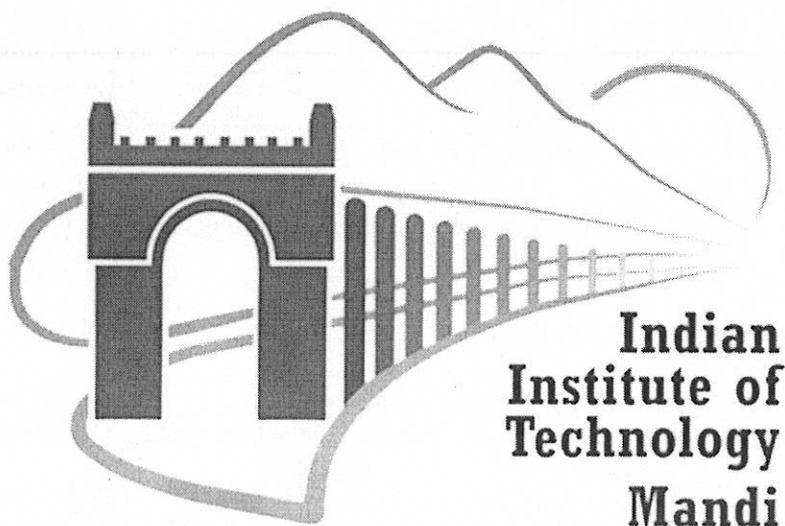


INDIAN INSTITUTE OF TECHNOLOGY MANDI
KAMAND, DISTT. MANDI – 175075 (HIMACHAL PRADESH)



MINUTES OF 47TH BOARD OF ACADEMICS MEETING

VENUE	:	A-4 (SC) and GUEST HOUSE (NC) CONFERENCE ROOM + ONLINE
DATE	:	06 th & 7 TH SEPTEMBER, 2022 (TUESDAY & WEDNESDAY)
TIME	:	02:00 P.M.

Following members attended the meeting

Sl. No	Responsibilities	Name
1	Dean Academics	Prof. Rahul Vaish
2	Associate Dean (Courses)	Dr. P. Anil Kishan
3	Chairman Course Proposal Committee	Dr. Venkata Uday Kala
4	Course Coordinator (B.Tech.-CSE)	Dr. Jinesh Machchar
5	Course Coordinator (B.Tech.-EE)	Dr. Rahul Shrestha
6	Course Coordinator (B.Tech.-CE)	Dr. Maheshreddy Gade
7	Course Coordinator (B.Tech.-DSE)	Dr. Manoj Thakur
8	Course Coordinator (B.Tech.-EP)	Dr. Pradeep Kumar (SBS)
9	Course Coordinator (B.Tech.-M.Tech. Integrated Dual Degree in Bio-Engg.)	Dr. Shubhajit Roy Chowdhury
10	Course Coordinator (M.Tech.-(Fluid and Thermal Engg.))	Dr. Gaurav Bhutani
11	Course Coordinator (M.Tech.-(VLSI))	Dr. Srinivasu Bodapati
12	Course Coordinator (M.Tech.-(Communication and Signal Processing))	Dr. Siddartha Sarma
13	Course Coordinator (M.Tech.-Biotechnology)	Dr. Amit Prasad
14	Course Coordinator (M.Tech.-Electric Transportation) (ET)	Dr. Narsa Reddy Tummuru
15	Course Coordinator (M.Sc.-Applied Mathematics)	Dr. Muslim Malik
16	Course Coordinator (M.Sc.-Physics) + (I-Ph.D. (Physics))	Dr. C.S.Yadav
17	Course Coordinator (MA Dev.Studies)	Dr. Devika Sethi
18	Nominee-1: School of Engineering	Dr. Arpan Gupta
19	Nominee-2: School of Engineering	Dr. Mousumi Mukherjee
20	Nominee-1: School of Computing & Electrical Engineering	Dr. Gopi Shrikanth Reddy
21	Nominee-2: School of Computing & Electrical Engineering	Dr. Manas Thakur
22	Nominee-1: School of Humanities & Social Sciences	Dr. Suman
23	Nominee-2: School of Humanities & Social Sciences	Dr. Saumya Dixit
24	Academic Affairs Secretary	Mr. Naveen Saisreenivas Thota
25	Research Affairs Secretary	Mr. Shubham Ranjan
26	Assistant Registrar (Academics): Secretary	Mr. Vivek Tiwari

Following members could not attend the meeting

Sl. No.		Name	
1	Associate Dean (Research)	Dr. Rajanish Giri	Member
2	Chairman Library Advisory Committee	Dr. Rajeshwari Dutt	Member
3	Course Coordinator (IC Courses)	Dr. Hitesh Shrimali	Member
4	Course Coordinator (HSS Courses)	Dr. Rajeshwari Dutt	Member
5	Course Coordinator (B.Tech.-ME)	Dr. Himanshu Pathak	Member
6	Course Coordinator (M.Tech.- (Materials and Energy Engg.)) (MEE)	Dr. Sudhir K Pandey	Member
7	Course Coordinator (M.Tech.-(Mechanical Engg. (Energy Systems)) (MES)	Dr. Rajeev Kumar	Member
8	Course Coordinator (M.Tech.-(Structural Engg.))	Dr. Sandip Kumar Saha	Member
9	Course Coordinator (M.Tech.-(Power Electronics and Drives))	Dr. Himanshu Misra	Member
10	Course Coordinator (M.Tech.-(Computer Science and Engg.))	Dr. Sriram Kailasam	Member
11	Course Coordinator M.Sc. (Chemistry)	Dr. Bhaskar Mondal	Member
12	Nominee-1: School of Basic Sciences	Dr. Tulika Srivastava	Member
13	Nominee-2: School of Basic Sciences	Dr. Girish Sharma	Member
14	Industry Member – 1	Dr. Nadeem Akhtar	Member

Special Invitee

Sl. No.	Name	
1	Dr. Narendra Kumar Dhar	Asst. Prof. SCEE
2	Dr. Atul Dhar	Asso. Prof. SMME
3	Dr. Viswanath Balakrishnan	Asso. Prof. SMME
4	Dr. Sarita Azad	Asso. Prof. SMSS
5	Dr. Sumit Murab	Asst. Prof. SBB
6	Dr. Shyamasree Dasgupta	Asso. Prof. SHSS
7	Dr. Parmod Kumar	Asst. Prof. SMME
8	Dr. Shyam K Masakapalli	Asso. Prof. SBB
9	Dr. Jagadeesh Kadiyam	Asst. Prof. SMME
10	Dr. Radhe Shyam Sharma	Asst. Prof. SCEE

PART-A

(Issues discussed by the Board of Academics when the Student Members were present)

47.1 Confirmation of the minutes of 46th meeting of the Board of Academics:

The minutes of the 46th meeting of the Board of Academics held on 9th May, 2022 were confirmed.

47.2 To consider the revision of Teacher Course Feedback (TCF) and Class Committee Meeting (CCM):

Dr. Sarita Azad, Chair of the designated committee presented a proposal regarding revision of Teacher Course Feedback (TCF) and Class Committee Meeting (CCM). The Board discussed the recommendation of the Committee.

After due deliberations, the BoA recommended the proposal for consideration of the Senate and its approval. The proposal is placed as **Annexure – A**.

47.3 To consider the guidelines for JRF to SRF and issues related to monthly scholarship for M.Tech.(By Research)/M.Tech./I-Ph.D./Ph.D. scholars.

Dr. Pramod Kumar, Chair of the designated committee presented the proposal for guidelines for JRF to SRF and issues related to monthly scholarship for M.Tech. (By Research)/M.Tech./I-Ph.D./Ph.D. scholars. The Board discussed the recommendations of the Committee.

After due deliberations, the BoA recommended the proposal for consideration of the Senate and its approval. The proposal is placed as **Annexure – B**.

47.4 To consider the proposal of MoU for Joint Ph.D./M.Tech./M.Sc degrees and early admission in IIT Mandi for students of CFTIs and top 100 overall NIRF ranked Institutes:

Prof. Rahul Vaish, Dean (Academics) presented the proposal of MoU for Joint Ph.D./M.Tech./M.Sc. degrees and early admission in IIT Mandi for students of CFTIs and top 100 overall NIRF ranked Institutes, the BoA recommended the proposal for consideration of the Senate and its approval.

The modified proposal is placed as **Annexure-C**.

47.5 To consider the revision in the Ordinances & Regulations of the M.Tech. (By Research)/Ph.D. programme:

Prof. Rahul Vaish, Dean (Academics) presented the proposal for revision in the Ordinances & Regulations of the M.Tech. (By Research)/Ph.D. programmes. After due deliberations, the BoA recommended the following proposal for consideration of the Senate and its approval.

1. Comprehensive Examination (**Deferred for further modification**)
2. Conversion from full time to part time M.Tech. (by Research)/Ph.D. programme to take up job

3. Waiving off the course work/credits if the students are admitted in the M.Tech. (by Research) or Ph.D. who have completed their previous qualification from IIT Mandi. **(Deferred for further modification)**
4. R. 21.2. of O & R International Students (MTech (R)/Ph.D./PG admissions)
5. Eligibility criteria for M.Tech. admissions
6. Termination clause in MA/M.Sc./M.Tech programme
7. R.21 of O & R Panel of Examiners: M.Tech.(by Research)

The modified proposal is placed as **Annexure – D.**

47.6 To consider the recommendations regarding Awards and Medals:

Dr. C. S. Yadav, Chair of the designated committee presented the recommendations regarding Awards and Medals for graduating batches. After due deliberations, the BoA recommended the proposal with minor modification for consideration of the Senate and its approval.

The modified proposal is placed as **Annexure – E.**

47.7 To consider revision in the curriculum of I-Ph.D. (Physics) programme:

Dr. C. S. Yadav, Programme Coordinator for I-Ph.D. (Physics) presented the proposal for revision in the curriculum of I-Ph.D. (Physics) programme. After due deliberations, the BoA recommended the proposal with minor modification for consideration of the Senate and its approval.

The modified proposal is placed as **Annexure – F.**

47.8 To consider the recommendations for updating the list of courses for CSE Minor:

Dr. Jinesh Machchhar, Course Coordinator, CSE presented the below mentioned list of courses for CSE Minor.

Foundation courses:

Data Structures and Algorithms (CS202)

System Practicum (CS307)

List of suggested courses:

CS207 Applied Database Practicum

CS208 Mathematical Foundations of Computer Science

CS201 Computer Organization (along with CS201P)

CS201P Computer Organization Lab (along with CS201)

CS304 Formal Languages and Automata Theory

CS309 Information and Database systems

CS310 Introduction to Computing and Distributed processes

CS302 Paradigms of Programming

CS514 Data Structures and Algorithms-II

After due deliberations, the BoA recommended the proposal for consideration of the Senate and its approval.

47.9 To consider revision in the curriculum of Data Science and Engineering branch of B.Tech. programme:

Chair CPC presented the courses for Data Science and Engineering branch, which was deferred due to incomplete descriptions. After due deliberations, the BoA requested to modify the description and present it during a subsequent BoA meeting.

47.10 To consider revision in the curriculum of MBA programme:

Chair CPC presented the courses for MBA, which was deferred due to incomplete descriptions. After due deliberations, the BoA requested to modify the description and present it during a subsequent BoA meeting.

47.11 To consider the proposal of Academic Calendar (AY 2022-23) for B.Tech. first year 2022:

Dr. P Anil Kishan, Associate Dean (Courses), presented the proposal of Academic Calendar (AY 2022-23) for B.Tech. First Year 2022. After due deliberations, the BoA recommended the proposal for consideration of the Senate and its approval. The proposal is placed as **Annexure-G.**

47.12 To consider the proposal of FDP:

Dr. Narender Kumar Dhar and Dr. Shubhajit Roy Chowdhury, presented a proposal of Foundations of Prototype Development (FDP) course. After due deliberations, the BoA recommended the proposal with minor modification for consideration of the Senate and its approval.

The modified proposal is placed as **Annexure – H.**

47.13 To consider the revision in the B.Tech. Curriculums:

Mr. Naveen Saisreenivas Thota, Academic Affairs Secretary, presented a proposal for revision in the B.Tech. Curriculums. After due deliberations, the BoA recommended the proposal with minor modification for consideration of the Senate and its approval.

The modified proposal is placed as **Annexure – I.**

47.14 To consider approval of the courses presented by the Course Proposal Committee (CPC):

Chair CPC presented the courses, which was deferred due to incomplete descriptions. After due deliberations, the BoA requested to modify the description and present it during a subsequent BoA meeting.

47.15 Any other item with the permission of the Chair.

With the permission of the Chairman, the BoA deliberated on the following points:

- (i) **To consider award of Ph.D., I-Ph.D. (Physics), M.S. (by Research), M.Tech. M.Sc., M.A. and B.Tech. degree:**

Prof. Rahul Vaish, Dean (Academics) presented the number of the students who have completed all the requirements for the award of the degrees during 10th Convocation are given below.

Programme	No. of students
Ph.D.	37
M.S. (by Research)	17
I-Ph.D.	2
M.Tech in MES	7
M.Tech in EEM	12
M.Tech. in STE	11
M.Tech in VLSI	14
M.Tech in PED	13
M.Tech in SPCOM	3
M.Tech in BioTech	12
M.Sc. (Chem)	39
M.Sc. (Maths)	31
M.Sc. (Physics)	25
MA	10
B.Tech	175
Total	408

(ii) To consider the proposal of Academic Calendar (AY 2022-23) for MBA first year 2022:

Dr. Manoj Thakur, presented a proposal of Academic Calendar (AY 2022-23) for MBA First Year 2022. After due deliberations, the BoA recommended the proposal for consideration of the Senate and its approval. The proposal is placed as **Annexure-J**.

(iii) To consider the proposal of change of Grading System:

Mr. Naveen Saisreenivas Thota, Academic Affairs Secretary, presented a proposal of change of Grading System. After due deliberations, the BoA recommended the proposal for consideration of the Senate and its approval. The proposal is placed as **Annexure-K**.

PART-B

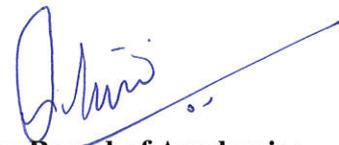
(Issues discussed by the BoA without the Student Members being present)

-NIL-

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



Chairman, Board of Academics



Secretary, Board of Academics

Annexure-A

Revised TCF mechanism

Committee members

Dr. Sarita Azad (Chair)

Dr. Manas Thakur (member)

Dr. Kaustav Sarkar (member)

Dr. Anil Kishan (member)

1. **The following were the main point of discussion:**

- The impact of class size on TCF.
- Separate questions w.r.t. practical/lab/theory classes
- Who is eligible to give feedback?
- In the end, TCF should be able to efficiently evaluate and measure the performance of teachers and courses for improvement.

2. **The following steps have been followed in TCF so far, and the proposed steps are mentioned as:**

Current mechanism	Proposed mechanism
CCM 1	Mid-sem TCF
CCM2	Final TCF
Final TCF	Final CCM for submission of grades

3. **Drawbacks in the current TCF procedure:**

1. Individual course scores are compared to the Institute average under the current approach. For instance, if the institute average is 3.76, someone with a score of 4.23 is above average. However, this score is considered below average if the institute average is 4.5. But the key thing is that a 4.23 is a very good score on a scale of 5.
2. The impact of large classes is not understood since small and large class feedback are not compared on an equal scale. As a result, instructors are discouraged from teaching large classes like IC courses.

Recommendations

- There will be no CCM, but instead there will be two TCF including one at the time of mid sem.
- TCF questions will be different for lab and theory courses.
- The calculations of TCF for theory and tutorial courses will be statistical, based on two-level significance tests.
- Lab TCF will be more non-statistical and will be summarizing the feedback in pi-charts.
- Instead of comparing individual rating with the institute average, it will be now more statistically robust and will be based on class size.
- Only those students are eligible to give feedback who have attendance above 70% at the time of final TCF or instructor may decide.
- Pi-chart will be generated for mid-term assessment and will be available to faculty immediately.
- TCF for TA's will be worked out.

4. Proposed Procedure for estimation of final TCF

Sample calculation to estimate the TCF

Table 1 depicts a TCF where 10 questions are judged at the scale of 5 where

1 poor 2 Average 3 Good 4 Very good 5 excellent

	<u>Q1</u>	<u>Q2</u>	<u>Q3</u>	<u>Q4</u>	<u>Q5</u>	<u>Q6</u>	<u>Q7</u>	<u>Q8</u>	<u>Q9</u>	<u>Q10</u>
<u>Poor (1)</u>	<u>23</u>	<u>22</u>	<u>27</u>	<u>33</u>	<u>23</u>	<u>30</u>	<u>30</u>	<u>31</u>	<u>39</u>	<u>42</u>
<u>Average (2)</u>	<u>26</u>	<u>29</u>	<u>31</u>	<u>29</u>	<u>29</u>	<u>35</u>	<u>33</u>	<u>29</u>	<u>32</u>	<u>30</u>
<u>Good(3)</u>	<u>44</u>	<u>44</u>	<u>37</u>	<u>42</u>	<u>42</u>	<u>37</u>	<u>40</u>	<u>43</u>	<u>38</u>	<u>35</u>
<u>Very good (4)</u>	<u>22</u>	<u>18</u>	<u>19</u>	<u>13</u>	<u>13</u>	<u>15</u>	<u>15</u>	<u>12</u>	<u>10</u>	<u>10</u>
<u>Excellent (5)</u>	<u>13</u>	<u>15</u>	<u>13</u>	<u>12</u>	<u>12</u>	<u>9</u>	<u>9</u>	<u>14</u>	<u>10</u>	<u>11</u>
	<u>2.81</u>	<u>2.79</u>	<u>2.69</u>	<u>2.55</u>	<u>2.72</u>	<u>2.51</u>	<u>2.53</u>	<u>2.6</u>	<u>2.38</u>	<u>2.36</u>

Table 1: sample TCF from a class of size 128.

The distribution of Table 1 is normal as shown in Figure 1, and the mean for each column is calculated as:

$$\frac{23 \times 1 + 26 \times 2 + 44 \times 3 + 22 \times 4 + 13 \times 5}{128} = 2.81 \text{ for Q1 question}$$

128

Similar mean of other questions are mentioned in Table 1.

Over all mean will be $(Q1_{\text{mean}} + Q2_{\text{mean}} + Q3_{\text{mean}} + \dots + Q10_{\text{mean}}) / 10 = 2.59$

Statistical significance test of the TCF score using standard Z and t tables (Table 2)

	<u>Confidence Level</u>	<u>t (0-10)</u>	<u>t (11-30 d.f.)</u>	<u>t (31-100 d.f.)</u>	<u>Z >100</u>
Below average	.80	1.372	1.325	1.310	1.28
Average	.90	1.812	1.725	1.697	1.64
Good	.95	2.228	2.086	2.042	1.96
Very good	.99	3.169	2.845	2.750	2.58

Table 2: Z and t-score based on sample size. Note for large class of size > 100, TCF is compared with Z-score, whereas for small class t-distributions for different size is taken. Note: $t \rightarrow Z$ as n increases

Table 2 has four columns for feedback sizes 0-10, 11-30, 31-100 and more than 100. The estimated mean will be compared with appropriate feedback size. In present case, 128 feedbacks are there, and hence obtained mean was compared with $z > 100$.

Since $2.59 > Z$ -score at 99% confidence level (Table 2), this feedback can be declared as “**very good**” based on the Table 2.

On the other hand, same mean for feedback of class size 10 is compared with 3.169 i.e. $2.59 < 3.169$. It will be considered as “**good**”

5. Comparison with the same category of courses across the institute

This level of test is important, because in previous section we saw individual course score was 2.59 or 3, but if the course average is very high like 4 which can happen on the scale of 5, then this test is crucial.

Note: To declare a TCF score as Excellent/exceptional, it has to pass another test.

At this level, courses are divided into three categories for estimation of institute average and

1. Feedback sizes ≥ 100
2. Feedback sizes $\geq 30 < 100$
3. Feedback sizes > 5 and < 30

Procedure: A TCF that passed the significance test in the earlier section (table 2) will now be put through a higher level of testing that compares individual courses with averages from courses at the same level (category-wise). Therefore, if a particular course exceeds that average, it will be deemed to have received excellent feedback.

Table 3 summarises the final conclusion

First test at confidence level	Second test comparison with courses average of same range of feedback sizes	Recommendations
Score $> 99\%$ confidence level	Score \sim courses Maximum	<i>Exceptional</i>
Score $> 99\%$ confidence level	Score $>$ courses Average	<i>Excellent</i>
Score $> 99\%$ confidence level	Score $<$ courses Average	<i>Very good</i>

Table 3: comparison of individual score with confidence levels and courses averages.

TCF main questions for theory courses

1 - Poor 2 - Average 3- Good 4- Very good 5- Excellent

1. How affectively could the teacher communicate?
1 2 3 4 5
2. How do you rate the exposure to new knowledge and practices?
1 2 3 4 5
3. How were the lectures organized in terms of clarity and presentation of concepts?
1 2 3 4 5
4. How much did the teacher encourage independent thinking?
1 2 3 4 5
5. How do you rate the effective use of blackboard/teaching aids?
1 2 3 4 5
6. How do you rate the regular conduction of classes by instructor?
1 2 3 4 5
7. To what extent the exams papers matched with the classes?
1 2 3 4 5
8. Rate the faculty encouragement in constructive interaction.
1 2 3 4 5
9. How do you rate the instructor availability for clearing the doubts inside and outside the class?
1 2 3 4 5
10. Please give overall rating of the course:
1 2 3 4 5

Mid-term TCF in the form of pi-charts will be provided to faculty immediately in order to improve the course.

1. Was the course evaluation and attendance policy announced at the beginning of the semester?
 - a. Yes
 - b. No
2. Were the lectures held on time?
 - a. Yes

- b. No
- 3. Video and Acoustics were good
 - a. Yes
 - b. No
- 4. Pace of teaching was good
 - a. Yes
 - b. No
- 5. Learning expectations were met
 - a. Yes
 - b. No
- 6. The lectures were clear and easy to understand
 - a. Yes
 - b. No
- 7. The teaching aids were effectively used
 - a. Yes
 - b. No
- 8. The course material handed / suggested was adequate
 - a. Yes
 - b. No
- 9. Sufficient tutorials / assignments were provided during the course
 - a. Yes
 - b. No
- 10. My confidence on faculty has grown so that I can consult her/him for guidance of my academic issues
 - a. Yes
 - b. No

TCF main questions for Lab courses

In the form of pi-charts

11. Were sufficient assignments provided during the course?
 - a. Yes
 - b. No
12. Did the labs help to improve the understanding of subject?
 - a. Yes
 - b. No
13. Were basic concepts taught in the lecture clarified in the lab?
 - a. Yes
 - b. No
14. Were the labs balanced and consistent in terms of covering the syllabus?
 - a. Yes
 - b. No
15. Were the evaluations of labs being appropriate/fair?
 - a. Yes
 - b. No
16. Did the faculty member encourage independent thinking?
 - a. Yes
 - b. No
17. Was the faculty involved in the lab sessions?
 - a. Yes
 - b. No
18. Was the instructor available for clearing the doubts?
 - a. Yes
 - b. No
19. Were the exams papers matched with what was practiced in labs?
 - a. Yes
 - b. No
20. Were the labs held regularly?
 - a. Yes
 - b. No

Mid-term TCF in the form of pi-charts will be provided to faculty immediately in order to improve the course.

1. Was the systematic execution of lab done?
 - a. Yes
 - b. No
2. Were you motivated to perform lab sessions?
 - a. Yes
 - b. No
3. Was the faculty involved in the lab work/sessions?
 - a. Yes
 - b. No
4. Were you satisfied with the quality of experimental setups used in the lab?
 - a. Yes
 - b. No
5. Was the help provided by the teaching assistants enough?
 - a. Yes
 - b. No
6. Does the computers adequate for the lab?
 - a. Yes
 - b. No
7. Do you rate the computing facility good?
 - a. Yes
 - b. No
8. Do you have relevant software installed on computers?
 - a. Yes
 - b. No
9. Were the sufficient assignments provided during the course?
 - a. Yes
 - b. No
10. My confidence on faculty has grown so that I can consult her/him for guidance.
 - a. Yes
 - b. No

TCF main questions for theory and tutorial courses

1 - Poor 2 - Average 3- Good 4- Very good 5- Excellent

21. How affectively could the teacher communicate?

1 2 3 4 5

22. How do you rate the exposure to new knowledge and practices?

1 2 3 4 5

23. How were the lectures organized in terms of clarity and presentation of concepts?

1 2 3 4 5

24. How much did the teacher encourage independent thinking?

1 2 3 4 5

25. How do you rate the effective use of blackboard/teaching aids?

1 2 3 4 5

26. How do you rate the regular conduction of tutorials by instructor?

1 2 3 4 5

27. How do u rate the exams papers alignment with practiced tutorials?

1 2 3 4 5

28. Rate the faculty encouragement in constructive interaction.

1 2 3 4 5

29. How do you rate the instructor availability for clearing the doubts inside and outside the class?

1 2 3 4 5

30. Please give overall rating of the course:

1 2 3 4 5

Mid-term TCF in the form of pi-charts will be provided to faculty immediately in order to improve the course.

11. Was the course evaluation and attendance policy announced at the beginning of the semester?
 - a. Yes
 - b. No
12. Were the lectures held on time?
 - a. Yes
 - b. No
13. Tutorials were good
 - a. Yes
 - b. No
14. Pace of teaching was good
 - a. Yes
 - b. No
15. Learning expectations were met
 - a. Yes
 - b. No
16. Were the exams papers matched with what was practiced in tutorials?
 - a. Yes
 - b. No
17. Were the teaching aids effectively used?
 - a. Yes
 - b. No
18. Was the course material handed / suggested adequate?
 - a. Yes
 - b. No
19. Were the sufficient tutorials / assignments provided during the course?
 - a. Yes
 - b. No
20. My confidence on faculty has grown so that I can consult her/him for guidance.
 - a. Yes
 - b. No

Annexure – B

Guidelines for JRF to SRF and issues related to monthly scholarship for M.Tech. (by Research)/M.Tech./I-Ph.D./Ph.D. scholars.

Duty leave

Duty leave is permissible for performing experiments, attending Schools / Seminars / Conferences / Workshops / Meetings etc. in India or abroad involving an active participation or field trips such as data collection, survey work, visit to industries and institutes (for dissertation work) etc. on recommendation of the concerned supervisor(s)/DC/APC forwarded by the School chairs/coordinator/Associate Dean (Research/Courses) on a case to case basis. This kind of leave is also permissible for institute related activities (e.g., sports, cultural fests, technical fests, etc.) on recommendation of the concerned supervisor(s), forwarded by the concerned Faculty-in-Charge / Officer for the particular activity and subsequent approval by school chairs on a case-to-case basis. Before forwarding the application, the concerned faculty in charge must ensure that TA duties have been taken care of. Duty leave up to a maximum period of one year (M.Tech.) and 1.5 yrs (Ph.D/i-Ph.D) in the entire duration of the programme is recommended. Such leave will be finally approved by the Dean Academics.

Fellowship of PhD/ MTech(R) (HTRA funded) students after thesis submission

On the recommendation of DC/APC, monthly fellowship may be continued till the completion of viva-voce or maximum period of 5 yrs (for Ph.D.), 6 yrs (i-PhD) and 3 yrs (M.Tech.(R)) students (whichever earlier).

JRF to SRF conversion of PhD/i-PhD students (All categories of full time)

PhD scholar has to appear (just after completion of two years (PhD) and 3 yrs (i-PhD) for JRF to SRF conversion. Committee assessment will be submitted to Dean Academic office. If a student is not recommended to SRF at the end of 2 years (PhD) and 3 yrs (i-PhD), then he/she can appear for JRF to SRF conversion seminar for one more time at any stage till the completion of 5 years (Ph.D) or 6 yrs (i-PhD) and his/her conversion to SRF will be considered from the date of conversion meeting. No arrear will be paid to the scholar under any circumstances.

Process of releasing monthly fellowship

PhD/i-PhD/M.Tech. students (All categories of full time) are expected to applying for fellowship every month for TA/supervisor/FA recommendation. In case of unavailability in applying (in the end of month due to some unavoidable reasons (required justification)), their request of arrear will be considered within consecutive maximum two more months. Beyond this duration, student performance will be considered as “unsatisfactory” by default and “NO” fellowship will be granted for the specific month(s).

Faculty in charge (TA)/ supervisor/Faculty advisor are also expected to recommend every month students fellowship appropriately. Failure of this needs prior information, permission or justification which will be dealt case-to case basis.



nirf

Top 100 Universities In India

CFTIs

Annexure-C

Recommendations for Joint PhD/M.Tech./MSc degrees and early admission in IIT Mandi for students of CFTIs and top 100 overall NIRF ranked institutes

Joint Ph.D. Program

Selection process for Joint Degree Program

Parent institution will select candidates as per their norms and eligibility.

Selected candidates will be applying (within one year after admission) to host institute for Joint degree PhD Program.

Designated committee will further assess the applicants.

On the basis of positive recommendations of the committee, candidates will be allotted a co-supervisor (based on mutual interest). After appointment of co-supervisor, candidate may be registered in the host institution.

Course/comprehensive/SRF requirements

Candidate has to complete course requirements of both the institutions as per their individual regulations. He/she can opt courses from any institution (based on Joint designated committee recommendations) which will be considered with equivalent grades in other institution for credit requirements.

Annual performance will be evaluated by the designated committee. Comprehensive/JRF-SRF will be executed by the parent institution.

Minimum residential requirements in the host institute

A minimum one semester requirement in multiple visits adding up to at least 16 weeks on campus (i.e., equivalent to one semester). However, the minimum period of residency for each visit **should not be less than 2 weeks.**

Financial support

Fellowship will be born by the parent institute. No tuition fee will be charged by the host intuition. Other charges are applicable (Lodging and boarding).

Thesis submission and defense

A designated committee will recommend thesis submission based on separate requirements and criteria of both the institutions.

Based on examiners recommendations and Viva-Voce, host institute will award joint-degree.

Termination clause



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Top 100 Universities In India

CFTIs

If a student does not perform well, on the recommendation of designated committee, the student will be de-registered by the host institution (at any point of time) and will be transferred back to the parent institution along with credits earned.

Joint PhD registration will be automatically cancelled in case of termination from parent institution at any point of time of program duration.

Joint PG Program

Selection process for Joint Degree Program

Parent institution will select candidates as per their norms and eligibility.

Selected candidates will be applying (after successful completion of one year) to host institute for Joint PG Program.

Designated committee will further assess the applicants.

On the basis of positive recommendations of the committee, candidates will be allotted a co-supervisor (based on mutual interest). After appointment of co-supervisor, candidate will be permitted to continue second year in the host institution. Candidates will be provisionally registered for PG degree in the host institution.

Courses and project

Candidate has to complete curriculum requirements. He/she can opt courses (if any) in host institution (based on their requirements as per parent institute regulations) which will be considered with equivalent grades in other institution for credit requirements.

Annual performance will be evaluated by the designated committee. Host institute academic committee may recommend for joint PG degree and/or PhD admission based on candidate performance. PhD fellowship will be offered as per IIT Mandi norms.

In case of unsatisfactory performance, student will be returned to parent institute with all earned credits and NO joint PG degree will be offered.

Financial support

Fellowship will be born by the parent institute. No tuition fee will be charged by the host intuition. Other charges are applicable (Lodging and boarding).

Termination clause

If a student does not perform well, on the recommendation of designated committee, the student will be de-registered by the host institution (at any point of time) and will be transferred back to the parent institution along with credits earned.

Joint PG registration will be cancelled in case of termination from parent institution at any point of time of program duration.



nirf

Top 100 Universities In India

CFTIs

Early PhD/M.Tech (Res) admission for 3rd year B.Tech students

This scheme is intended to enable meritorious CFTIs/top 100 NIRF ranked institute B.Tech students to carry out part of their studies including project work at IIT Mandi and offer an opportunity for direct admission to PhD. This will enable “early admission” to PhD for partner institute current 3rd B.Tech. students. It is envisaged that this scheme will also help partner students to enhance their chances for qualifying for the PMRF fellowship for PhD at IIT Mandi.

1. Under this scheme, Partner institute students will be eligible to apply for a project in summer and complete their fourth year (7th and 8th semesters), at IIT Mandi, and then be considered for an early admission into the PhD/M.Tech (R) program at IIT Mandi. Students will be registered for provisionally for M.Tech (Res) or PhD programmes.
2. Upon selection, through a selection committee set up for the purpose, the students will have an offer of admission to the PhD program. The students are expected to demonstrate sufficient merit in coursework, project work and/or research during their 7th and 8th semesters of B.Tech to continue to join the PhD program. If the performance of the students is not up to the mark as per the guidelines of IIT Mandi, the students will be sent back to home institute with the credits earned.
3. Courses earned during 4th year of the B.Tech may be considered towards PhD degree (based of committee recommendations)
3. Students will actually join the PhD/M.Tech (R) programs only after completion of all graduation requirements at home institute.
4. Students can complete M.Tech (Res) with minimum duration requirement of one year after completion of B.Tech degree.

ANNEXURE – D

Recommendations in the Ordinances and Regulations of the M.Tech. (by Research)/Ph.D. programme:

1. Conversion from full time to part time PhD/M.Tech (R) programme to take up job:

- a. If they have completed their a) Minimum residential requirement b) Course work c) Passed the comprehensive examination.
- b. The candidate must produce the offer letter from the institution/organization which he/she proposes to join.
- c. The candidate has to produce a “No Objection Certificate” from the Head of the institution/organization, which he/she proposes to join.
- d. DC/APC recommendation on proposal of PhD/M.Tech (Res) completion plan.
- e. To avail this option, candidate is expected to complete majority of dissertation work (endorsed by the DC/APC) during his/her stay in the institute.

2. R.21.2 of O& R International Students(MS/PhD/PG admissions)

Existing

Foreign nationals can only register as regular fulltime scholars. **Foreign nationals with degree from Indian Universities will be treated on par with Indian nationals for admission purposes.**

Foreign nationals with foreign degrees must meet the minimum educational requirements as given in **R.2.1** equivalent to an Indian Master’s degree in the relevant disciplines. In addition, they should have a valid score in GRE/GMAT/GATE/JMET/UGC or CSIR NET or an equivalent examination in the relevant discipline and should have acceptable score in TOEFL or equivalent unless the medium of instruction for the qualifying degree in English. International students are expected to have a working knowledge of English.

Recommended

Candidates who are not citizens of India (by birth or naturalized) and /or are OCI/PIO card holders will be treated as foreign national and will consume the seats of foreign nationals. For fellowship, they should fulfil the requirement of the sponsoring agency/authority. They must meet minimum education requirements applicable for regular students. International students are expected to have working knowledge of English.

3. Eligibility criteria for M.Tech. admissions

- a. Candidates who have qualified for the award of Bachelor's Degree in Engineering/Technology or Master's Degree in Science or Master's Degree in Computer Application. **For fellowship, they should fulfil the requirement of the sponsoring agency/authority.**
- b. For B.Tech/BE degree from **Centrally Funded Technical Institutes (CFTIs)**, with a minimum CGPA of 7.5 on a 10.0 point scale (or equivalent), the requirement of GATE qualification is waived off.
- c. Candidates who have qualified for the award of Bachelor's degree in Engineering / Technology or Master's degree in Science through distance education/ correspondence mode and having valid GATE score are also eligible to apply for admission to the M.Tech. program.
- d. A student sponsored by a recognized R&D organization, academic institution, government organization or industry are eligible to apply for M.Tech. programme on a full- time basis. The Institute does not provide any assistantship to such students.
- e. A candidate with Associate Membership of Professional Bodies equivalent to B.Tech., as approved by the Senate and having valid GATE score shall also be eligible to apply for admission to the M.Tech. program with assistantship, subject to regulations approved by the Senate.

4. Termination clause in MA/MSc/M.Tech:

If a student fails to secure CGPA of less than 5.5 (at the end of one year) then he/she will be recommended for termination. **(At present, it is 5.0)**

5. R.21 of O&R Panel of Examiners: M.Tech(By Research)

Existing

The thesis of the research scholars shall be referred to two examiners chosen by the Chairman, Senate from among the panel of examiners recommended by the Academic Progress Committee at its synopsis meeting

Recommended

The thesis of the research scholars shall be referred to two examiners chosen by the Chairman, Senate or his nominee from among the panel of examiners recommended by the Academic Progress Committee at its synopsis meeting

ANNEXURE - E

Recommendations of Awards and Medals

1. Introduction of new award 'Institute Gold Medal' for the student earning highest CGPA among all the postgraduate students (M.Sc., M.A., M.Tech). Students who are the best performer in their respective programs would be awarded 'Institute Silver Medal'.
2. The PG students who have converted their program to PhD program will also be eligible for the Institute Gold Medal and Institute Silver medal, subjected to the fulfillment of all the requirement of the master program, they were enrolled in. However the medals to these students would be awarded only at the completion of their Master + PhD degree.
3. The Integrated PhD students, who do their course work along with the Master students would also be eligible for the Institute Gold Medal and Institute Silver medal. However, these students would be competing with master students, and only one award/medal would be given to the MSc and Integrated PhD students of the same batch.
4. "The President of India Gold Medal' would be given for the B.Tech students earning highest CGPA across all the branches. The students enrolled in the 5 year B.Tech + M.Tech Program or the BS+ MS program will also be eligible to complete for the award. For such cases student enrolled in the integrated program in 'y' year will complete with the B.Tech students enrolled in 'y+1' year. Students who are the best performer in their respective branch will be awarded 'Institute Silver Medal'.
5. The above mentioned awards are based on the academic performance in terms of the highest CGPA obtained. However if two or more students are having CGPA within a difference of 0.2 from the highest CGPA, student's performance in the extracurricular activity would be considered for deciding the medal awardee.

Minutes of meeting related to I-PhD regulation

7 Sept. 2022

BoA had a detailed discussion and recommended following modification in the ordinance and regulation of the program.

- Students are required to complete minimum 6 credits from the electives outside physics discipline and minimum 6 credits from physics elective.
- Candidates who have qualified for the award of a three/four year Bachelor degree (B.Sc. or equivalent, after 10+2 or equivalent schooling) with Physics and Mathematics as two of the subjects, from a recognized university or Institute with at least 55 % marks (or 6.0 CGPA on a scale 10), and a valid JAM (Joint Admission test for Master program) or JEST (Joint Entrance Screening Test) score are eligible to apply for admission to the program.
- Students admitted to the degree programs are required to stay in campus for at least first two years to participate and complete all credit requirements of the program.
- For admission to I-PhD program under regular category, the concerned School shall adopt qualifying criteria for short-listing for interview and written test and prepare a merit list of selected candidates after interview and written test for all the categories. For the candidate under reservation category, the PhD admission rules will be followed.

- **Temporary Withdrawal from the Program**

Student may be permitted by the Institute to withdraw from the program for a semester or longer due to ill health or on any other valid ground. Normally student will be permitted to discontinue from the program only for a maximum continuous period of two semesters. The period of leave shall be counted towards the duration of the program.

- **Minimum Requirement to Continue the Program**

A student must maintain a minimum CGPA of 7.0 at the end of first two semesters to continue in the I-PhD program. If the CGPA of any student falls below the required CGPA, the student will be placed in academic probation and an advisory note will be issued. If the CGPA continues to be less than 7.0 in the following semester also, then he/she shall be terminated from the I-PhD program. Such student may be allowed to exit the program with M.Sc. (Physics) degree.

- **Eligibility for the Award of M.Sc. Degree**

Student who is not able to maintain minimum CGPA will be required to fulfil following criteria to be eligible for the award of M.Sc. (Physics) degree, while exiting the program:

- Student has registered and successfully completed all the academic requirements including prescribed courses and credits etc.

- Student has successfully acquired the minimum number of CGPA required for M.Sc. program, vide **R.13** prescribed in the regulation of M.Sc. curriculum within the stipulated time.
- Student has submitted no dues to the Institute, Library and Hostels.
- Student has no disciplinary action pending against him/her.

- **R.14 Guide Allocation**

Guide allocation to the I-PhD students would be done by the course coordinator in consultation with the faculty advisor, at the beginning of the second academic year. Thereafter a doctoral committee will be formed for the student, which will monitor the progress of student's research work in line with the same guidelines as for the regular PhD students.

- **Exit option from the Program**

The students who are admitted to I-PhD program may be allowed to exit the program (if they wish to). Such students have following two options to exit the I-PhD program:

- i. They can convert their program to regular M.Sc. (Physics). In this case the student will have to intimate about their choice before the beginning of the third semester.
- ii. They can convert their program to Master of Science (MS) by Research anytime before the beginning of the fifth semester. Student exercising this option will continue with their course work for the second academic year, followed by the research work. These students will have to comply with all the norms of MS by Research program. Such student will be allotted the research supervisor before the start of second academic year in the same manner as the regular I-PhD student, who will guide him/her for the MS thesis research work.

- **Fellowship norm**

The fellowship guideline for the students registered in the program will be as per the following:

- i. The students joining the I-PhD program would be given the fellowship of Rs 8,000 per month for the first year. The fellowship would be converted to HTRA fellowship from second academic year subjected to the fulfilment of all requirement such as guide allocation, doctoral committee formation etc. The I-PhD students will be given fellowship for a maximum of 6 years from the date of registration.
- ii. Students who opt to exit from the program with 'MS by Research' will continue to get a fellowship as per the institute norms for the maximum of two more academic years only. Student who choose to exit the I-PhD program during third or fourth semester, will be required to return the excess fellowship received, beyond the permissible limit for a MS by Research program.

- iii. Students who opt to exit from the program with regular M.Sc. (Physics), will not be paid any fellowship. These students will have to return the fellowship obtained in the first year before the beginning of third semester, without which they won't be allowed to register for third semester.
- iv. Students who have failed to achieve the minimum CGPA at the end of first academic year and are being terminated with MSc degree will not get any fellowship from second year onward.

- **Degree and Transcripts**

- i. The students would be awarded a single transcript for the program and two separate degrees (Master of Science in Physics and Doctor of Philosophy) after the completion of the program.
- ii. The students who are voluntarily opting for the exit from the program will be awarded a single transcript and the degree of Master of Science by Research after the completion of program.
- iii. Students who opt exit from the program with regular M.Sc. (Physics), will be awarded a single transcript and the degree of Master of Science in Physics after the completion of program.
- iv. The students who failed to achieve minimum required CGPA to continue the I-PhD program, will be given one transcript and degree of Master of Science in Physics if they fulfill all the requirements of the same.

Academic Calender for Odd Semester of the AY 2022-23 (B.Tech 2022 Batch)

Day	October	November	December	January	February
Monday	31			30	
Tuesday		1 (Classes Start)		31	
Wednesday		2			1
Thursday		3	1		2
Friday		4	2		3
Saturday	1	5	3		4
Sunday	2	6	4	1	5
Monday	3	7	5 CCM Week	2	6 Classes Start)
Tuesday	4	8 (Guru Nanak Birthday)	6	3	7
Wednesday	5	9	7	4	8
Thursday	6	10	8	5	9
Friday	7	11	9	6	10
Saturday	8	12	10	7	11
Sunday	9	13	11	8	12
Monday	10	14	12	9 TCF Week	13
Tuesday	11	15	13	10	14
Wednesday	12	16	14 (Midsem A & B)	11	15
Thursday	13	17	15 (Midsem C & D)	12	16
Friday	14	18	16 (Midsem E & F)	13	17
Saturday	15	19	17	14	18
Sunday	16	20	18	15	19
Monday	17	21	19	16 (Endsem A)	20
Tuesday	18	22	20	17 (Endsem B)	21
Wednesday	19	23	21	18 (Endsem C)	22
Thursday	20	24	22	19 (Endsem D)	23
Friday	21	25	23	20 (Endsem E)	24
Saturday	22	26	24	21 (Endsem F)	25
Sunday	23	27	25 (Christmas Day)	22 (Vacation starts for students)	26
Monday	24	28	26	23	27
Tuesday	25	29	27	24	28
Wednesday	26	30	28	25 Final CCM	
Thursday	27		29	26 (Republic Day)	
Friday	28		30	27 (Grade Submission)	
Saturday	29		31	28	
Sunday	30			29	

21 Days

19 Days

10 Days

Day Name	No. of Days
Saturday	Holiday
Sunday	Holiday
Monday	10
Tuesday	10
Wednesday	10
Thursday	10
Friday	10
Total Days	50



IIT Mandi Proposal for a New Course

Course number : IC1XX
Course Name : Foundations of Prototype Development
Credit Distribution : 1-0-6-4
Intended for : First Year B.Tech students of all streams
Prerequisite : None
Mutual Exclusion : None

1. Preamble:

The course gives an outline of the steps in developing autonomous systems such as remotely controlled robot. The objective is to start from the scratch that includes mechanical design, prototyping and embedded electronics.

2. Course Modules with quantitative lecture hours:

Unit 1: Introduction

Objective: To familiarize students with the basics of engineering design and how to solve a design problem in a step by step manner

1. What is engineering design - How to select an engineering problem, stages of solving a problem, documentation in Engineering
2. What is a machine and what is a robot - different aspects of robotics and current problems in robotics
3. Purpose of the course and the learning outcome
4. Course outline

1 hour

Unit 2: Introduction to Mechanical Components and Systems

Objective: Overview of mechanical components and systems

1. Drives and motion
2. Pneumatic, hydraulic systems, clutch and brake

1 hour

Unit 3: Design of Mechanical Systems

Objective: Computer-Aided Engineering Design of mechanical systems

1. Introduction to CAD by 3D modeling software
2. Drawing of parts and assemblies
3. Computer-Aided Manufacturing and prototyping
4. Stress analysis using computational and 3D modeling software
5. Integrating designs into physics simulation engines and foreword to control on robotic simulators
6. Joints and transformations on ROS 3 hours

Unit 4: Integration of Intelligent Control

Objective: Understanding the role of sensors and actuators for control applications

1. Sensor and Actuator selection and sizing
2. Determination of Power Source
3. Design of Power distribution, microcontroller, and motor driver circuits
4. Developing PCB boards and feasibility testing
5. Introduction to standard electronic connectors and American Wire Gauge 4 hours

Unit 5: Programming and Signals

Objective: Introduction to programming and its application in interrupt handling

1. Introduction to Programming; procedural vs object-oriented programming
2. Object-Oriented programming in practice
3. Signals; communication via PWM, UART
4. Design of hardware and software interrupts 2 hours

Unit 6: Integration of Compute and networks

Objective: Introduction to robotic path planning and testing

1. Introduction to microcontroller coding and interfacing with the ros API
2. Introduction to ROS packages and their deployment
3. Introduction to IoT and IP sending receiving packets on client-server networks
4. Control of robotic platforms over IP
5. Deployment of real-time decision pipelines on the robot 3 hours

Laboratory/practical/tutorial Modules (Each experiment is of duration 6 hours):

Experiment 1: Chassis Design and development using Fusion 360 - a 3D modeling software.

Experiment 2: Fabrication of the chassis using manufacturing processes like 3D printing, water-jet cutting, drilling, milling, etc.

Experiment 3: Microcontroller Programming I:-

- Introduction to Arduino boards (UNO and Nano)

- Setting up the Arduino IDE
- Running basic blink code
- Printing messages on serial monitor
-

Experiment 4: Microcontroller Programming II:-

- Interfacing with various sensors like IR sensors, ultrasonic sensors, etc
- Implementing interrupts and communication protocols

Experiment 5: Microcontroller programming III:-

- Controlling motor speed by sending PWM signals to the motor driver
- Interfacing the microcontroller with a motor encoder

Experiment 6: Embedded Electronics Design and Fabrication I:-

- Introduction to embedded systems and PCBs
- PCB designing using softwares like Eagle, KiCAD, EasyEDA etc.
- PCB fabrication, both manually and using CNC-based PCB printers

Experiment 7: Embedded Electronics Design and Fabrication II:-

- Introduction to Power Management System (PMS) and its components
- PCB designing and fabrication for PMS

Experiment 8: Embedded Electronics Design and Fabrication III:-

- Introduction to Motor Control Module and its components
- PCB designing and fabrication for motor control module

Experiment 9: Complete hardware assembly and testing

Experiment 10: High Level Programming I:- Introduction to Computing Device(Raspberry Pi 4) and basic Linux commands

Experiment 11: High Level Programmimg II:-

- Introduction to ROS workspace
- Coding publisher and subscriber nodes
- Turtlesim simulation using teleop twist keyboard

Experiment 12: Microcontroller Programming 4:-

- Introduction to ROS Serial and interfacing microcontroller with ROS
- Deploying the subscriber node for differential and holonomic drive in the microcontroller, both for teleop twist and remote control.

Experiment 13: High Level Programming III:- Deployment of conditional path planning on robot and testing

Experiment 14: Introduction to ESP8266 and implementation of IoT communication in the robot.

3. Text books:

(Relevant and Latest, Only 2)

1. Owen Bishop, Robot Builders Cookbook, Newnes, 2007.
2. Morgan Quigley, Brian Gerkey, William D. Smart, Programming Robots with ROS, O'Reilly, 2015.

4. References:

1. Gaurav Verma, Autodesk Fusion 360, Caddcamcae works, 2017.

5. Similarity with the existing courses: None
(Similarity content is declared as per the number of lecture hours on similar topics)

S. No.	Course Code	Similarity Content	Approx. % of Content
1.			

6. Justification of new course proposal if cumulative similarity content is >30%:

Approvals:

Other Faculty interested in teaching this course: –

1. Dr. Narendra Kumar Dhar
2. Dr. Prateek Saxena
3. Dr. Amit Shukla

Proposed by: Dr. Shubhajit Roy Chowdhury **School: SCEE**

Signature:

Date:

Recommended/Not Recommended, with Comments:

Chairperson, CPC

Date: _____

Approved / Not Approved

Chairperson, BoA

Date: _____

Curriculum Review

Dr. Subrata Ghosh - Curriculum Review Committee Chair
Dr. Rahul Vaish - Dean Academics
Dr. Anil Kishan - AD Courses
Mr. Naveen Sai - Academic Affairs Secretary

Why Curriculum Review?

Indian Institute of Technology Mandi
Kamand-175005, Himachal Pradesh



भारतीय प्रौद्योगिकी संस्थान मण्डी
कमान्द -175005, हिमाचल प्रदेश

Ref. No.: F.No.IITMandi/Acad/Notification/2020/15874-78

Date: 20-10-2020

NOTIFICATION

(Committees for Review of B.Tech. Curriculum)

The Chairman, Senate of the Institute has been pleased to constitute the following committees to review the different aspects of the existing B.Tech. Curriculum through a series of approvals dated 12.05.2020, 12.06.2020 and 24.06.2020.

A. Curriculum Review Task Force:

- | | |
|---|-------------|
| 1. Dr. Subrata Ghosh | Coordinator |
| 2. Prof. S.C.Jain | Advisor |
| 3. Chairs of all the committees given below | Members |
| 4. Student Academic Secretary | Member |

Why Curriculum Review?

- ❑ No major revision of curriculum since the start of the institute 13 years ago
 - ❑ Changing requirements in the industry
 - ❑ Need to include up-and-coming topics in the curriculum
 - ❑ Course correction for existing courses based on feedback given by faculty, students, alumni and industry personnel.
 - ❑ Removal of obsolete courses
-

Progress So Far

- ❑ Committee formed in October 2020
- ❑ Feedback form floated among faculty, students, alumni and industrial personnel
- ❑ Careful analysis of the feedback by Academic Secretaries, AD Courses and Dean Academics in conjunction with committee and sub-committee chairs

Observations

- ❑ General consensus was that IC courses constituted a larger portion of the BTech credits
 - ❑ Necessity for discipline courses to have a greater proportion of credits
 - ❑ Re-structuring RE, DP and ISTP based on feedback
-

Credit Distribution - Comparison

IIT Bombay

Free Elective

4.5%

HSS

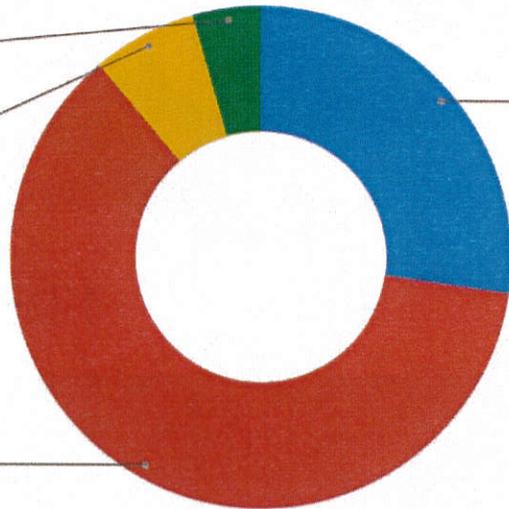
6.7%

IC

27.2%

Discipline

61.6%



IIT Mandi

Free Elective

18.8%

HSS

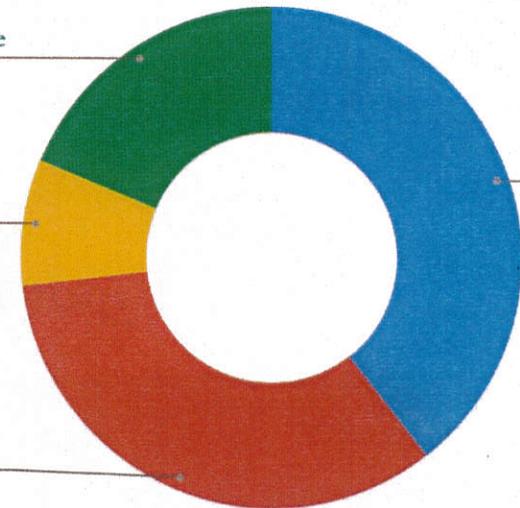
8.1%

IC

39.4%

Discipline

33.8%

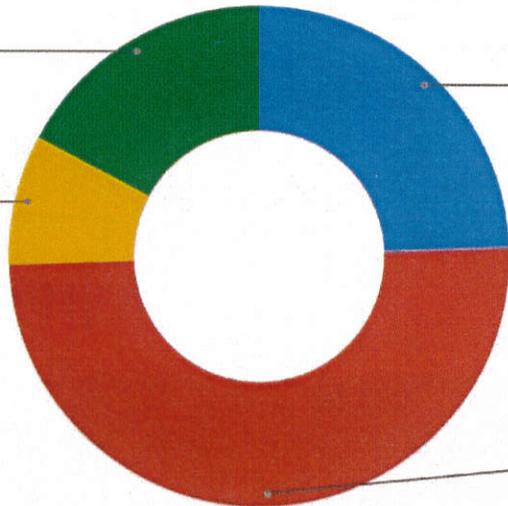


Credit Distribution - Comparison

IIT Delhi

Free Elective
17.2%

HSS
8.3%



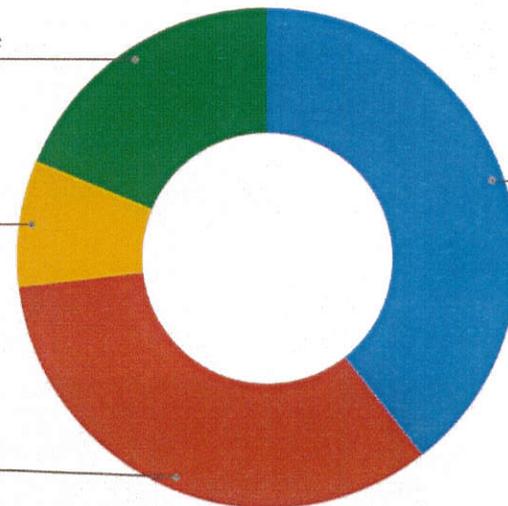
Discipline
50.0%

IC
24.4%

IIT Mandi

Free Elective
18.8%

HSS
8.1%



IC
39.4%

Discipline
33.8%

Credit Distribution - Comparison

IIT Madras

Free Elective

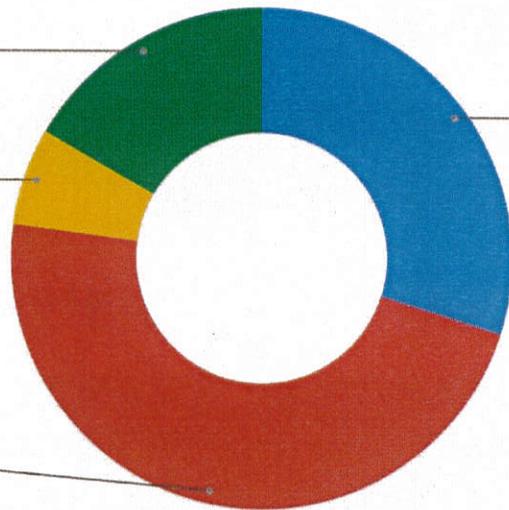
16.7%

HSS

6.3%

Discipline

47.2%



IC
29.9%

IIT Mandi

Free Elective

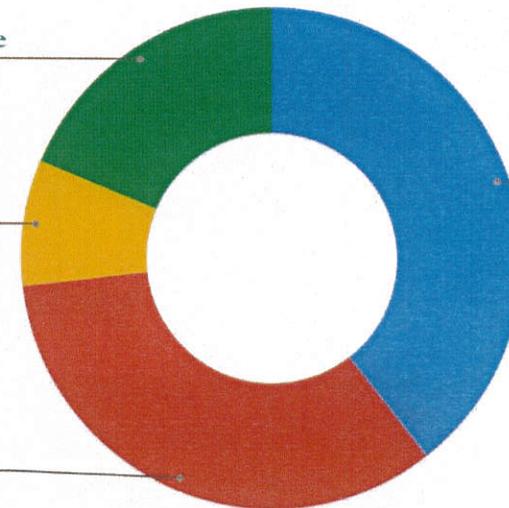
18.8%

HSS

8.1%

Discipline

33.8%



IC
39.4%

Credit Distribution - Comparison

IIT Roorkee

Free Elective

7.4%

HSS

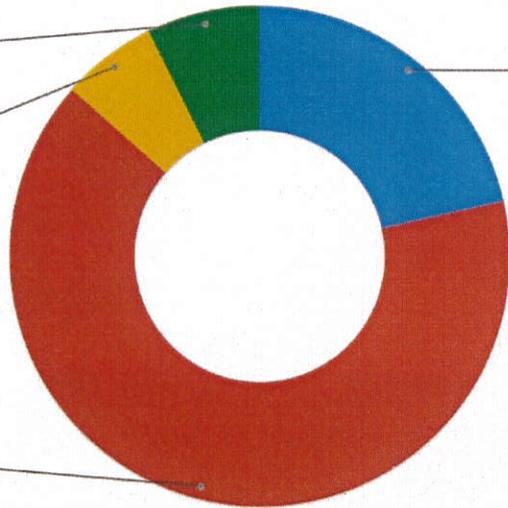
6.1%

Discipline

65.0%

IC

21.5%



IIT Mandi

Free Elective

18.8%

HSS

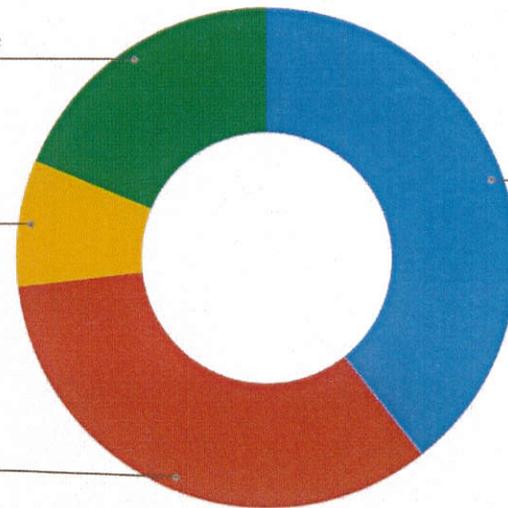
8.1%

Discipline

33.8%

IC

39.4%



Credit Distribution - Comparison

IIT Hyderabad

Free Elective

10.3%

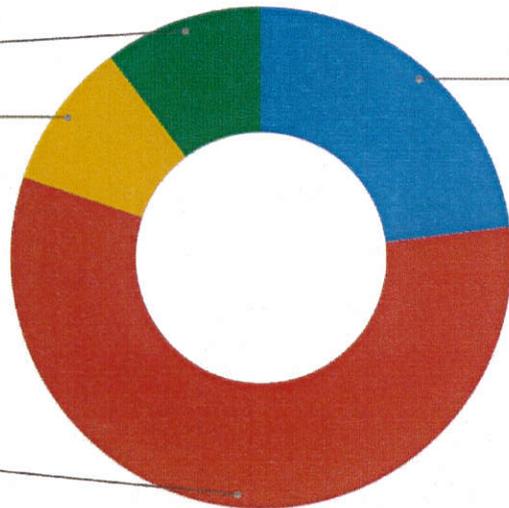
HSS

9.5%

Discipline

57.1%

IC
23.0%



IIT Mandi

Free Elective

18.8%

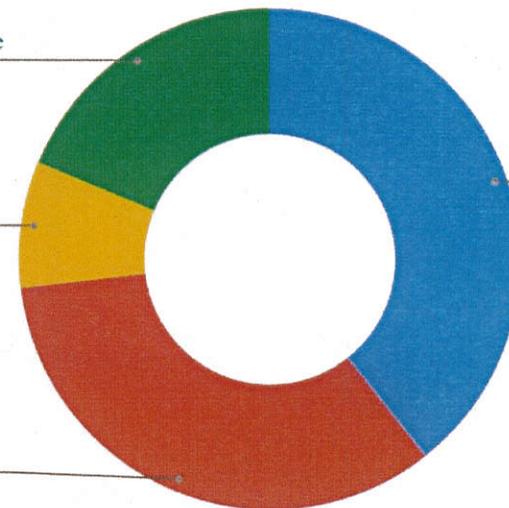
HSS

8.1%

Discipline

33.8%

IC
39.4%



Changes in IC

Suggested Changes in IC Courses

- ❑ Move discipline specific courses to DC of particular branches
 - ❑ Change restrictions for internships
 - ❑ Reorganize existing baskets
 - ❑ Design Basket - Change the way RE and DP are conducted
-

Move to DC

Curriculum of 5 different IITs was studied and we felt that the following courses would be better suited if they are part of DC than IC -

- ❑ IC141 and IC141P - Product Realization Theory
- ❑ IC142 - Engineering Thermodynamics
- ❑ IC160 and IC160P - Electrical Systems Around Us
- ❑ IC221 - Electrodynamics
- ❑ IC240 - Mechanics of Rigid Bodies

PFG chairs of respective branches can decide whether these courses will be part of DC/DE/FE

Credits moved to Discipline - 18 credits

Internship Rules

- ❑ IC010 - Internship (2 P/F credits)
 - ❑ Allow research, academic and industrial internships in/outside India
 - ❑ Helpful for any student (especially from EP and BioE) since they go towards research

- ❑ DP399P - Semester Internship (9 P/F credits)
 - ❑ Allow semester internship in final semester
 - ❑ Simplify the process of approval for on-campus semester internships
 - ❑ For on-campus internship, no approval required similar to 2 month internship
 - ❑ For off-campus internship, approval from FA, AD Courses and CnP Advisor

No change in credits is proposed

Reorganization of Baskets

- ❑ Remove the Engg. basket and move the courses in it to DC/DE/FE
- ❑ Mathematics courses are not covering enough topics that are useful for students later on in other courses
- ❑ Introduce a 3 credit Mathematics course covering the following topics
 - ❑ Intro to ODE & PDE
 - ❑ Infinite Series, Partial Derivatives, Multiple Integrals
 - ❑ Laplace & Fourier Transforms
 - ❑ Vector Calculus
 - ❑ Complex Variables
 - ❑ This course replaces IC110 - Engineering Mathematics

Credits moved to Discipline - 3 credits

Design Basket

Reverse Engineering

- ❑ Current RE course doesn't contain "reverse engineering" a product
 - ❑ Doesn't cover other domains like software RE
 - ❑ We have 2 options -
 - ❑ Scrap the course since FDP has been introduced now
 - ❑ Change the name of IC101P to something along the lines of "Understanding Product Internals"
 - ❑ Introduce a branch-specific RE course in DC/DE covering reverse engineering principles of respective branch
-

Proposed Credit Distribution

Changes Summarized

Division	Sub-division	Credits
Institute Core	IC Compulsory	54
	IC Baskets	9
	HSS	13
Discipline	Discipline Core	33
	Discipline Electives	12
Electives	Free Electives	27
	MTP + ISTP or Equivalent	12
	TOTAL	160



Division	Sub-division	Credits
Institute Core	IC Compulsory	38
	IC Baskets	6
	HSS	12
	IKS	1
Discipline	Discipline Core	44
	Discipline Electives	20
Electives	Free Electives	27
	MTP + ISTP or Equivalent	12
	TOTAL	160

The split between DC and DE is only suggested. PFG can decide the split for various branches. However, each branch must have at least **33 DC** and **12 DE**.

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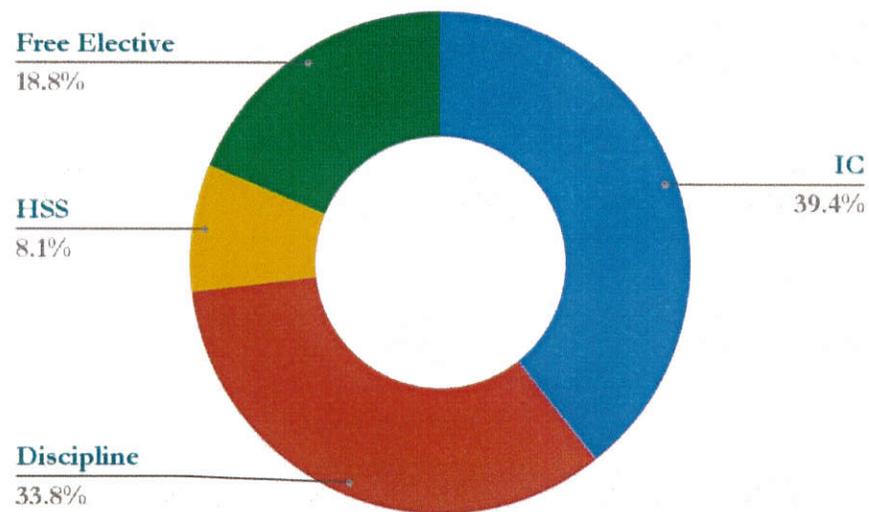


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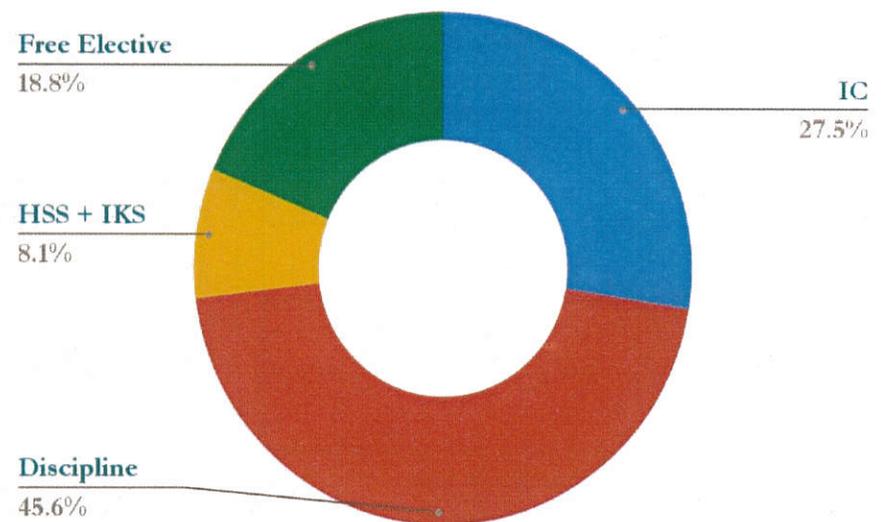
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Credit Distribution - Comparison

IIT Mandi



IIT Mandi (Proposed Changes)



Final List of IC Courses

IC Compulsory Courses

Course Code	Course Name	Credits	Course Code	Course Name	Credits
IC110	Engineering Mathematics	3	ICXXX	Foundations of Design Practicum	4
IC111	Linear Algebra	2	IC201P	Design Practicum	4
IC140	Graphics for Design	3	IC252	Data Science II	4
IC152	Computing and Data Science	4	IC272	Data Science III	3
IC161	Applied Electronics	4	IC010	Internship	2
IC161P	Applied Electronics Lab	3	IC222P	Physics Practicum	2
TOTAL					38

IC Baskets

Basket	Course Code	Course Name	Course Credits	Basket Credits
Science I	IC131	Applied Chemistry for Engineers	3	3
	IC241	Materials Science for Engineers	3	
	IC121	Mechanics of Particles and Waves	3	
Science II	IC230	Environmental Science	3	3
	IC136	Understanding Biotechnology and its Applications	3	
			TOTAL	6

Renaming Courses

Course Code	Course Name	New Course Name
IC101P	Reverse Engineering	Understanding Product Internals
IC141	Product Realization Theory	Product Manufacturing
IC140	Graphics for Design	Engineering Drawing
IC152	Computing and Data Science	Introduction to Python and Data Science
IC252	Data Science II	Probability and Statistics
IC272	Data Science III	Machine Learning
ICXXX	Foundations of Design Practicum	Foundations of Prototype Development
IC201P	Design Practicum	Prototype Development

Benefits of Semester Internship in Final Semester

There are many benefits for students who wish to do semester-long internship in the final semester -

- ❑ In the curriculum of EE, ME and other branches, the main core courses are generally in the 3rd year. So, the students are not well prepared during the internship drives for the 6th semester. After the permission of the 8th-semester internship, students will be able to complete all the core courses and can perform well in the company's drive.
 - ❑ Companies are preferring final semester internship since they can offer them both an internship in final semester and then hire them as full-time employees immediately after graduation.
 - ❑ Most of the core companies prefer internships in the last semester. So it will be advantageous to core students.
 - ❑ Many reputed companies have approached the CnP Cell specifically for final semester internship. Some notable among these are **Amazon, Samsung, Siemens, Qualcomm, NVIDIA, TI, STMicroelectronics**, etc.
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- ❑ Curriculum Review Notification

- ❑ Curriculum of various IITs -

- ❑ IIT Bombay
- ❑ IIT Delhi
- ❑ IIT Madras
- ❑ IIT Hyderabad
- ❑ IIT Roorkee

- ❑ Internship Rules at IITs

Academic Calendar for Odd Semester of the AY 2022-23				
(MBA DS & AI 2021 Batch Semester I)				
Day	September	October	November	December
Saturday		1 (Monday Schedule)		31
Sunday		2 Mahatma Gandhi's Birthday		
Monday		3		
Tuesday		4	1	
Wednesday		5 Dussehra	2	
Thursday	1	6	3	1
Friday	2	7	4	2
Saturday	3	8 (Tuesday Schedule)	5 (Monday Schedule)	3 (Wednesday Schedule)
Sunday	4	9 Milad-un-Nabi or Ide-Milad	6 (Wednesday Schedule)	4
Monday	5	10	7 Q1 Exams A	5
Tuesday	6	11	8 Guru Nanak's Birthday	6
Wednesday	7	12	9 Q1 Exams B	7
Thursday	8	13	10 Q1 Exams C	8
Friday	9	14	11 Q1 Exams D	9
Saturday	10	15 (Wednesday Schedule)	12 Q1 Exams E	10 (Thursday Schedule)
Sunday	11	16	13	11
Monday	12	17	14 Q2 Classes begin	12
Tuesday	13	18	15	13
Wednesday	14	19	16	14
Thursday	15	20	17	15
Friday	16	21	18	16
Saturday	17	22 (Thursday Schedule)	19 (Monday Schedule)	17 (Friday Schedule)
Sunday	18	23	20	18
Monday	19 Orientation Pogram begins	24 Deepawali	21	19
Tuesday	20	25	22	20
Wednesday	21	26	23	21
Thursday	22	27	24	22
Friday	23	28	25	23
Saturday	24	29 (Monday Schedule)	26 (Tuesday Schedule)	24
Sunday	25 Q1 Classes begin: Students report to FA (Friday Schedule)	30	27	25 Christmas Day
Monday	26	31	28	26 Q2 Exams A
Tuesday	27		29	27 Q2 Exams B
Wednesday	28		30	28 Q2 Exams C
Thursday	29			29 Q2 Exams D
Friday	30			30 Q2 Exams E

Grading System

Mr. Naveen Sai - Academic Affairs Secretary
Dr. Rahul Vaish - Dean Academics
Dr. Anil Kishan - AD Courses

Concerns in Grading System

- No 5 grade point, i.e. 'D' to 'E' is a jump from 6 to 4
- No separate grade for "Fail due to Short attendance"
- No provision for Audit courses

Current Grading System

Letter Grade	Grade Point Value	Interpretation
O	10	Outstanding
A	9	Very Good
B	8	Good
C	7	Average
D	6	Below Average
E	4	Pass
F	0	Fail
I	0	Incomplete

Proposed Grading System

Letter Grade	Grade Point Value	Interpretation
O	10	Outstanding
A	10	Excellent
B+	9	Very Good
B	8	Good
C+	7	Fair
C	6	Average
D+	5	Below Average
D	4	Marginal

Proposed Grading System

Letter Grade	Grade Point Value	Interpretation
I	0	Incomplete
FS	0	Fail due to Short attendance
P	0	Pass
F	0	Fail
AU	0	Audit

Outstanding will be awarded only to students who have performed exceptionally well as compared to other students

Audit Courses

Audit courses are different from Pass/Fail in the following aspects -

- ❑ Audit courses will not have any credits counted
- ❑ Students will have the option to Add/Drop an audit course upto 2 weeks after the normal Add/Drop date for the semester
- ❑ For courses with a cap on number of students, instructors can include some supernumerary seats for audit students
- ❑ **AU** will be awarded only if student clears the minimum criteria for a course (i.e at least a D⁺ grade). Otherwise, it doesn't appear in the transcript.