

FOR APPROVAL OF CHAIRMAN
CONFIRMED BY DEAN (AP).

Approved
K.S. Dasgupta

DHIRUBHAI AMBANI INSTITUTE OF
INFORMATION AND COMMUNICATION TECHNOLOGY
Gandhinagar

MINUTES OF THE
THIRTYFOURTH MEETING OF THE ACADEMIC COUNCIL

The 34th meeting of the Academic Council was held online on 12th March, 2021.
The following members were present:

1. Prof K.S. Dasgupta, Chairman
2. Shri Tapan Misra
3. Prof Ranjan Bose
4. Prof Tathagata Bandyopadhyay
5. Shri Pavitar Singh
6. Prof Sanjay Srivastava
7. Prof Binita Desai
8. Prof Manjunath Joshi
9. Prof Maniklal Das
10. Prof V Sunitha
11. Shri Soman Nair, Secretary

The Chairman informed the Council that on expiry of the term of the Academic Council, the Council has been reconstituted with effect from 1st February, 2021. In the reconstituted Council, Mr Pavitar Singh, Alumnus of the Institute, Professors Ranajan Bose, Tathagata Bandyopadhyay, Manjunath Joshi, Maniklal Das and V Sunitha have been nominated. He welcomed them to the Council.

Item No. 1

**To confirm the minutes of the meeting of the Council
held on 7th January, 2020**

The Council confirmed the minutes of the 33rd meeting held on 7th January, 2020.

Item No. 2

Briefing on Academics

Prof Maniklal Das, Dean (Academic Programs) made a detailed briefing on faculty profiles, their research interests, teaching programs including the PG programs offered in collaboration with CR Rao Advanced Institute for Mathematics, Statistics

and Computer Science, Hyderabad and the Indian Institute of Technology, Jammu. The Committee noted the same.

Item No. 3

To consider the report of the B.Tech (ICT) Curriculum Review Committee

The Chairman informed the Council that a Committee with Prof Sanjay Srivastava as Convenor has completed the fifth cycle of review of the B.Tech (ICT) Program curriculum. At his invitation, Prof Srivastava presented before the Council the process of review and recommendations of the Committee. He stated that the process comprised of (a) examining the curriculum models in peer Institutes in India and abroad, (b) consultation with the Institute's Alumni and present batches of students, (c) ascertaining the requirements of employers of DA-IICT graduates, (d) model curricula of apex professional bodies such as the Association of Computer Machinery and All India Council for Technical Education (AICTE), and (e) the guidelines of the National Education Policy 2020. He summarized the recommendations of the Committee as follows:

- Provide an option for students to have a career beyond engineering by creating a flexible curriculum that will prepare them for more than one career path.
- Make the program broadly compatible with Washington Accord/NBA accredited Institutes and also compatibility of curriculum on International patterns.
- Incorporate the spirit of NEP-2020 guidelines.
- Reduce core component and bring selected co-curricular activities as part of the curriculum.
- For flexibility in the curriculum, introduce the option for Honours Degree. Those opt for Honours Degree should take a minimum of 5 courses from the Honours Basket with a minimum of 15 additional credits than the vanilla B.Tech (ICT) degree. There would be flexibility to choose Honours sequences from the fourth semester. There is also an option to overload the semester credits for outperforming students. Honours may require course work upto eighth semester. For Honours Degree, minimum CPI should be 6.5/10.
- The curriculum provides a structure for Minors in future. Once the resources are in place, create these Minors to provide more freedom to the students.
- From Semesters 1 to 4, make a provision for Pass/Fail (0-0-2-1) core courses on co-curricular activities. The students can register alternately for sports, cultural and club activities in these four semesters. Evaluation would be based on a participation threshold and appropriate mechanism is to be worked out by the UG Committee in consultation with relevant stake holders.
- Allow Students to take MOOC Courses (Massive Open Online), especially in the areas where the Institute does not have faculty and elective offerings and mini-project courses with a condition to secure a minimum CPI of 6.5 for each of the course. UG committee to evolve detailed mechanism for this purpose.
- Introduce a 1-0-2-2 core course titled 'Introduction to ICT' in the first semester with a mandate for the course instructor to use the lecture hours to expose the students to diverse facets of ICT through engagement of different faculty members and external experts. The lab component is to be used for teaching basic workshop techniques.

- Introduce two 1 credit Exploration Projects Pass/Fail Courses in second and third semesters. The students in small groups will choose a faculty mentor and work on building a hardware product (preferably) over the two semesters, culminating in a project exhibition. The faculty mentors will be responsible for evaluation of students.
- Reduce foundation course credits from 111 credits to 90 credits. This will allow the students to take sequence of electives in the areas of their choice from 5th semester. The total credits required for ICT students to graduate will be 154 (148 + 6 co-curricular credits) that should include internships and BTP credits 19 and minimum grade points 5, and for Honours students 169 (163 + 6 co-curricular credits) that should include internships and BTP credits 19 and minimum grade points 6.5.

The Council examined the report in detail. The Council suggested to introduce an elective course on 'startup and entrepreneurship' focusing on innovation, creativity and entrepreneurship and the course be designed in such a way that it should lead the students through the process of creating a start-up from an idea to an enterprise. The other possibilities are (a) to introduce a minor in entrepreneurship, (b) encourage students to take BTP on start-ups and also invite entrepreneurs to share their experience with the students. The Council accepted the recommendations and authorized the Chairman to take necessary steps in implementing the recommendations of the Committee and suggestions made by the Council.

Item No. 4

To consider changes in M.Tech (ICT) curriculum

Prof Aditya Tatu, PG Convenor, briefed the Council on the proposed changes in the M.Tech (ICT) curriculum. He informed that the program has four specializations -- Communications and Signal Processing, Machine Learning, Software Systems and VLSI and Embedded Systems with one year Research thesis. He summarized the recommendations as follows:

- Change the 'Communication and Signal Processing' specialization as 'Signal Processing and Machine Learning.' The rationale is to bring the program in tune with the current research directions, wide range of placement possibilities and good faculty strength at the Institute.
- Shift the course 'Probability and Random Variables' from Program Core to Specialization Core for 'Machine Learning and Software Systems' specialization in the first semester.
- Introduce a new course titled 'Introduction to Embedded Systems' for VLSI and Embedded Systems specialization.
- In the second semester, the students could choose any three specializations for each of the specialization stream among the 4-5 courses offered.
- There would be two specialization core courses in the third semester along with two research courses and the thesis.
- In the fourth semester there will be 4 research courses and the final thesis.

The updated curriculum was placed before the meeting. The Council approved the proposed changes and the updated curriculum and their implementation from the academic year 2021-22.

Item No. 5

To consider the report on review of M. Tech (EC) Program

Prof Yash Vasavada, Convenor presented before the Council the report on the review of the M.Tech (EC) with Wireless Communication and Embedded System program launched in partnership with CR Rao AIMSCS, Hyderabad from the academic year 2019-20. He stated that the program has not been attracting sufficient number of qualified students and this has led to a review of the program by the faculty in consultation with external faculty and industry experts. He presented the following recommendations:

- Change the title of the program as 'M.Tech (Communication Systems and Machine Learning)' and restructure the course offerings and content to match the changed title.
- The course work will be in the first and second semester during and research and thesis during third and fourth semester. For research, the students can either opt for DA-IICT or CR Rao AIMSCS. There is provision for sponsorship and the sponsored students will have an option to conduct their final thesis at their sponsoring organization.

Prof Vasavada placed before the Council the restructured curriculum. The Council suggested examining whether the program is overlapping with other M. Tech program. It was also suggested to consider inclusion of IOT as a core course. The Council opined that the program may become popular if an aggressive advertisement strategy focusing more on social media channels is followed independently for the program.

The Council approved (a) renaming of the program, and (b) restructuring of the courses as details placed before the meeting.

Item No. 6

To consider the report on the initiatives taken to offer online teaching programs

Prof Suman Mitra, Program Director, Distance Education Committee, briefed the Council on the plan to offer selective distance education programs by the Institute. He recalled the National Education Policy 2020 which articulates higher educational Institutions to offer open distance learning and online programs. He informed the Council that the Institute has submitted applications to UGC for approval to offer two post graduate programs -- M.Sc (Data Science) and M. Tech (CSE) Data Science in distance learning mode. Prof Mitra also presented a draft semester-wise course

structure of the programs. Once finalized, the mode of teaching will be a combination of recorded video lectures, study materials and online live sessions.

The Chairman briefed the Council on the meetings the Distance Education Committee had with Upgrad, a Company facilitating prominent Institutes and Universities in the country and abroad in conducting distance education degree and diploma programs using their online Platform.

The Council appreciated the initiative. However, the Council cautioned that the ODL PG Degree Programs will not be qualitatively comparable with the campus-run programs. The Council also expressed its concern that the emphasis of both the programs is on Data Science and this may, to an extent, affect the campus-run M.Sc Data Science Program.

Item No. 7

Any other matter with the permission of the Chair

The following items were discussed with the permission of the Chair:

Item No. 7(a)

To consider certain changes in the curriculum of B.Tech (Mathematics & Computing) Program

Prof Mukesh Tiwari, Convenor, Academic Monitoring Committee, B. Tech (Mathematics and Computing) Program, briefed the Council on the deliberations of the Committee on the proposed changes in the curriculum. He stated that in spite of these changes (a) knowledge areas and semester credit requirements remain unaltered; and (b) pre-requisite requirement will be maintained. The changes are as follows:

1. Change sequences of the Core Courses.
2. Replace Mathematical and Computational tools by Digital Logic Design.
3. Rename Data Storage and Management as Database Management Systems.

1) Discrete Mathematics in first semester. A good control over mathematical logic and proof techniques will help the first year students to prepare better for subsequent heavy courses of Mathematics and this will provide a smooth transition for them.

2) Functions of Single and Several Variables in second and third semesters to maintain the required continuity.

3) Linear Algebra in second semester and Abstract Algebra in fifth semester. Algebraic Structures is more advanced than Linear Algebra. Concepts of Abstract Algebra are required for elective courses in sixth and seventh semesters.

4) Theory of Computation in fourth semester. This will help the students to think in an abstract way. Moving the course to fourth semester will further help build the ability to think about abstract concepts due to mathematical maturity.

5) Machine Learning in sixth semester. Uses some ideas from Mathematical Optimization that comes in fifth semester.

6) Digital Logic Design instead of Mathematical and Computational Tools in first semester. Mathematical and Computational tools are envisioned as a course that provides hands-on learning. This learning without proper context does not seem appropriate. Digital Logic Design lies at the interface of logic in Mathematics and Computer Science. It fits well with other courses such as Discrete Mathematics and Computer Organization. It will also be useful for other electives such as Quantum Computation.

The Council approved the updated curriculum.

Item No. 7(ii)

To consider the proposal to invite external PhD Co-Supervisors

Prof Maniklal Das, Dean (AP), presented before the Council the proposal to invite external PhD Co-Supervisors as follows:

- Invitation will be to faculty, scientists, senior researchers and professionals from nationally reputed Universities, Institutes, Research and Development organizations and Industries with whom the Institute has active MoUs.
- A minimum qualification of PhD with adequate professional/research experience in the relevant field is requisite. Research publications in refereed journals are preferable.
- Consent from the employer.
- A Committee constituted by the Director comprising of Dean (AP), Dean (R&D) and a faculty from the relevant research domain will evaluate the application as and when received and make appropriate recommendations to the Director.
- The Director will be the authority to approve the appointment.

The Council approved the proposal. The Council advised that the requirement of PhD may be relaxed for those with outstanding research, innovation, product development and consultancy credentials.

Item 7(iii)

To ratify the approval accorded by the Chairman, Academic Council for the Academic Requirements for M. Sc (DS) and B. Tech (Mathematics and Computing) Programs

The Council ratified the approval accorded by the Chairman, Academic Council for the Academic Requirements of for M. Sc (DS) and B. Tech (Mathematics and Computing) Programs.

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