A Case Study on one activity/practice successfully implemented based on the institution's strategic plan

M.Sc. Programme in Bioanalytical Sciences introduced in 2019-2020

Program: M.Sc
Course / Subject: Bioanalytical Sciences
Duration: 2 years
Batch size: 20 students per year
Eligibility for admission: B.Sc. in Biochemistry, Biotechnology, Botany, Chemistry, Life Sciences, Microbiology, Zoology and B.Voc in Pharma Analytical Sciences.
Selection criteria for admission: Entrance exam and personal interview.
Academic background: The University of Mumbai introduced M.Sc in Bioanalytical Sciences as a postgraduate course with interdisciplinary approach in the academic year 2004-2005.
The course was established in the college after sensing the demand from the students.
Objectives: M.Sc. In Bioanalytical Sciences is an Interdisciplinary course specifically planned to address the need of trained personnel in chemical, pharmaceutical industries, and industries manufacturing ASU(Ayurveda, Siddha and Unani) formulations and R&D (Research and Development) Organizations.
Purpose and Rationale: The curriculum for this course has been designed by experts from industries, scientists from research institutions and academicians with special emphasis on hands-on training of instruments and exposure to industries.

Highlights of the Course:

- Guest Lectures by experts / visiting faculties from Industries/Research Institutes
- Hands on training on analytical instruments
- Industrial Visits/ Training/Internship/ Field Trips and visits to Laboratories
- Project work: AYUSH/ Research Component
- Bridge Lectures for students from Chemical and Biological Sciences to bridge the academic gap at undergraduate level
- Assistance in Internship / Placements
- Cultural and Literary festival of the Department "Dravyashastram"
- Popular Science Lecture Series where eminent speakers shared their experience and expertise with the students

Strength of the department

- Interdisciplinary Course creating trained personnel catering Chemical, Pharmaceutical, ASU (Ayurveda, Siddha and Unani) formulation Manufacturing and Allied Industries as well as Research & Development Organizations.
- Students from various Biological Sciences and Chemical Sciences backgrounds are eligible to pursue this Post Graduation Programme.
- Syllabus customized as per the inputs of Industry Experts, scientists from Research Institutes and Academicians and it is customized in such a way that after post-graduation, the students are already industry ready.
- Emphasis on hands on training on sophisticated analytical instruments and Industrial training/ Internship Component
- AYUSH Project, a Research component to develop scientific temperament, critical thinking, analytical approach and research aptitude in students
- Bridge Lectures for students of Biological and Chemical Sciences to bridge academic gap at an undergraduate level
- Industrial Visits, Field Trips and visits to Laboratories included in curriculum
- Customized Laboratory equipped with ICT tools which is also used as a classroom
- Batch size of 20 students facilitates personal attention by Faculty to Students
- Procurement of new sophisticated analytical instruments through RUSA Grants
- Good Laboratory Practices followed (including preparation of labels and logbooks for instruments as well as preparation of Standard Operating Procedures (SOPs) for the instruments)
- Acquiring various Volumes of Pharmacopoeias (US and Indian), Ayurvedic Formulary for student's reference.
- Conducting activities at departmental level which are of co-curricular and extracurricular nature.
- Industry as well as Research oriented course
- Placement Assistance provided to students.
- Dedicated Staff (Teaching and Non-Teaching)

Opportunities provided by the department

- Infrastructure and Facilities can be shared with other departments of college for having inter-departmental collaborations.
- Students from other departments both undergraduate and postgraduate level or from other colleges can be trained in the usage of analytical instruments available in the department by students and faculties of the department at a nominal fee. This can be a source of revenue generation by the department.
- Academia- Academia collaborations/ linkages
- Academia- Industry collaborations/linkages
- Plans for DBT Skills Vigyan Programme and Refreshers Course proposal in Collaboration with department of Biotechnology, SIES College of Arts, Science and Commerce (Autonomous)
- Student support activities such as preparation for competitive examinations for pursuing higher studies, research (both in India and abroad), providing information about research-based scholarships (both in India and abroad), placement activities
- Designing Mentor-Mentee system
- Development of Entrepreneurship skills in students (Department is taking part in ECHO project where students have to develop a sustainable product for WWF India which if selected can be sponsored by WWF India and will be commercialized)
- Development of soft skills (communication skills, etc.) and language skills in students and non-teaching staff (particularly in terms of writing and speaking English).
- **Placement Percentage for the first pass out batch is 75% (2019-2021)**
- **Students as Laboratory Technicians, in Quality Control and Quality Assurance Department, In Research and Development Department, In Clinical Research and Contractual Research organization and as analyst**
- **The Salary range of these students is Rs 10,000-25,000**

Relevance and Impact: The course has received positive feedback from students, teachers and researchers and this course also serves as an ideal platform for industry-academia collaboration and job opportunities in pharmaceutical and allied industries.

Tangible benefits to the institution because of the Department of Bioanalytical Sciences

- With sharing of infrastructure, expertise, instruments, library facilities the course is self- sustaining without any liability or deficit to the institution
- Value added to the institution in terms of good placement record for the students
- Interaction with industries and industry-academia collaboration in future will work as a service model generating revenue for the institution
- Sophisticated analytical instruments in the department can also be used for undertaking research projects from UGC, DST, DBT among other
- Unique interdisciplinary approach and active interaction and participation of pharmaceutical industries will make a significant difference to institution in terms of accreditation by NAAC in future
- The course is a platform to conduct UGC sponsored Refresher Courses in Biosciences and Chemical Sciences and by organizing and conducting this course will be consequential in terms of NAAC reaccreditation

Intangible Benefits to the institution

- Unique training and service model with optimum utilization and sharing of expertise, instruments and library facilities
- The kind and approach of course would definitely put SIES on the map of institution with potential of excellence
- Creating a lot of good will for institution amongst the academia and research institutions which in turn will have a cascading effect on the growth of the institution

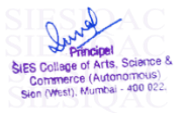
Website Link:

M.Sc. Part I:

http://www.siesascs.edu.in/assets/pdf/courses/ae3440a88c53862e9b471dded291b5f0M.Sc%20Part%201%20Bioanalytical%20Sciences%20syllabus.pdf

M.Sc. Part II:

http://www.siesascs.edu.in/assets/pdf/courses/a2584371caf7d6772e71442733b61aa5M.Sc%20Part%202%20Bioanalytical%20Sciences%20syllabus.pdf



Dr. Uma Shankar
Principal