

# UCIC Meeting - 8

March 16, 2013

# Agenda

- Confirmation of minutes of meeting 7, Feb 15, 2013
- Discussion on Feedback from Departments on recommendations of UCIC
- Discussion on Feedback from Departments on First Year Course Templates
- Matters for Information
- Any other Item

# Item-1: Confirmation of Minutes

- No comments received on the minutes of the last meeting dated Feb 15, 2013.

# Item – 2: Discussion on Feedback from Departments on UCIC recommendations

- Recommendation – 1: on Tutorials
  - AM: in option of 3-0-0, 36+6 should not be mentioned on template as it dilutes course coverage
  - CH: all models should be retained and flexibility given to Depts and disclosed in template.
    - Agreed that 100 & 200 level courses have tutorials; DE's not to have tut/lab
    - In 3-0-0 format flexibility of number of prob solving hours should be left to instructor.
  - CS:
    - Do not agree on blanket ban on tuts beyond 200 level: should be left to Depts.
  - EE:
    - M.Tech students with additional remuneration could be used for tutorials in 100-200 level courses
  - HuSS:
    - Adopted Lecture – 1 large tutorial – office hours policy

# Item – 2: Discussion on Feedback from Departments on UCIC recommendations

- Recommendation – 1: on Tutorials... contd.
  - ME:
    - For exceptional cases tutorials must be allowed for core courses of other than 100-200 levels
    - Current model of tut classes must be an option
  - PH:
    - Adopted 3-0-0 format with 36+6 problem solving sessions
    - Application oriented problems will be solved: to expose engineering students to relevance of basic science to engg
  - CARE:
    - TAs not very effective for tutorial classes: this must be taken into account

# Item – 2: Discussion on Feedback from Departments on UCIC recommendations

- Recommendation – 2: on scheduling of institute core courses
  - AM:
    - Cannot offer Engg Mech in II sem for all 857 students
  - CH: agreed
  - CE: see table
  - EE:
    - Engg Mech should be offered in II sem for all students if possible
  - ME:
    - Some branch specific courses should be scheduled in I and II semesters
    - Material Science and Thermodynamics should be Institute Core Courses

# Item – 2: Discussion on Feedback from Departments on UCIC recommendations

- Recommendations 4 & 5: on EA-ES Courses and Non-graded credits:
  - AM: Non-graded:
    - 100 hrs for NSS/NSO/NCC and 50 for PE/SR: hours for each year out of the total 150 should be prescribed.
  - CH:
    - Teaching load for Intro to Engg and Program should be even between Depts and Centres
    - Entrepreneurial activity and incubation (startup) may be given design credits
    - 4-week internship (2 credits) and 8 week internship (3 credits): number for a student can be decided by a committee
    - Transport Phenomena: changes proposed
    - Material science: recommended inclusions: corrosion, selection of materials

# Item – 2: Discussion on Feedback from Departments on UCIC recommendations

- Recommendations 4 & 5: on EA-ES Courses and Non-graded credits:
  - CE:
    - 10 credits of PL courses Mech of Solids and Mech of Fluids to be finalised in consultation with AM
  - EE: will offer:
    - Signals and Systems; Electromechanics; Digital Electronics
  - PH: PL courses requested:
    - Signals and Systems (EE); Digital Electronics (EE) (4+4 credits)
    - Data Structures (CSE) (4 credits)
    - Chemical Synthesis of Functional Materials (CY) (3 credits)
    - These courses should be floated for other Dept students separately from host Dept students

# Item – 3: Discussion on Feedback from Depts on First Year Course Templates

- Mathematics I and Mathematics II:
  - DBEB: Both courses too intense as I year courses.
    - Num methods should be included in linear algebra and diff eqns
    - Matlab or Mathematica should be introduced
    - Linear Algebra should precede Vector calculus
  - CH:
    - CH students: Math I in I sem and Math II in II sem
  - CE:
    - Desirable to include Statistical and Num methods, but maths I and II already contain topics that cannot be dropped
  - EE:
    - Tutorial problems should be engineering linked, template should indicate this
    - Maths II a bit heavy
  - ME:
    - In view of numerical focus of JEE, Maths I should focus more on derivations and proofs
    - Inclusion of Gram-Schmidt Orthogonalization, Singular Value Decomposition recommended in Maths II, again keeping focus on derivations and proofs

# Item – 3: Discussion on Feedback from Depts on First Year Course Templates

- Physics and Physics Lab:
  - CH:
    - Should include topics: classical and relativistic mechanics; kinetic theory, optics, physics of materials
  - CE:
    - The PL course Advanced Mechanics and Thermodynamics more suitable as first year core for CE
  - EE:
    - Lab contents on electricity and magnetism overlap with EE first year course lab work
    - Could include PV, piezoelectric effect, hall effect, acoustics instead
  - ME: Theory course: well structured. Lab Course:
    - Objective should be quantification of natural phenomena and exposure to statistical nature of measurements
    - Experiments on Magnetic field measurements and physical constants pertaining to electromagnetics should be included
    - In optics focus should be on wave optics rather than geometric optics
    - QM experiments as indicated in Feynman's lectures may be included
    - RC circuits need not be included
  - PH:
    - Lab will be reorganized to have 3 expts each on Optics; Electricity&Magnetism; Mechanics; Modern Physics, ensuring no overlap with EE lab: constituted a committee for this.

# Item – 3: Discussion on Feedback from Depts on First Year Course Templates

- Chemistry and Chemistry Lab:
  - CH:
    - Coverage too advanced and wide for 1 year students
    - DFB invited CY faculty and had discussions regarding PL-BS course requirements for CH students
  - ME:
    - Objectives need modification to establish the common thread between Inorganic, Physical, Organic and Biochemistry.
    - Course may be adapted to synthesis of new materials and predicting properties *a priori*
    - Focus on classification by methods and processes used for synthesis rather than by material types

# Item – 3: Discussion on Feedback from Depts on First Year Course Templates

- Biology Course
  - DBEB: Too advanced for Intro.
    - overemphasis on Darwinian Evolution & Molecular Perspective and Phylogenetic trees & inter-intra-species relations
    - Cancer Bio, Stem Cell bio: too high for 10+2 output
    - Suggestions for modules to be included.
  - CH:
    - Suggested topics to be included
    - Topics under Stem – and Cancer- Cell could be reduced to 1 lecture
    - Topic under Engg Designs inspired by eg: in 6 lectures with examples linking bio to other engg disciplines
    - Should have better lecture – lab alignment
  - MA:
    - Credits should have been 4 (not 3)
  - ME:
    - Credits should be 4
    - Aspects related to environmental bio-safety should be added
    - Should not be a handicap for students who do not study biology at 10+2 level
    - Desirable to include structural biology, biomechanics, enzymes, proteins and their binding.
    - Lab should include some synthesis demonstrating protein binding

# Item – 3: Discussion on Feedback from Depts on First Year Course Templates

- Computer Science and CS Lab
  - Not as per concept paper: additional lab course and credits proposed: need discussion in UCIC.
  - DBEB: at least one language should be focussed upon.
  - EE:
    - Pre-requisite for Lab course does not exist
    - Modules 5 (data-structures) and 8 (multi-threaded computations) too heavy for 1 year
  - ME:
    - Course is well-designed.

# Item – 3: Discussion on Feedback from Depts on First Year Course Templates

- Electrical Engg and EE Lab:
  - CH: it is a well-designed course
  - EE:
    - Will have 36+6 problem solving sessions: template updated accordingly
  - ME:
    - Module 11 on measurement of V, I, W should be covered after module 1 with fewer lectures
    - Topics on Mesh and Nodal Analysis may be dropped from module 2 – too advanced
    - Modules 4 and 5 may be combined into one with fewer lectures
    - “CRO” may be replaced by “Oscilloscopes”
    - It is desirable to include identification of motors and measurement of torque and motor constants: present coverage seems less. Experiments on drive circuits and motors with measurement of transient and steady state responses may be added

# Item – 3: Discussion on Feedback from Depts on First Year Course Templates

- Engineering Mechanics
  - ME:
    - The course could be renamed “Rigid Body Mechanics”
    - Expressed concern on inclusion of Variational Mechanics

# Item – 3: Discussion on Feedback from Depts on First Year Course Templates

- Environmental Studies Course:
  - MA: Total lectures must be 28 h (not 29)
  - ME:
    - Should be common to all disciplines other than CE
    - Should include topics: Intro to Ecological System, urban pollution, green technology, sustainability

# Item – 3: Discussion on Feedback from Depts on First Year Course Templates

- Engineering Graphics and Product Oriented Manufacturing:
  - Added only one/two days ago
  - More credits than in concept paper
  - Discussion in UCIC needed

# Item-4: Matters for Information

- Committee for examining multiple programmes from a Department constituted by Director

Item-5: Any other Item

Thank You