclosed documents/evidence material	Reporting Faculty	DDC Recommendation	IADC Recommendation
7.	Sachin Nagar, Roll No. 230122045, BTech, Mechanical Engineering	He was found with notes written on the right Arm during MA 201 Examination held on 17/11/2024 at Room 3202.	<ul style="list-style-type: none"> • Form FAC-AA-01 • Recommendation of the DDC • The Image of his hand with 		One grade less in MA 201	The student may be awarded "FD" grade in MA 201 course.
8.	Anshul Singla, Roll No. 240123008, BTech, Mathematics & Computing	Akash Kumar was helping Anshul. Akash (who was appearing in MA 514 examination wrote answer of a question in MA 101 question paper on blank portion of his question paper and allowed Anshul to see the same. The case was reported on 18/11/2024 at Room 4201.	<ul style="list-style-type: none"> • Form FAC-AA-01 • Recommendation of the DDC • The portion of the paper 	Prof. S.N. Bora and Dr. Sagarmoy Dutta, Mathematics	One grade less in MA 101	The student may be awarded "FD" grade in MA 101 course.
9.	Akash Kumar, Roll No. 232123002, MSc, Mathematics and Computing	Akash Kumar was helping Anshul. Akash (who was appearing in MA 514 examination wrote answer of a question in MA 101 question paper on blank portion of his question paper and allowed Anshul to see the same. The case was reported on 18/11/2024 at Room 4201.			One grade less in MA 514	The student may be awarded "FD" grade in MA 514 course.
10.	Harishankar Yadav, Roll No. 220107043, BTech, Chemical Engineering	The student was found with course material during the exam in the washroom (4.40 P.M.). The student after being caught immediately rushed to second floor and attempted to jump during CL 301 Examination held on 19/11/2024 at Room No. 5302.	<ul style="list-style-type: none"> • Form FAC-AA-01 • Recommendation of the DDC • The confiscated study material. 	Prof. B. Anannd, Computer Science and Engineering	<ul style="list-style-type: none"> • FD grade in CL 301 • The student needs counselling at least once in a month on regular basis. • It was found that the student is a repeated offender. 	<ul style="list-style-type: none"> • As the student is a repeat offender, the student may be awarded FD grades in all the courses registered in the Monsoon Semester, July-November 2024. • His results will not be declared until his parents visit the Institute to meet the concerned authority. • The matter to be referred to Students' Affairs Section for counselling and other needful.

Sl. No.	Particulars/Name, Roll No., and Programme of the student	Nature of complaint(s) received from Invigilators	Details of enclosed documents/evidence material	Reporting Faculty	DDC Recommendation	IADC Recommendation
11.	Saurav, Roll No. 230104097, BTech, Civil Engineering	(1) Vedant and Sidharth (2) Saurav and Piyush were discussing during CE 211 Examination held on 21/11/2024 at Room No. L4.	<ul style="list-style-type: none"> • Form FAC-AA-01 • Recommendation of the DDC 	Dr. Vinay Wagh, Mathematics and Prof. P. Paily Roy, EEE	FD grade in CE 211	Having a discussion with Faculty Invigilators present during the examination, it was determined that the students in question were promptly warned and relocated within the exam hall. This intervention effectively ceased the disruptive behavior. In light of these findings, the Committee recommended that the students be warned through a letter.
12.	Sen Piyush Pramod Kumar, Roll No. 230104098, BTech, Civil Engineering					
13.	Vedant Sinha, Roll No. 230104114, BTech, Civil Engineering					
14.	Siddharth Khatod, Roll No. 230104102, BTech, Civil Engineering					
15.	Ashwatha Manne, Roll No. 230104058, BTech, Civil Engineering	The TA found the student inside the washroom in possession of an unauthorized note (chit). When instructed to surrender the chit, the student attempted to destroy the evidence by flushing it down the washroom toilet. The incident happened during CE 203 Examination held on 18/11/2024 at Room no 2202.	<ul style="list-style-type: none"> • Form FAC-AA-01 	Dr. Sreeja P.	FD grade in CE 203	The student may be awarded "FD" grade in CE 203 course.

Sl. No.	Particulars/Name, Roll No., and Programme of the student	Nature of complaint(s) received from Invigilators	Details of enclosed documents/evidence material	Reporting Faculty	DDC Recommendation	IADC Recommendation
16.	Eden Reang, Roll No. 246107009, PhD, Chemical Engineering	The student was caught with copying material during CL 513 Examination held on 17/11/2024 at Room No. 4201.	<ul style="list-style-type: none"> • Form FAC-AA-01 • Recommendation of the DDC • Copying material 	Prof. V.V. Goud	FD grade in CL 513	In addition, the student must pay a penalty amounting to his one month's stipend/ fellowship, i.e. Rs. 37,000/- to institute fund.

It is to note that as per the prevailing norms of the ordinances the students awarded "FD" grades are not eligible for the Supplementary Examination in the respective course.
All the above students are directed to meet Students' Counsellor(s) for counselling. The IADC resolved that, if any students are found to be indulged in any malpractices or any sort of indiscipline act in future it will initiate far more stringent disciplinary action against the student. It is further recommended that all the students be directed to conduct an awareness programme as a service as decided by the competent authority against academic malpractices in the examination and need to present a report of the same to the Academic Affairs Section.

Annexure 180/16(f)

Course Code	Course Name	AS	AA	AB	BB	BC	CC	CD	DD	FA	FD	FP	I	NP	PP	X
BT 530	Experimental techniques in Bioengineering		3	5	1											
BT 600	M.Tech Seminar		5	27	7	1								1		
BT 604	Enzymology		2	9	3	1	5	2								
BT 605	Gene Therapy		8	7	7	4	1	1								
BT 610	Frontiers in Biomolecular Simulation		2	4	7	3	2									
BT 612	Systems Biology		5	3	7	8	22	34	26			4				
BT 615	Cell Signaling & Development		5	3		1		1					1			
BT 618	Biomaterials		10	13	6	4	3	1								
BT 620	Biosensors		15	10	8	6	3	2						1		
BT 621	Advances in Plant Genetic Engineering and Functional Genomics		4	6	3	1										
BT 623	Research Methodology	1	3	22	22	12	5	1								
BT 634	Animal Models in Biomedical Research		5	3	4						1				2	
BT 636	Tissue Engineering & Regenerative medicines	1	8	8	8	4	5	1	1							
BT 637	Genome Editing and Engineering		2	2	10	5	1	2	1			1				
BT 640	Neural Imaging and Signal Systems		1	1	2	2	3								2	
BT 641	Fundamentals Of Human Body Mechanics		3	12	12	19	4	1	2			1				
BT 643	Biointerface Engineering	1	3	1											3	
BT 644	Biorefineries		2	2	4	1	3	3								
BT 645	Introduction to IPR and Ethics		1	4	3	2										
BT 651	Quantum Chemistry of atoms and molecules		1		2	1	2									
BT 698	M. Tech Project I (MTP I)	1	20	12	7											
BT 700	M. Tech Project I (MTP I)		3	4	1											
CE 101	Engineering Drawing		24	100	183	409	189	56	15			4				
CE 202	Solid Mechanics					10	26	36	26	6						
CE 203	Fluid Mechanics	3	2	20	24	26	17	9	5		1					
CE 207	Engineering Geology		4	21	13	21	33	9	5							
CE 208	Engineering Geology Lab	5	35	49	15	1										
CE 211	Civil Engineering Materials		8	20	25	23	15	8	1		4					
CE 212	Civil Engineering Materials Laboratory		12	22	48	17	6									
CE 214	Fluid Mechanics Lab		39	38	26	4										
CE 302	Structural Analysis II		7	32	41	13	4	1								
CE 303	Geotechnical Engg. II	3	15	25	14	23	7	8	5							
CE 304	Transportation Engg. I		3	12	27	24	17	9	6							
CE 305	Reinforced Concrete Design		17	21	26	18	14	1	1					1		
CE 313	Geotechnical Engineering II Lab		33	42	20	3	2									
CE 314	Transportation Engineering I Lab		3	8	31	34	16	6	2							
CE 316	Environmental Engineering II		5	25	28	19	15	5	2							
CE 402	Design Project		24	12	42	22	19					1				

Course Code	Course Name	AS	AA	AB	BB	BC	CC	CD	DD	FA	FD	FP	I	NP	PP	X
CE 411	Dynamic of structure		10	14	9	12	5	2	1				1			
CE 415	Prestressed Concrete and Industrial Structures		1		2											
CE 416	Bridge Engineering		1	1												
CE 498	Project		37	38	28	2	1	2					2			
CE 501	Continuum Mechanics		8	10	3	2	3	1	1	1						
CE 502	Finite Element Methods		5	6	8	11						1				
CE 503	Structural Dynamics		2	4	7	9	4	3				1				
CE 512	Structural Engineering Laboratory		22	3			1									
CE 514	Plates, Shells and Elastic Stability			2												
CE 521	Process Chemistry for Water and Wastewater Treatment			3	13	5	3									
CE 522	Physico Chemical Processes in Environmental Engineering		1	4	5	5	6	1	1							
CE 523	Air and Noise Pollution		1	8	6	2	3	3					1			
CE 527	Design of Environmental Engineering Systems		3	3	4	5	3									
CE 531	Advanced Soil Mechanics	1	5	9	9	4							1			
CE 532	Dynamics of Soil and Foundations	1	6	7	8	2						1				
CE 541	Infrastructure Planning			3	3	6										
CE 542	Project Management in Construction		1	4	6	6	2									
CE 543	Infrastructure Projects - Construction Methods and Equipment Mana	1	5	9	3											
CE 549	Project and Thesis Phase-I		14	5	1	1							1			
CE 550	Project and Thesis Phase II			1												
CE 551	Surface Water Hydrology		3	11	4		2					1				
CE 553	Advanced Hydraulic Engineering		6	4	4	2	2		1			1				
CE 554	Advanced Fluid Mechanics		2	10	5	1	1		1							
CE 560	Computational Methods in Hydraulics and Environmental Engineerin	1		5	3	6	2	1								
CE 567	Sediment Dynamics in Fluvial Systems		8	11								1				
CE 581	Urban Transportation Systems Planning		2	7	5	2	3									
CE 582	Pavement Materials		4	7	6	1	2									
CE 587	Expansive Soil		2	3	5	1										
CE 591	Earth System Dynamics		4		2	2	1	3	1			2				
CE 592	Exploration Geoscience		1	3	3	4	2	2				2				
CE 593	Advanced Remote Sensing				4	4	5	2	4			2				
CE 598	MTech Project- Phase I		2	4	2				1			1				
CE 599	M Tech Project Phase II					1										
CE 601	Numerical Methods		4	6	5	3	1	1	1			1				
CE 602	Optimization Methods		11	28	42	17	19	1	2	1		2	1			
CE 617	Discrete Choice Modelling		1	1												
CE 626	Economic Evaluation and Analysis of Transportation Projects	1	10	24	14	4	5					1				
CE 642	Subsurface Invstigation and Instrumentation		25	12	41	25	7	2				1				

Course Code	Course Name	AS	AA	AB	BB	BC	CC	CD	DD	FA	FD	FP	I	NP	PP	X
CE 650	Geotechnical Practice for Waste Disposal		4	2									1			
CE 651	Road Safety Engineering		5	15	9	15	5	3	1							
CE 652	Precision Remote Sensing			1		1	3	4	1	2						
CE 690	Project and Thesis Phase-I		12	4	2								1			
CE 691	M Tech Project II		1													
CE 692	Project & Thesis Phasel		11	4	1								3			
CE 694	MTech Project-I		3	3	1	1										
CE 696	Project and ThesisPhase - I		9	4	1								6			
CE 697	Project and Dissertation		1	1												
CE 698	MTech Project-I		6	5	1	1							17			
CE 699	Project and Thesis Phase II			1												
CE 699	Project and Thesis Phase II			1												
CH 101	Chemistry	11	74	129	188	276	176	60	6	3	1	2	1			
CH 110	Chemistry Laboratory		419	361	132	9							4			
CH 212	Inorganic Chemistry		7	14	28	7	1						1			
CH 221	Organic Chemistry	1	8	14	10	14	8	2								
CH 231	Introduction to Quantum Chemistry		4	9	4	10	17	9	5							
CH 301	Environmental Chemistry	3	17	23	22	8	7	2	1							
CH 302	Technical Report Presentation		39	17	2											
CH 314	Chemical Technology Lab II		24	26	8											
CH 316	Frontiers of Coordination Chemistry		18	13	10	6	8									
CH 331	Chemical Kinetics and Electrochemistry		1	7	30	10	5	3	2							
CH 401	Modern Chemical Technology		10	13	18	9	4									
CH 410	Chemistry of p- and d-Block Elements		3	16	13	20	7	1								
CH 417	Organometallic Chemistry	1	6	6	17	16	6									
CH 420	Principles of Organic Chemistry		11	16	17	9	7									
CH 426	Green Chemistry and Technology		25	45	80	94	30	9	4	3			2			
CH 427	Medicinal Chemistry			2										1		
CH 429	Petroleums and Petrochemicals	6	15	52	73	64	43	36	8							
CH 430	Quantum Chemistry	2	12	20	17	3	6									
CH 431	Group Theory and Spectroscopy				1	4	20	8	14	12			1			
CH 435	Physical Chemistry Laboratory		33	24	3											
CH 498	Project - I			9	13	15	10	6	1							
CH 511	Principles of Bioinorganic Chemistry	1	9	17	16	8	4						1			
CH 515	Inorganic Chemistry Laboratory	2	31	20	2								1			
CH 520	Concepts in Organic Synthesis		8	14	20	8	3	2					1			
CH 521	Bio-organic Chemistry	2	10	19	18	6							1			
CH 530	Classical and Statistical Thermodynamics		26 ²	6	23	14	10						1			

Course Code	Course Name	AS	AA	AB	BB	BC	CC	CD	DD	FA	FD	FP	I	NP	PP	X
CH 601	Physical Methods in Chemistry		5	20	27											
CH 614	Supramolecules: Concepts and Applications		8	12	12	5	2						1			
CH 626	Art in Organic Synthesis		12	15	12	2										
CH 628	Chemistry of Biological Macromolecules		5	3	2	3	3	1		1		1				
CH 633	Chemical Applications of Group Theory		1	2	3											
CH 637	Computational Methods in Chemistry		3	5	5											1
CH 645	Scientific Writing and Presentation			2	2											
CL 201	Chemical Process Calculation		8	8	23	29	58	11	11							
CL 202	Fluid Mechanics	1	25	49	37	16	17	4	2							
CL 203	Chemical Engineering Thermodynamics		8	15	20	24	15	5	3							
CL 204	Heat Transfer	1	16	17	23	21	9	1	2							
CL 301	Mass Transfer II		8	26	27	22	5	1					1			
CL 302	Chemical Reaction Engineering - II		4	9	12	27	20	10	8							
CL 303	Process Control and Instrumentation	1	3	3	17	21	19	17	10							
CL 310	Solid Fluid Operations Laboratory		10	70	10	1										
CL 311	Technical Writing and Presentation		17	29	27	11	5	1								
CL 398	General Learning of Chemical Engineering Research Project - I		1		3											
CL 498	Project I		26	22	18	4										
CL 501	Advanced Transport Phenomena	2	2	3	7	12	8	10	5				2			
CL 502	Computer Aided Numerical Methods	2	6	16	14	7	2		1				2	1		
CL 511	Petroleum Reservoir Engineering		6	8	12	3	2									
CL 512	Petroleum Refinery Engineering		3	4	10	9	5	1								
CL 513	Characterization of Materials		2	7	13	9	6	1			1	3				4
CL 612	Colloid and Interface Science		8	13	37	23	18	7								
CL 615	Optimization Techniques		5	4	2	2	2									1
CL 623	Polymer Science and Technology		19	36	114	58	35	18	5							
CL 631	Smart Material		5	6	7	7	6									
CL 634	Applied Rheology		3	2	5	4	2					1				
CL 635	Advanced Clean Fuel Technologies	3	16	9	8	5				1						
CL 636	Microelectronic fabrication	1	3	3	1											
CL 640	Research Methodology and Scientific Writing		4	4	8	6	2	1								
CL 641	Process Intensification and Integration		2	1	4											
CL 643	Computer aided applied optimization	3	2	5	5	10	13	4	5			11	7			1
CL 645	Applied Statistics for chemical engineers		1	2	2	1	2									
CL 649	Polymer Soft Lithography		5	7	17	10	8	2								
CL 652	Process Modelling and simulation lab		4	2												
CL 655	Enhanced Oil Recovery	1	2	6	12	15	22	12	4			1				
CL 698	Project		27	21	9	10		1					1			

Course Code	Course Name	AS	AA	AB	BB	BC	CC	CD	DD	FA	FD	FP	I	NP	PP	X
COS 04	CoS 04														1	
CoS 05	CoS 05													84	560	
CoS 07	CoS 07													11	16	
CS 201	Discrete Mathematics	4	7	15	26	20	18	18	16			3				
CS 203	Algorithms and Data Structures		15	16	21	17	19	14	13	7		13		1		
CS 204	Algorithms and Data Structures Laboratory		14	22	26	52	10	4	2							
CS 205M	Theoretical Foundations of Computer Science		13	13	6	12	4	3								
CS 221	Digital Design	10	31	51	46	28	15	11	16							
CS 242	System Software Laboratory		18	23	27	16	19	12	11							
CS 322M	Digital Logic and Computer Architecture		2	4	5	4	10	14	7			2				
CS 341	Computer Networks	1	13	36	47	50	26	13	11			7				
CS 342	Computer Networks Laboratory		9	32	60	40	38	16	3			4				
CS 343	Operating Systems	2	21	47	44	38	20	11	7			13		2	1	
CS 344	Operating Systems Lab.	2	50	91	36	16	1	2	2			2				
CS 441M	Software Engineering		3	7	17	12	2					1			1	
CS 498	B Tech Project-I		31	26	8	4	1									
CS 499	Project II													1		
CS 512	Design and Analysis of Algorithms			3	21	22	16	3	3			1				
CS 513	Data Structures Lab		3	4	14	18	18	4	4			1				
CS 514	Mathematics for Computer Science	1	3	5	7	23	15	7	3			3				
CS 515	Computational Finance	1	14	32	7	8	3									
CS 523	Advanced Computer Architecture	2	2	5	2	4								1		
CS 525	Formal Methods For System Verification		23	16	30	29	19	13	15			2				
CS 529	Topics and Tools in Social Media Data Mining		13	11	18	13	13	4	1			1				
CS 542	Distributed Systems		3	15	16	10	6	7						1		
CS 549	Computer and Network Security	1	1	2	1	2		1	1			2		1	2	
CS 566	Speech Processing		11	33	53	4	2					2				
CS 578	Internet of Things		6	6		7	2	1								
CS 590	Deep Learning	1	30	71	71	2						3		3	1	
CS 601	Mathematics for ML		2	2	6	4		1								
CS 666	Mobile Robotics		2	1												
CS 698	Project I	1	7	14	18	8	10					1				
CS 699	Project II				1											
DA 211	Algorithms and Data Structure		9	9	5	5	4					1		1		
DA 212	Algorithms and Data Structure Lab	2	4	15	8	2	1	1								
DA 231	Introduction to Data Science		3	4	9	11	3	2				1				
DA 241	Statistical Foundations for Data Science		6	7	8	4	3	2	2			2		1		
DA 241M	Mathematical Foundations of Data Science		28 ¹	11	21	7	4	2	1					1	3	

Course Code	Course Name	AS	AA	AB	BB	BC	CC	CD	DD	FA	FD	FP	I	NP	PP	X
DA 242	Discrete Mathematics	1	4	6	9	7	3	2				1				
DA 251	Signals , Systems & Networks		6	8	10	4	4	1	1							
DA 311	Machine Learning Laboratory		19	10	3	1										
DA 321	Multi-modal Data Processing & Learning - I		3	6	7	9	7	1	1							
DA 321M	Machine Learning		5	6	12	8	5	1	2			1				5
DA 322	Machine Learning		2	10	13	5	3							1	1	
DA 331	Big Data Analytics : Tools & Techniques		6	11	15	1	1									
DA 341	Applied Time Series Analysis	2	8	10	8	4	4					1				
DA 351	Computer Systems	1	5	3	9	8	3	3	1							
DA 421	FATE in AI Models		1	7	7	4	2	1								
DA 421M	Multi-modal Data Processing and Learning		2	5	6	11	6	6	3			2				
DA 461	Bioinformatics		3	8	4	4	2		1							
DA 462	Data Analytics for Finance	3	5	7	2	4	2									
DA 498	BTP Project I		3	11	7	1										
DA 511H	Data Structures and Algorithms		5	8	4							2				
DA 512H	Databases		2	3	4	6	2					2				
DA 513	Data structures and Databases Lab		3	5	5	3	1					2				
DA 514	Python Programming Lab		3	4	11	3	3					2				
DA 626	Recommendation System Design Using Deep Learning	18	43	25	10							1				
DA 675	Fuzzy Systems and Applications		2	2	3		1							2		
DD 101	Introduction to Design		7	25	17	6						1				
DD 102	Representation Techniques		15	7	18	16										
DD 103	Elements of Design		3	23	19	9	3									
DD 104	Applied Science for Design		5	14	22	14	1									
DD 105	Tinkering studio		4	17	24	11										
DD 201	Form Studies	1	11	31	10	2										
DD 202	Photo and Video Communication		11	16	15	12						1				
DD 203	Materials and Processes		5	5	14	17	11	2				1				
DD 204	Visual Communication Theory	2	10	26	7	4	5	1								
DD 205	Ergonomics in Design		13	14	12	11	4					1				
DD 206	User Research Methods		8	28	17	1		1								1
DD 210M	Introduction to Design				2	6	4	3	3							
DD 216	BDes Project I		16	18	15	2	1					2				
DD 301	Interaction Design		1	8	21	13	5	3	1							
DD 302	Design Analysis		17	22	6	2	1	1	1			2				
DD 304	Tangible Interfaces		11	22	10	6	3									
DD 310M	Product Design		1													
DD 321	Modelling and Simulation Techniques	1	291	3	1	2			5							

Course Code	Course Name	AS	AA	AB	BB	BC	CC	CD	DD	FA	FD	FP	I	NP	PP	X
EN 672	Energy Storage Systems		3	7	1											1
EN 673	Fundamentals of Energy Engineering		4	4	3											
EN 680	Distributed Energy Resources in Electric Grid		5	5	4											
EN 698	Project 2		2	4	5											
EV 702	Applied Environmental Microbiology	1	4	2												
FT 001	Advanced Food Processing		2	2	3	2	2									
FT 002	International Joint Exercises in Food Science and Technology		2	2	1								1			
FT 002	International Joint Exercises in Food Science and Technology		2	2	3											
FT 003	International Joint Global Internship & Seminar-B												3			
FT 005	Design thinking and Scientific Writing		4													
FT 018	Joint Degree Dissertation		3													
HS 119	Sociology of Science	13	34	83	33	18	10	1				1				
HS 126	International Economics	9	34	48	40	18	4	2								
HS 128	Introduction to Psychology	3	4	29	38	26	16	2								
HS 129	Economic Theory: An Introduction	2	53	73	15	2				3						
HS 133	Introduction to Phonetics	6	2	6	14	18	32	38				7				
HS 147	War and Peace: India's Military History	1	9	41	67	25	3									
HS 158	Introduction to Language Acquisition		21	22	27	19	17	1	3							
HS 211	Sound Structure of Language and Speech Analysis	11	9	12	35	4	3	3								
HS 213	Psychology of Health and Adjustment	2	8	10	14	12	28	35	28							
HS 214	Industrial Organization	5	12	23	21	53	41	31				7				
HS 217	Social History of Technology in Modern India	11	17	28	43	61	12	9								
HS 231	Sociology of Communication	16	12	27	62	32	37	19								
HS 231M	Comparative Drama	1	1													
HS 236	Sociological Perspectives on Modernity	15	15	23	20	7	4	3								
HS 239	Economics of Uncertainty and Information	13	20	11	10	13	10	11			3	1				
HS 418M	Language and Thought				3	2										
HS 501	Essentials of Political Theory	3	7	8	13	11	3				1					
HS 506	Interrogating Modernity	7	15	14	7	4	1									
HS 513	Transnationalism and Migration: Issues of Development	1	1	1	6	2										
HS 514	Agriculture and Rural Development	4	4	6	8	7	6	6								
HS 515	Introduction to Economics	6	5	7	5	2		1	1			1				
HS 516	The Study of Society	1	4	5	12	3	1	1	1				1			
HS 519	Economic History of Colonial India	1	3	7	10	6						1				
HS 520	Environment and Development	7	15	9	5	5										
HS 522	Quantitative Research Methods in Social Sciences	6	7	3	4	1	3	3			1			2		
HS 553	History and Philosophy of Science	1	2	4												
HS 554	Theories and Thinkers: The Concept of Culture	332	4	5	7	2								1		

Course Code	Course Name	AS	AA	AB	BB	BC	CC	CD	DD	FA	FD	FP	I	NP	PP	X
ME 201Mn	Manufacturing Technology				2											
ME 211	Thermodynamics		7	13	35	39	14	4	5			1				
ME 212	Solid Mechanics I		29	42	58	47	20	7	6							
ME 213	Engineering Materials		11	31	34	22	14	5								
ME 214	Fluid Mechanics - I		7	9	19	22	35	16	7			2				
ME 215	Machine Drawing		19	79	17	3										
ME 216	Mechanical Engg Laboratory- I		27	46	41	4										
ME 311	Heat Transfer	1	9	11	10	7	13	15	39			15	1			
ME 312	Manufacturing Technology II		14	15	36	24	18	9	4							
ME 313	Dynamics of Machinery		13	32	23	19	12	13	5		1	2				
ME 314	Design of Machine Elements		4	11	36	43	17	4	2				1			
ME 315	Mechanical Engineering Laboratory III		37	44	31	7	2									
ME 398	BTech Project-I		1													
ME 399	BTech Project-II						1									
ME 401	Summer Training													3	108	
ME 401M	Project				5	1	1									
ME 498	BTech Project-III		10	42	34	15	5	3	1			1	1			
ME 501	Advanced Engineering Mathematics	1	12	34	41	24	10	2	3			5				
ME 502	Engineering Computing Laboratory		6	18	22	32	30	11	7	4		2				
ME 504	MTP Phase I		21	38	31	12	4	1	1			8				
ME 505	MTP Phase II		1		1	1										
ME 505	MTP Phase II		1		2	2						2				
ME 510	Subtractive Manufacturing		10	32	26	26	8	11	10			1				
ME 512	Welding and Additive Manufacturing	7	14	15	20	22	22	19	6		2	2				
ME 520	Fluid Mechanics		4	3	6	6	10	6	4	2		4				
ME 521	Conduction and Radiation		2	3	7	9	6	7	2			5				
ME 522	Convective Heat Transfer			1	2		2					2				
ME 523	Advanced Thermodynamics		3	6	9	8	6	2	3			1				
ME 530	Advanced Mechanics of Solids		2	5	9	11	12	5	3			1				
ME 531	Mechanical Vibrations	2	8	8	15	9	7			1		1	3			
ME 532	Finite Element Methods in Engineering	1	6	24	25	13	9	1				2				
ME 543	Computational Fluid Dynamics		1	3	35	19	6	2	2	1						
ME 550	Introduction to Aerospace Engineering				3	3	4									3
ME 551	Aerodynamics				1	1	1	1	2	4						
ME 606	Solidification Processing		1	5	2	1				2						
ME 609	Optimization Methods in Engineering		4	8	17	18	22	16	9	2						
ME 644	Modern Control	1	2	6	12											
ME 659	Tribology of Bearings		36 ¹	1	1	2				1						

Course Code	Course Name	AS	AA	AB	BB	BC	CC	CD	DD	FA	FD	FP	I	NP	PP	X
ME 664	Theory of Elasticity			1	1	1								2	1	
ME 674	Soft Computing in Engineering	1	3	10	7	8	6	2	4							
ME 678	Mechanics of Sheet Metal Forming		3	10	11	7	5	2					1			
ME 679	Mechanical Behaviour of Materials		2	5	7	3	4	3								
ME 686	Micro manufacturing		5	7	6	4							1			
NCC	NCC													8	96	
NT 601	Nano Device: Fabrication, Productization and Patent	1	1	3	3	1									1	
NT 602	Laboratory Safety and Risk Management: Principles				1	1										
PH 101	Physics - I		43	66	136	135	162	100	164				127	8		
PH 110	Physics Laboratory	3	58	154	194	56	16	3					3			
PH 201	Mathematical Physics		4	18	7	11	7	7	4				5			
PH 203	Classical Mechanics		13	8	14	6	1	5	4				7			
PH 205	Semiconductor Devices	1	3	6	7	8	9	11	9				5			
PH 207	Heat and Thermodynamics	1	11	12	5	11	10	3	3				2			
PH 209	Analog Electronics	2	4	9	9	10	12	6	6			2	4			
PH 211	Electronics Laboratory -I		8	43	3		3						2			
PH 301	Statistical Mechanics		4	7	17	17	5	4	4				3			
PH 303	Quantum Mechanics II		9	9	8	3	7	13	7				4			
PH 305	Engineering Optics		2	7	8	11	19	7	4				3			
PH 307	Atomic and Molecular Spectroscopy	1	8	18	7	12	10	2	2							
PH 309	Electronics Lab-II		16	26	8	5	1	2					1			
PH 381M	Computational Physics		1													
PH 401	Math Phy-I	1	3	4	11	15	11	6	3				3			
PH 403	Classical Mechanics		4	10	16	10	7	6					2			
PH 405	Quantum Mechanics-I		2	3	9	16	13	4	3				5			
PH 407	Computer programming and numerical methods	1	3	8	16	16	8	2					1			
PH 409	Electronics	2	10	12	9	8	8	1	4				1			
PH 411	Electronics Lab	6	26	17	5								1			
PH 413	Nanoelectronics and Nanophotonics		2	7	7	4	6	5	3							
PH 415	Simulation techniques in physical systems	5	9	15	15	14	4									
PH 419	Materials Science and Engineering		3	4	16	12	6	7	4				1			
PH 421	Project-I		8	6	11	5	9	3					1			
PH 445	Optical Communication Systems					2	5	3			1		2			
PH 460	Electroceramics				1	4	5	5	4							
PH 481M	Materials Science and Engineering					1	2									
PH 499	Project II							1								
PH 501	Electrodynamics II				10	16	20	8	2	2						
PH 503	Atomic and Molecular Physics		371	7	9	17	8	8	3	2						

Course Code	Course Name	AS	AA	AB	BB	BC	CC	CD	DD	FA	FD	FP	I	NP	PP	X
PH 505	Solid State Physics		9	12	20	6	9	1		1			1			
PH 507	Nuclear and Particle Physics		5	14	17	11	6	1		1						
PH 509	Project-1	1	27	17	6		1	1		1						
PH 511	General Physics Laboratory II		12	29	9	3	1						2			
PH 522	Physics of Semiconductors		14	4	9											
PH 532	Laser Spectroscopy		2	1	1											
PH 543	Quantum Field Theory		2	6	8	4	2	2		2					2	
PH 703	Quantum Electronics		1	7	3	5				1						
PH 705	Quantum Field Theory and the Standard Model		2	1	2	2										
PH 707	Computational Physics	3	3	12	19	6							2			
RA 501	Fundamentals of Robotics		3	5	5	5	5			4		1			1	
RA 502	Artificial Intelligence		4	9	5	6	1		1	3						
RA 503	Robot Design Laboratory		5	7	9	2	1	1				3				
RA 504	Programming Laboratory		3	17	3							5				
RA 507	Technical Writing	1	6	6	10	3	3					1				
RA 598	Project Phase 1		6	16	5	1							1			
RA 602	Control Engineering for Robotics		2	1	3	1	1	2		1		1				
RT 504	Rural Water Supply and Sanitation		1	2	2	3	2									
RT 510	Research Methodology and Quantitative Techniques for Rural Deve	2	2	6		1									1	
RT 516	Product and Process Development in Food and Bioprocessing indus	1	5	4	5	2	1									
RT 523	Rural Technology and Development		1	4	7	5									1	
RT 691	Project Phase I		3													
SA 103	Volleyball												1			
SA 106	Cricket												1			
SA 110	Yoga												8	1		
SA 201	Athletics												3	57		
SA 202	Basketball													59		
SA 203	Volleyball													62		
SA 204	Football													59		
SA 205	SA 205												1	59		
SA 206	Cricket												1	60		
SA 207	Badminton													60		
SA 208	Table Tennis													61		
SA 209	SA 209													60		
SA 210	YOGA												17	364		
SA 216	Weightlifting												3	39		
SA 217	Swimming												1	44		
SA 314	Community Service		38										2			

Course Code	Course Name	AS	AA	AB	BB	BC	CC	CD	DD	FA	FD	FP	I	NP	PP	X
SA 401	Athletics													2	28	
SA 402	Basketball														29	
SA 403	Volleyball														30	
SA 404	Football														30	
SA 405	Hockey														30	
SA 406	Cricket														19	
SA 407	Badminton														30	
SA 408	Table Tennis														30	
SA 409	Lawn Tennis														30	
SA 410	Weightlifting													2	19	
SA 411	Swimming													1	30	
SA 415	Yoga														1	
SP 501	Introduction to Sustainable Polymers	1	1													
SP 502	Polymer Processing and Rheology			1			1									
SP 503	Polymer Synthesis and Characterization				1			1								
SP 511	Polymer Processing and Rheology Laboratory		1	1												
SP 512	Polymer Synthesis and Characterization Laboratory		1	1												
SP 698	Project -II			1												
SP 699	Project -III							1								
Totals		257	4661	7442	7836	6060	4027	2146	1580	74	16	678	111	183	2190	8

Annexure 180/16(g)

Sl. No	Course Title	Name of the Developer	Name of the Insti., of we	Course URL	Programme	Specilization(if any)	Department Elective/Opt.	Remarks on Open Elective/prerequisite/Eligibility
1	Algebra II	Prof. Sankaran Viswanath, Prof. Amritanshu Prasad	IIMSc	12 https://nptel.ac.in/courses/111106151	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: Algebra-I (Highly Recommended)
2	Algebraic Combinatorics	Prof. Amritanshu Prasad, Prof. Sankaran Viswanath	IIMSc	12 https://nptel.ac.in/courses/111106158	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: Knowledge of set theory, linear algebra, and algebra at the undergraduate level, basic undergraduate
3	Algebraic Number Theory	Prof. Mahesh Kakde	IIT Bangalore	12 https://onlinecourses.nptel.ac.in/noc25_ma08	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: Algebra, Galois theory.
4	An Introduction to Hyperbolic Geometry	Prof. Abhijit Pal	IIT Kanpur	12 https://nptel.ac.in/courses/111104164	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: Topology, Algebra (Group Theory), Complex Analysis
5	An Introduction to Point Set Topology-I	Prof. Anant R Shastri	IIT Bombay	12 https://nptel.ac.in/courses/111101158	MSc (M&C)	NIL	Department Elective	For PG, PREREQUISITES: Real Analysis
6	Applied Linear Algebra in AI and ML	Prof. Swanand Khare	IIT Kharagpur	12 https://nptel.ac.in/courses/111105165	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: Some exposure to Linear Algebra
7	Applied Multivariate Statistical Modeling	Prof. Jhareswar Maiti	IIT Kharagpur	12 https://nptel.ac.in/courses/111105091	BTech (M&C), MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For UG, PG, PREREQUISITES: Basic Knowledge of Probability and Statistics
8	Dynamical System and Control	Prof. N. Sukavanam, Prof. D. N. Pandey	IIT Roorkee	12 https://nptel.ac.in/courses/111107118	BTech (M&C), MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For UG, PG, PREREQUISITES: Basic concepts from Linear Algebra and Ordinary Differential Equations
9	High Performance Scientific Computing	Prof. Shivasubramanian Gopalakrishnan	IIT Bombay	12 https://onlinecourses.nptel.ac.in/noc25_ma27	MSc (M&C), PhD	NIL	Department Elective	For PG, PREREQUISITES: Basic course on programming and applied mathematics
10	Introduction to Algebraic Geometry and Commutative Algebra	Prof. Dilip P. Patil	IISc Bangalore	12 https://nptel.ac.in/courses/111108136	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: Linear Algebra, Algebra-First Course
11	Introduction to Galois Theory	Prof. Krishna Hanumanthu	CMI	8 https://nptel.ac.in/courses/111106145	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: Linear Algebra, Group Theory, Rings and Fields
12	Introduction to Lie Algebras	Prof. R. Venkatesh	IISc Bangalore	12 https://nptel.ac.in/courses/111108414	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: First Course in Linear Algebra
13	Advanced Course on Partial Differential Equations-I	Prof. A. K. Nandakumaran, Prof. P. S. Datti	IISc Bangalore	8 https://onlinecourses.nptel.ac.in/noc23_ma79	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: Measure and Integration, Functional Analysis, PDE
14	Advanced Course on Partial Differential Equations-II	Prof. A. K. Nandakumaran, Prof. P. S. Datti	IISc Bangalore	8 https://nptel.ac.in/courses/111108412	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: Measure and Integration, Functional Analysis, PDE
15	Computational Number Theory and Algebra	Prof. Nitin Saxena	IIT Kanpur	12 https://nptel.ac.in/courses/111104138	BTech (M&C), MSc (M&C), MSc (Maths)	NIL	Department Elective	For UG, PG, PREREQUISITES: Preferable but not necessary - Theory of Computation, Algorithms, Algebra
16	Computer Networks and Internet Protocol	Prof. Soumya Kanti Ghosh, Prof. Sandip Chakraborty	IIT Kharagpur	12 https://nptel.ac.in/courses/106105183	MSc (M&C)	NIL	Department Elective	For PG, PREREQUISITES:
17	Cryptography and Network Security	Prof. Sourav Mukhopadhyay	IIT Kharagpur	12 https://nptel.ac.in/courses/106105162	BTech (M&C), MSc (M&C), MSc (Maths)	NIL	Department Elective	For UG, PG, PREREQUISITES: Preferable but not necessary - Theory of Computation, Algorithms, Algebra
18	Data Analytics with Python	Prof. A. Ramesh	IIT Roorkee	12 https://nptel.ac.in/courses/106107220	MSc (M&C)	NIL	Department Elective	For PG, PREREQUISITES: NIL
19	Introduction to Database Systems	Prof. Sreenivasa Kumar	IIT Madras	12 https://nptel.ac.in/courses/106106220	MSc (M&C)	NIL	Department Elective	For PG, PREREQUISITES: Discrete Mathematics, Data Structures
20	Fundamental of Object Oriented Programming	Prof. Jalasubramanian Raman	IIT Roorkee	12 https://onlinecourses.nptel.ac.in/noc25_cs34	MSc (M&C)	NIL	Department Elective	For PG, PREREQUISITES: NIL. However, having a basic understanding of programming concepts will be beneficial.
21	Introduction to Industry 4.1 and Industrial Internet of Things	Prof. Sudip Misra	IIT Kharagpur	12 https://nptel.ac.in/courses/106105195	BTech (M&C), MSc (M&C)	NIL	Department Elective	For UG, PG, PREREQUISITES: Basic Knowledge of Computer and Internet
22	Quantum Algorithms and Cryptography	Prof. Shweta Agrawal	IIT Madras	12 https://nptel.ac.in/courses/106106241	BTech (M&C), MSc (M&C)	NIL	Department Elective	For UG, PG, PREREQUISITES: Theory of Computation, Design and Analysis of Algorithms, Foundations of Cryptography
23	Sobolev Spaces- Partial Differential Equations	Prof. S. Kesavan	IIMSc	12 https://nptel.ac.in/courses/111106154	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES : MSc Level Real Analysis, Topology, Linear Algebra, Measure Theory, Functional Analysis
24	Introduction to Fourier Analysis	Prof. Pararsi Mohanty	IIT Kanpur	12 https://nptel.ac.in/courses/111104519	BTech (M&C), MSc (M&C), MSc (Maths)	NIL	Department Elective	For UG/PG, PREREQUISITES : Basic Calculus, Riemann Integration
25	Galois Theory	Prof. Dilip Patil	IIT Bombay	12 https://nptel.ac.in/courses/111101117	BTech (M&C), MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For UG/PG, PREREQUISITES : Linear Algebra ; Algebra – First Course
26	Computational Commutative Algebra	Prof. Manoj Kummini	CMI	12 https://nptel.ac.in/courses/111106138	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES : Introduction to basic theory of rings, modules
27	Deep Learning	Prof. Sudarshan Iyengar, Prof. Padmavati	IIT Ropar	12 https://nptel.ac.in/courses/106106184	MSc (M&C), PhD	NIL	Department Elective	For PG, PREREQUISITES : Working knowledge of Linear Algebra, Probability Theory. It would be beneficial if the participants have done a course on Machine Learning.
28	An Introduction to Point Set Topology-II	Prof. Anant R Shastri	IIT Bombay	12 https://nptel.ac.in/courses/111101160	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: Topology / Point Set Topology-I
29	An Introduction to Riemann Surfaces and Algebraic Curves: Complex 1-Tori and Elliptic Curves	Prof. T. E. Venkata Balaji	IIT Madras	12 https://nptel.ac.in/courses/111106044	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: Topology, Complex Analysis
30	Advanced Complex Analysis Part-1: Zeros of Analytic Functions, Analytic Continuation, Monodromy, Hyperbolic Geometry and the RMT	Prof. T. E. Venkata Balaji	IIT Madras	12 https://nptel.ac.in/courses/111106084	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: Real Analysis, Complex Analysis
31	Advanced Complex Analysis Part-2: Compactness of Meromorphic Functions in the Spherical Metric, Spherical Derivative, Normality, Theorems of Marty - Zalcman - Montel - Picard - Royden - Schott	Prof. T. E. Venkata Balaji	IIT Madras	4 https://nptel.ac.in/courses/111106094	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: Real Analysis, Complex Analysis
32	Representation Theory of General Lie Algebra II	Prof. R. Venkatesh	IISc Bangalore	12 https://nptel.ac.in/courses/111108520	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: Abstract Algebra, Linear Algebra
33	Category Theory	Prof. Amit Kuber	IIT Kanpur	12 https://nptel.ac.in/courses/111104524	MSc (M&C), MSc (Maths), PhD	NIL	Department Elective	For PG, PREREQUISITES: None but mathematical maturity is necessary. For understanding and appreciating examples, domain-specific knowledge would be required.

Details of the Swayam NPTEL-MOOC Courses									
Sl. No	Course Title	Name of the Developer	Name of the Institute	No. of weeks	Course URL	Programme	Specilization(if any)	Department Elective/Open Elective	Remarks on Open Elective/prerequisite/Eligibility
1	Advanced Computer Architecture	Prof. Smruti R.Sarangi	IIT Delhi	12 Weeks	https://nptel.ac.in/courses/106102229	BTech/MTech/PhD	None	Department Elective	CS 223 (Computer Architecture and Organization) or Equivalent
2	Artificial Intelligence: Knowledge Representation And Reasoning	Prof. Deepak Khemani	IIT Madras	12 Weeks	https://nptel.ac.in/courses/106106140	BTech/MTech/PhD	None	Department Elective	None
3	Blockchain and its Applications	Prof. Sandip Chakraborty Prof. Shamik Sural	IIT Kharagpur	12 Weeks	https://nptel.ac.in/courses/106105235	BTech/MTech/PhD	None	Department Elective	None
4	Circuit Complexity Theory	Prof. Raghunath Tewari	IIT Kanpur	12 Weeks	https://nptel.ac.in/courses/106104241	BTech/MTech/PhD	None	Department Elective	None
5	Cloud Computing	Prof. Soumya Kanti Ghosh	IIT Kharagpur	12 Weeks	https://nptel.ac.in/courses/106105167	BTech/MTech/PhD	None	Department Elective	None
6	Computational Number Theory and Algebra	Prof. Nitin Saxena	IIT Kanpur	12 Weeks	https://nptel.ac.in/courses/111104138	BTech/MTech/PhD	None	Department Elective	None
7	Cryptography and Network Security	Prof. Sourav Mukhopadhyay	IIT Kharagpur	12 Weeks	https://nptel.ac.in/courses/106105162	BTech/MTech/PhD	None	Department Elective	None
8	Foundations of Cryptography	Prof. Ashish Choudhury	IIIT Bangalore	12 Weeks	https://nptel.ac.in/courses/106106221	BTech/MTech/PhD	None	Department Elective	None
9	Foundations of Cyber Physical Systems	Prof. Soumyajit Dey	IIT Kharagpur	12 Weeks	https://nptel.ac.in/courses/106105241	BTech/MTech/PhD	None	Department Elective	None
10	Games and Information	Prof. Ankur A. Kulkarni	IIT Bombay	12 Weeks	https://nptel.ac.in/courses/106101360	BTech/MTech/PhD	None	Department Elective	None
11	GPU Architectures and Programming	Prof. Soumyajit Dey	IIT Kharagpur	12 Weeks	https://nptel.ac.in/courses/106105220	BTech/MTech/PhD	None	Department Elective	None
12	Introduction To Internet Of Things	Prof. Sudip Misra	IIT Kharagpur	12 Weeks	https://nptel.ac.in/courses/106105166	BTech/MTech/PhD	None	Department Elective	None
13	Introduction to Large Language Models (LLMs)	Prof. Soumen Chakraborti	IIT Delhi	12 Weeks	https://nptel.ac.in/courses/106102576	BTech/MTech/PhD	None	Department Elective	None
14	Introduction to Machine Learning	Prof. Balaraman Ravindran	IIT Madras	12 Weeks	https://nptel.ac.in/courses/106106139	BTech/MTech/PhD	None	Department Elective	None
15	Natural Language Processing	Prof. Pawan Goyal	IIT Kharagpur	12 Weeks	https://nptel.ac.in/courses/106105158	BTech/MTech/PhD	None	Department Elective	None
16	Object Oriented System Development Using UML, Java And Patterns	Prof. Rajib Mall	IIT Kharagpur	12 Weeks	https://nptel.ac.in/courses/106105224	BTech/MTech/PhD	None	Department Elective	None
17	Quantum Algorithms and Cryptography	Prof. Shweta Agrawal	IIT Madras	12 Weeks	https://nptel.ac.in/courses/106106241	BTech/MTech/PhD	None	Department Elective	None
18	Reinforcement Learning	Prof. Balaraman Ravindran	IIT Madras	12 Weeks	https://nptel.ac.in/courses/106106143	BTech/MTech/PhD	None	Department Elective	None
19	Secure Computation: Part I	Prof. Ashish Choudhury	IIIT Bangalore	12 Weeks	https://nptel.ac.in/courses/106108229	BTech/MTech/PhD	None	Department Elective	None
20	Selected Topics in Algorithms	Prof. Palash Dey	IIT Kharagpur	12 Weeks	https://nptel.ac.in/courses/106105242	BTech/MTech/PhD	None	Department Elective	CS 203 (Algorithms and Data Structures) or Equivalent
21	Social Networks	Prof. Sudarshan Iyengar	IIT Ropar	12 Weeks	https://nptel.ac.in/courses/106106169	BTech/MTech/PhD	None	Department Elective	None
22	VLSI Physical Design	Prof. Indranil Sengupta	IIT Kharagpur	12 Weeks	https://nptel.ac.in/courses/106105161	BTech/MTech/PhD	None	Department Elective	CS 221 (Digital Design) or Equivalent
23	C-Based VLSI Design	Prof. Chandan Karfa	IIT Guwahati	12 Weeks	https://nptel.ac.in/courses/106103229	BTech/MTech/PhD	None	Department Elective	CS 221 (Digital Design) or Equivalent
24	Advanced Computer Architecture	Prof. John Jose	IIT Guwahati	12 Weeks	https://nptel.ac.in/courses/106103206	BTech/MTech/PhD	None	Department Elective	CS 223 (Computer Architecture and Organization) or Equivalent
25	Parallel Computer Architecture	Prof. Hemangee Kapoor	IIT Guwahati	12 Weeks	https://nptel.ac.in/courses/106103359	BTech/MTech/PhD	None	Department Elective	CS 223 (Computer Architecture and Organization) or Equivalent

Syllabus– Energy Engineering

Course Number & Title: EN681 Automotive Vehicles
L-T-P-C: 3-0-0-6
Offered in (Odd/ Even / Any): Any
Pre-Requisite: Nil
<p>Preamble / Objectives (Optional): This course has been designed to make the students familiar with the fundamentals of automotive vehicles. It deals with the principle of operation and performance of internal combustion engines, electric motor, fuel cell, along with working, analysis and design of various components of automotive vehicles. In addition to that current development and future scope of automotive industry will also be discussed.</p> <p>The main objectives of this course are:</p> <ul style="list-style-type: none"> • To develop a strong understanding of the working of an automotive, and the current trends in the fast-evolving industry. • Synthesize the data and apply the technical concepts in the automotive applications. • Pursue a successful career in automotive and ancillary industries that meet the needs of Indian and multinational companies.
<p>Course Content/ Syllabus: Introduction to the thermodynamics of the prime move; Internal combustion engines and its components; Automotive vehicle components and their working; Analysis of vehicle performance; Analysis and design of vehicle components; Experimental and theoretical investigations of problems selected from the field of automotive vehicles; Brief description of currents trends in the automotive industry – operations & manufacturing, advance combustion engines, electric and hybrid electric vehicles, fuel cell vehicles, mobility-as-a-service, connected vehicles, autonomous vehicles.</p> <p>Books (In case UG compulsory courses, please give it as “Text books” and “Reference books”. Otherwise give it as “References”).</p>
1 N. K. Giri, <i>Automotive Mechanics</i> , 12 th Edition, Khanna Publishers, 2024.
2 V. Ganeshan, <i>Internal Combustion Engines</i> , 4 th edition, Tata McGraw-Hill, 2017
Reference Books: (Format: Authors, Book Title in Italics font, Volume/Series, Edition Number, Publisher, Year.)
1 Kripal Singh, <i>Automobile Engineering</i> , - Vol. I & II, 14 th Edition, Standard Publishers & Distributors, 2019.
2 Joseph Heitner, <i>Automotive Mechanics – Principles and Practice</i> , 2nd edition, Affiliated East West Press, CBS Publishers and Distributors Pvt. Ltd, 2004.

Syllabus– Energy Engineering

Course Number & Title: EN682 Renewable Energy based Smart Grid	
L-T-P-C: 3-0-0-6	
Offered in: Semester VI	
Pre-Requisite: Nil	
<p>Preamble/Objectives (Optional): This course aims to give students a detailed understanding of smart grids for renewable energy systems, their types, design and control challenges, implementation, applications, and future scope.</p>	
<p>Course content: Renewable energy applications in Smart Grid; needs and benefits; its functions, opportunities, and challenges; the concept of resilient & self-healing grid; present development & international policies; the architecture, standards, elements, and technologies; renewable energy and energy storage integration; devices modeling of Smart Grid components; smart substations; transmission systems; energy management system (EMS); wide area monitoring; operation and control of microgrid; Islanding detection techniques; protection and control; Smart and advanced metering infrastructure; Smart meters and its applications.</p>	
<p>Text Books: (Format: Authors, Book Title in Italics font, Volume/Series, Edition Number, Publisher, Year.)</p>	
1.	Bernd M. Buchholz and Zbigniew A. Styczynski, <i>Smart Grids: Fundamentals and Technologies in Electric Power Systems of the Future</i> , 2 nd Edition, Springer, 2020.
2.	Yunfei Yin, <i>Robust Control Strategies for Power Electronics in Smart Grid Applications</i> , 1 st Edition, Springer, 2024.
<p>Reference Books: (Format: Authors, Book Title in Italics font, Volume/Series, Edition Number, Publisher, Year.)</p>	
1.	Uma Rao and Prema V., <i>Smart Grid, An Indian Adaptation: Fundamentals, Design, Technology, Applications, Communication and Security</i> , 1 st Edition, Wiley, 2022.
2.	Janaka Ekanayake, <i>Smart Grid: Technology and Applications</i> , 1 st Edition, Wiley, 2015.

Summary of Approvals of Chairman, IADC on the Reported Malpractices in the End-Sem Exams, Monsoon Semester, 2024

S.No.	Roll No.	Name of the Student	Programme and Department	Course No.	Incident	Reporting Faculty	DDC Recommendations
1.	220103006	Akshar Chauhan	BTech, Mechanical Engineering	ME 313	A chit relevant to the course was found with him.	Prof. Rajiv Tiwari, ME Prof. RK Bhattacharjya, CE	FD grade in ME 313
2.	210102024	Bharti	BTech, Electronics and Communication Engineering	EE 646	The student was carrying mobile phone during the examination		FD grade in EE 646
3.	230121056	Soham Chatterjee	BTech, Engineering Physics	PH 209	The student was caught with solutions of questions.	Dr. Uday Narayan Maiti, Physics	FD grade in PH 209.
4.	230121026	Gunnam Sohni Lasya	BTech, Engineering Physics	PH 209	The student carried the question paper scribbled on it.	Prof. Subhradip Ghosh, Physics	Further, DDC suggested that the student may be allowed to write the supplementary examination if permitted. However, Chairman, IADC did not approve the same as per the Ordinance.

S.No.	Roll No.	Name of the Student	Programme and Department	Course No.	Incident	Reporting Faculty	DDC Recommendations
5.	220205024	Krishna	BDes, Department of Design	HS 133	The student was found with cheat Sheet of the IPA Chart in his possession.	Prof. Priyankoo Sarmah, HSS	FD grade in HS 133
6.	220108037	Mukul Goel	BTech, Electronics and Electrical Engineering	HS 147	The student was caught with a cheat sheet below his desk.	Prof. Rupam Barman, Mathematics	FD grade in HS 147