CSIR Integrated Skill Initiative

Certificate course on Skill Development in Computational Approaches to Drug Design and Development

CSIR-Central Drug Research Institute, Lucknow

CSIR-CDRI (Central Drug Research Institute), a constituent Laboratory of CSIR, is devoted to R&D activities, technology support and academic (including Skill Training/HR) for the benefit of industry and research in the country. It is a premier drug research Institute with global image and vast experience in whole gamut of drug research modules which include lead generation and identification from phyto-chemicals/ fine-chemicals, biological evaluations to clinical trials.

In recent times computational procedures are widely adopted in drug research and pharmaceutical industry. In view of this to fill the gap between university curriculum and industry needs, the course is designed to introduce an array of *in silico* methods useful in direct and indirect drug design approaches and allied fields. The course expounds on theory and application of physical, quantum mechanical, statistical techniques in drug research and informatics applications in pharma industry to improve efficiency, quality and risk assessment in the development of drugs, formulations, agrochemicals and molecular materials.

CSIR-CDRI invites applications for "**Certificate course on Skill Development in Computational Approaches to Drug Design and Development**" as per the details given below:

Title of the course	**:**	**Certificate course on Skill Development in Computational Approaches to Drug Design and Development Certificate (CAD)**
Duration	**:**	**6 Weeks (10.11.2025 to 19.12.2025)**
No of Seats	**:**	**10**
Educational Qualification	**:**	**M.Sc (Chemistry/Physics/Life Sciences/ Biotechnology/ Bioinformatics), M.Pharm (Pharmaceutical Chemistry/Medicinal Chemistry), M.Tech (Biotechnology/Bioinformatics). Basic knowledge of computer is essential.**
Venue of the course	**:**	**Centre for Bioinformatics & Computational Biology, CSIR-CDRI, Lucknow**
Course Fee	**:**	**Rs. 10000/-**
Date for submission of applications	**:**	**From 15th September to 15th October 2025, Selected participants will be informed by 25th October '2025 by email for completing registration process and fee submission.**
Resource Person		**DR. M.I.SIDDIQI, email: mi_siddiqi@cdri.res.in**

Training for whom: The course may meet the aspirations of students, young researchers and industry sponsored personnel looking for training in computational approaches to drug design and development aspects. This course will provide an opportunity for skill development and hands-on experience in the chosen area. It will also provide a basis for planning future studies involving these techniques.

Course Structure: This course is oriented for academic research / industrial R&D. It introduces computational methods to enhance the productivity in the fields of Medicinal Chemistry, Biochemistry, Structural Chemistry and Biology and pharmaceutical solid form development. While covering the fundamental concepts behind the methods, this course will provide a strong focus on the practical aspects of computational approaches for drug design and development. Areas to be covered in this course include theoretical and practical aspects of wide array of computational and modelling techniques used in drug research and development. This course includes theory/lectures and practical/ hands-on sessions through selected software modules.

Topics to be covered

- Fundaments of computing, Operating Systems, Information Technology etc
- Introduction to statistical thinking in drug research; types of data; sample and population; data summarization; hypothesis testing; regression methods etc
- Introduction & Applications of Computer-Aided Drug Design/ Bio-informatics/ Chem-informatics etc
- Fundamentals of Protein Architecture, Protein sequence and structural databases; Modeling; Docking, Simulation etc
- Artificial intelligence, Machine learning and data mining in Drug Discovery
- Introduction to Solid form informatics; computational approaches in crystalline form selection and solid form development; polymorph screening of drugs etc
- Hands-on training/tutorials and/or project assignments

Management and Faculty: CSIR-CDRI has unmatched expertise in drug research with state-of-art facilities and talent. Faculties for this course are highly experienced and extremely well trained experts in this area.

Methods of Instruction: Instruction methods involve lectures and hands on practice. Medium of instruction will be in English.

SALIENT FEATURES OF THE TRAINING

- Theory and Practical Sessions as per the course curriculum.
- Interactive session.
- Focus on current needs of Pharma/ Life Science industry
- Guest lecturers of experts from Industry/Academia.

EVALUATION OF TRAINEES

Evaluation will consist of the following components:
Theory Courses (50 Marks)
Practical/Project (50 Marks)

CERTIFICATION

CSIR-CDRI will award certificates to the successful candidates.

For more details about application process, please visit the link:

https://www.cdri.res.in/sdptraining

Contact:
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