

2nd meeting of departmental ARC committee held on 20/4/09

Members present:BE,AKU,CSU

With the understanding that the faculty of the department accepts the proposal of the current ARC, in principle, the committee has restarted the process of framing the department's undergraduate curriculum – as per the guidelines of the ARC. The group discussed the questions posed by ARC to the department. The answers are:

- (1) Minors are a good proposition and 3-4 courses per minor is satisfactory.

The group looked at possible options, and came up with some possibilities: (a) Turbomachinery (can be offered together with mechanical): propulsion 1, thermal turbo-machinery, design of turbo-machinery; (b) Combustion: Propulsion 1, applied combustion, theory of combustion, rocket combustion design; (c) Turbulence; (d) Viscous flows; (e) Computational mechanics (with solids or fluid specialization): Numerical analysis, CFD or Intro. To FEM, Advanced CFD or FEM for fluids or Nonlinear FEM; (f) Stability and control; (g) Structural dynamics: (MOS and dynamics prereq.) mechanical vibration (discrete systems), vibration of continuous systems, aeroelasticity/random vibrations/nonlinear vibrations/advanced structural dynamics, acoustics/dynamics and controls.

More options can be created in future.

- (2) For a 2nd major in Aerospace (for students from outside the department), the course structure will be given after the department freezes its basic core structure – all mandatory professional courses have to be taken
- (3) No special degree is required for good students. Acknowledgement of performance could be done by giving certificates/ keys type recognition, grade of A* in a course, etc.
- (4) For weak students exit option is OK. However, the group feels that student should have atleast cleared the 3rd year level courses (another alternative is all the mandatory departmental core, i.e. what is required for a second major) and spent atleast 4 years at IITK. The group could not converge on the appropriate name for such a degree – diploma in Aerospace Engg. could be one.

- (5) The ESO courses that the departmental students should take are: ESO204, ESO212, ESO202. Optional ESO's are: ESO216, ESO214, ESO218.
- (6) The department likes the idea of stressing upon communication skills in the courses. This will be done through presentations and seminars. Lab. Courses will have a mandatory (1/2 hr.) part on report presentation; a seminar course in the 6th semester is also mooted (in a 20 hr. module). The student will prepare and present on a topic, based on literature review.
- More rigour in design report preparation and presentation + mandatory presentation in aeromodelling.
- (7) The group would like 1 mid-term examination and 1 end-semester examination. It also strongly recommends conducting only one examination per day (centrally organized exam. Schedule)

The group also discussed the preliminaries of the curriculum structure: 2 aero. Lab. Classes, one 20 hr. lab. Theory module; one 20 hr. flight lab. Module.

It also discussed having 3 courses in aerodynamics+propulsion combined; the first course in FM can be made into a 20 hr. module with aeromodelling added to it (to make a full course) to be offered in the 4th or 5th semester; a course on control theory should be introduced; a course on space mechanics should also be added; one compulsory structures course will be offered – rest in specialized DE courses.