

Indian Institute of Technology Kanpur New Course Proposal

Course Number: XXX

Course Title: Healthcare Ventures & Enterprises, **Part-1 of 2**

Per Week Lectures: Lectures/Tutorials/Labs/Additional hours

Course Duration: Full semester (summer)

Proposing Department: BSBE

Other Departments/IDPs which may be interested in the proposed course: Design Dept

Other faculty members interested in teaching the proposed course: Prof. J.Ramkumar, Prof.

B.V. Phani and Mr. Srikant Sastri (expected to soon join as a visiting Prof. of Practice)

Proposing Instructors: Prof. Amitabha Bandyopadhyay

Lecture Duration: 3 hours (Friday evening & Saturday morning only)

Class size: 20 (B.Techs; M.Techs & PhDs) (UGs must have completed 4 semesters but not more than 5 semesters)

Teaching hours: 14 classes*3 hours (42 hours). Friday evening & Saturday AM

Course Description:

- A) Objectives: The course will expose students to the world of healthcare innovation. The emphasis will be on showing how real innovation is made possible by identifying ‘problem statements’ that are derived by working closely with clinicians, and observing customer behaviour. Students will also learn to appreciate how fundamental principles of innovation are universally relevant, *whether at a start-up, or as a new unit in a big company*. This course is in consonance with the recently-adopted ‘Student Entrepreneurship Policy’; it prepares students for entrepreneurship through structured learning and hands-on experience.

B) Course Content:

Class#	Broad Topic	Topics	Duration (hours)
1 & 2	Team formation & Problem Statement	Developing relevant problem statements. Lessons from case studies. Identifying common areas of interest for groups of students	6
3 & 4	Secondary Research	Gaining insights from available secondary literature, and framing initial hypotheses around the problem statements. Preparing for clinical immersion	6

5, 6 & 7	Clinical/customer immersion	Work closely with clinicians and/or customers to observe the 'need gaps', and attempt to validate the initial hypotheses.	9
8	Mid-point Immersion review	Peer review and learning in the class where early experiences from clinical/customer immersion are shared	3
9, 10 & 11	Clinical/customer immersion	Continue to work closely with clinicians and/or customers to observe the 'need gaps', and validate the initial hypotheses	9
12	Insights & new directions	Evolution & modification of original 'problem statement' & idea based on clinical immersion. Structured documentation of market insights, and developing User Personas	3
13	Product strategy-Part one	Developing a 'Value Proposition' & initial set of product features	3
14	MVP Design & prototyping plan	Structured '5-pillar' framework for MVP Design. Create a prototyping plan	3

Pre-requisites: Should have an interest in healthcare innovation (instructor consent based on application & interview). For this year alone, UGs should have completed at least 3 semesters at the time of application (in future years, students will be asked to apply during the 3rd semester itself). Registered students must be willing to work in teams of four. Each team of 4 must comprise a set of people with complementary skill sets. A team must ideally have two persons with strong technical skills, one with business analysis skills, and one person with sales/marketing mindset.

Summary: Healthcare innovation will drive quality and affordable healthcare in the post-Covid world. Rapid technology changes (especially AI & digital health) are enabling dramatic new products and services globally. Modernisation of healthcare infrastructure in India, as also import substitution, is driving medical device innovation in India. *Success however lies in developing products and services (whether physical or digital) that are based on real clinician and market insights*

Reference books:

Required Readings: How to be a Founder (Bloomsbury); The Storyteller's Secret (Macmillan); The Ventilator Project (Pan Macmillan).

Assessment:

Assessment Criteria: One mid-semester (group) presentation; a final presentation & submission;
Class participation