



CURRICULUM CONCLAVE – 2021

Summary of Recommendations

1. **Self-Directed Learning (SDL)** to be encouraged to enable students to inculcate lifelong learning practice.
2. **Develop Problem Based Learning (PBL)** as it puts more emphasis on adaptation of knowledge, development of new ideas and multi-disciplinary skills.
3. Provision to **credit Capstone projects, NCC** and other **co-curricular activities** where student demonstrate his/her skills to manage/lead/innovate.
4. Strengthen **Choice Based Credit System (CBCS)** – Choices within Major specialization.
5. Pedagogical intervention - **MOOC integration** in teaching learning process to promote SDL.
6. **Common core courses within the stream** to enable standardization and operational efficiency.
7. Introduce **Critical Thinking, Design Thinking** and **Problem-Solving** approaches in the curriculum and give more importance to innovation and creativity.
8. Introduce courses on **Human values** and **creativity** with more case studies.
9. **Ethics** must be part of the curriculum.
10. The curriculum needs to focus on **1. Foundational course, 2. Verticals (streams or tracks) and 3. Applications (project based)**.
11. The curriculum must be **flexible with pool of electives**, Options for minor and open-ended study or design-oriented projects.
12. **Explore Knowledge areas**, such as Smart systems, Mega systems, Environment science, Sustainable development, materials efficiency, and renewable energy systems.
13. Curriculum must **incorporate cross culture and international outlook**.
14. Curriculum must **incorporate courses on climate change** issues and topics to reduce carbon footprint.
15. Curriculum must include **R&D in core courses**.
16. **Reduce the number of courses** in a semester as it takes away the focus.
17. All disciplines must **include applications of AI, ML, IoT**.
18. lab **must be integrated with theory**.
19. Encourage **student mobility** to partner university across the world.
20. Domain knowledge in minor can be changed to major by spending one more year extra to get **dual degree or integrated degree or specialized degree**.
21. Two-way-**360-degree rotation between faculty and industry** help ensure reducing the gap between industry and academia.
22. Activities to be included for taking care of **physical fitness and mental health of students**.



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23. Implementation of **digital manufacturing** and Integration needs to be explored.
24. **Inter departmental communication** for syllabus revision to be looked upon.
25. Engineering curriculum must consist of:
 1. Humanities and social science -5%
 2. Science-15%
 3. Core engineering-60%
 4. Allied engineering-20%
26. Students must study about the **legal aspects**, develop **Communication skills** like writing letters to clients and good listening skills as they are very important in this digital world.
27. Engineering students should know the **basics of safety, hazard identification and legality** with respect to construction.
28. **Infusion of liberal arts** with local history and culture of technical development.
29. Introduction to **research methodology** can be proposed as course which will be unique and will build lateral thinking for lifetime.
30. **Mentors** should recognize student's interest in different fields and learning style and nurture them.
31. **Experiential learning** is the best way to move forward to impart the skills and knowledge that's needed for industry.
32. Need to start with the basic and foundational courses handled by academicians and the practical and training part handle by the industry experts.

Philosophy of ideal curriculum is that it should be experiential, holistic, integrated, inquiry driven, discovery oriented, learner centric, discussion based, flexible, diversity, design thinking and moreover enjoyable process.

- Prof. A K Suresh, IIT Bombay

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