# St. Xavier's College – Autonomous, Mumbai

## Syllabus

## For Semester IV Courses in M.Sc. in Biotechnology

## (November 2019 onwards)

## Contents

## Syllabus for the following courses:

**COURSES**

**SUBJECT (THEORY): BIOTECHNOLOGY**
**CLASS: MSC- SEMESTER IV COURSE CODE: SBTS1001**
**TITLE: ENTREPRENEURSHIP AND IPR**
**No of Hours: 60 (inclusive of self-study)**
**Credits: 4**
**Course Objectives:**

The course aims to educate students concepts of entrepreneurship including identifying a business opportunity, gathering funds, launching a business and management principles within a business. The Intellectual Property Rights module will encompass concepts and their implications on biological research.

**UNIT 1: MANAGEMENT PRINCIPLE AND ENTREPRENEURSHIP 15 lectures**

- Marketing Management:
  - Understanding the role of marketing in Organizations
  - Marketing Research and its importance
  - Understanding the Micro Environment (Strengths and Weaknesses vis-à-vis your company and its competition) and the Macro Environment (Opportunities and Threats – PEST Analysis)
  - Exit strategy
  - Brief Introduction to Demand Forecasting
  - Market Segmentation and Target Markets; 5P's (Product, Price, Place, Promotion, People)
- Finance Management:
  - Understanding the role of finance in Organizations
  - Financial Statements; Taxes
  - Interest Rates
  - Break-even analysis
- Human Resource Management
  - Understanding the role of an HR Manager in Organizations
  - Interviews
  - Team building and organizational management
- Entrepreneurship
  - The concept, meaning of entrepreneurship
  - Functions, types of entrepreneurship
  - Stages of the entrepreneurial process.
  - The contribution of notable entrepreneurs in the field of biotechnology and applied biology. (Case studies)

**UNIT 2: BUSINESS OF BIOTECHNOLOGY 15 lectures**

- Project areas in biotechnology and applied biology

- Business concept: Idea selection, brainstorming, project planning, conceptualization and feasibility report, Idea generation and Product planning, process design, IP generation, Project cost estimate, project profits
- Biotechnology companies, their care and nurturing
- Management in biotechnology
- Growth of the biotechnology industry in India
    - Rules & Regulations for the set-up of Biotech companies
    - Government schemes and benefits for SME
    - Strategic Management & International market (Examples of companies and strategies adopted for their market)

**UNIT 3: BASIC CONCEPTS OF PATENTING 15 lectures**

- Biotechnology and the law: objective, evolution, Commercial potential of biotech inventions, rational for IPR protection, Permissible and non-permissible Biotechnology patenting in India
- Patenting biotech inventions: objectives, concepts of novelty and concepts of inventive step, microorganisms, and moral issues in patenting biotech inventions
- Patenting issues related to Biosimilars
- Patent reviews and Case studies
- Searching and analysing Patents

**UNIT 4: RIGHTS, GI AND TRADITIONAL KNOWLEDGE: CONCEPTS AND CASE STUDIES 15 lectures**

- Protection of geographical indications: objectives, justification, international position, multilateral treaties, national level, the Indian position
- Protection of traditional knowledge: objective, the concept of traditional knowledge, holders, issue concerning, bio-prospecting and bio-piracy, alternative ways, protectability, need for a sui generis regime, traditional knowledge on the international arena, traditional knowledge at WTO, traditional knowledge at the national level, traditional knowledge digital library
- Plant varieties protection: objectives, justification, criteria for protection, international position, plant varieties protection in India, plant varieties protection under TRIPs
- Case studies

**Reference books:**


- Alexandra George (2006) Globalisation and Intellectual Property, Ashgate publishing company
- Colin Ratledge and Bjorn Kristiansen Basic Biotechnology, Cambridge University Press- 2nd Ed,2001
- David Pressman (2016) Patent It Yourself 18th edition, Nolo Publishers
- Maarten Bode, (2008) Taking traditional knowledge to the market, Orient Longman Publishers

- Poornima M Charanthmath, "Entrepreneurship Development – small Business Enterprises", Pearson Education – 2005
- Prabudha Ganguly, (2001) Intellectual Property rights- unleashing the knowledge economy, Tata McGraw Hill Publishing Company Ltd.
- Sudeep Chaudhuri (2005), the WTO and India's Pharmaceutical industry, Oxford University Press.
- Vandana Shiva (2002), Protect or Plunder? Understanding Intellectual Property Rights, Zed Books.
- Vasant Desai, Dynamics of Entrepreneurial Development & Management, Himalaya Publishing House


**ASSESSMENT:**

- **Continuous Internal assessment :40%**
- **End Semester Assessment: 60%**

**COURSE CODE: SBTS1001PR TITLE: BUSINESS PLAN**
**Credits: 4**

**Course Objective:**

The course aims to impart knowledge and skills to prepare a robust business plan that recognises all potential opportunities and critical risks of a new biotechnology-based venture.

**Content:**

Business Proposal for a Biotechnology based Start-up

**COURSE CODE: SBTS1002PR TITLE: RESEARCH PROJECT**

**Credits: 16**

**Course Objective:**

The course aims at exposing students to the intricacies of scientific research through a project undertaken by them under the guidance of academia from national research institutes.

**Content**

- Project for 5-6 months with Dissertation

**ASSESSMENT**

| **CIA** | |
|---|---|
| 1001PR | 40M |
| 1002 PR | 160M |
| **ESE** | |
| 1001PR | 60M |
| 1002PR | 240 M |