



**Programme Ordinance, POs, PSOs & Course Outcomes
(Cos)**

For

DIC Diploma/ Certificate Course

2015-2022

**Bio-Design Innovation Centre
Rani Durgavati University, Jabalpur (M.P.)**

Approved by
Board of Studies in Biochemistry on 31/07/2021
Standing Committee on

Faculty of Life Science on
Executive Council on

Programme Outcomes

(Academic Session 2015 – 2022)

Programme Ordinance, POs, PSOs & Course Outcomes (Cos)

Diploma Course (U084)

SYLLABUS PRESCRIBED FOR THE DIPLOMA COURSE IN BIODESIGNING OF SUSTAINABLE PRODUCTS FROM BIOLOGICAL SYSTEM AND PATENTIBILITY IN LIFE SCIENCES

Duration: 06 months Total Marks: 100

Theory: 60marks

CCE/Practical: 40marks

Unit-I

PO1 Basics of Bio-design

- What is Bio-design?
- Scope and types of Bio-Design Products
- Currents status of Bio-design in India and the International market
- Biosynthesis and applications of nanoparticles.
- Bio-designing of Microbial fuel system through bacteria, Innovative methods for waste management and bioremediation of heavy metals.

UNIT-II

PO2 Applied Bio-design

- Cultivation of mushroom its importance and applications.
- Bio-designing of eco-cradle and mushroom paper
- Bio-designing of Latro-lamp and moss table

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- Hydroponics: Aquaponics and aeroponics types and design of hydroponics,
- Introduction to algae and various pigments in relation to Bio-design.

UNIT-III

PO3 Understanding and Overview of IPR:

- Introduction to IPR
- Concept, Nature and Characteristics of IPR
- Kind of intellectual Property
- Impact of internet on IPR
- Patent Authorities under Patents Act, 1970: Controller General of India, Patent examiner, Patent agents etc.

UNIT- IV

PO4 Patentability and Copyright Trademark

- Patentable subject matter and Patentability criteria: Patentable and non-patentable inventions, Novelty, Utility Inventiveness/Non-obviousness
- Rights of patentee, Procedure for granting a patent and obtaining patents, Working of Patents, Transfer of patent rights
- Procedure for filings of national and international Patents.
- Patent of Pharmaceutical products and its process, Patenting of Micro-organisms, other living organisms and genetic material.
- Protection of Plant Varieties and Farmer's Rights, Registration of varieties, Breeder's right v/s Farmer's rights.
- Copyrights: Concept, Nature and scope of Copyright, Plagiarism, Copyrights issues in digital world, Terms of Copyright, conditions for granting of copyright
- Trademark: Evolution and registration process of trademark in India, grounds of refusal, passing off.

UNIT-V

PO5 Contemporary Issues in IPR and Grants of patents

- IPR and Sustainable development

- IPR issues in Biotechnology and other field of sciences.
- Interface between IPR and Human Rights
- Infringement of Patents and remedies for infringement
- Provisions relating to Infringement of Copyright and remedies available
- Infringement of Trademark and remedies

Practicals:

- Isolation, identification and maintenance of pure culture of fungus.
- Bio-Designing of Eco-cradle and mushroom papers.
- Preparation of spawn culture for mushroom production
- Bio-synthesis of nanoparticles from fungi
- Bio-designing of fuel cell by using plants
- Practice for writing a patent
- Projects work on some current topic of legal importance or inclusive of other disciplines
- Submission of project work/assignment/field study report on bio-designing and life sciences area/topic pertaining to IPR involving techno-scientific and legal issues therein

LOCF of DIC Diploma Course:

The objective of this course is to provide basic understanding of Bio-Design, its scope and future prospects in India and International market. The course is also providing an understanding related to IPR and their role in patenting the products, copyright and trademark. The course will introduce students to the basic tenets about role of microbes in developments of innovative products of social use. The course will also provide creative bio-design skill to the students and organize training and awareness programs for the students and Tribal.

Course Outcomes of Diploma Course:

- ✓ This course will introduce the concept of human-centered design and explores its role for innovation.
- ✓ This intensive program is focused on helps to solve complex problems and supports to design and build innovative solutions for future growth.
- ✓ Students will learn about heavy metal toxicity, nano-particle synthesis by microbes and current national and international status of Bio-design.

DIC DIPLOMA AND CERTIFICATE COURSE 2015-22

- ✓ The students can implement the hydroponics and mushroom cultivation system for their self-reliance. The students should be able to understand IPR, their nature, patent authority of India and infringement of copy right, trademark and their remedies.
- ✓ Students will able to demonstrate advanced knowledge of specialist technical and practical aspects of design ideation, research, innovation and professional concerns relevant to design.
- ✓ After completion of course learner can analysis between patentable and non-patentable invention, procedure of filing of patent at national and international platform and right of patentee,
- ✓ The course will provide comprehensive knowledge to the students regarding trademark, copyright of farmers and breeders and patenting of microbes and genetic material.
- ✓ After completion of the practical, projects and CCE works the student will be able to gain knowledge about microbe's isolation, preservation and development of eco-friendly products. They also learn how to work in team, analysis of ethical and professional issues and the projects/assignment report reflects as their own learning.
- ✓ This course will definitely facilitate the students to explore career option in IPR and Bio-design field.
- ✓ Students will understand the importance of patentability and trademark to protect the IPR of pharmaceutical products and farmers rights.

Programme Outcomes

SYLLABUS PRESCRIBED FOR THE CERTIFICATE COURSE IN APPROCHES AND APPLICATION OF BIO-DESIGN

(Academic Session 2015 – 2022)

[PROGRAMME UNDER CHOICE BASED CREDIT SYSTEM WITH LOCF-ORDINANCE 222]

Certificate Course (U085)

Duration: 03 months Total Marks: 50

Theory: 35 marks

CCE/Practical: 15 marks

Unit 1

PO1 Definition of Bio-design, Scope of Bio-design, types of biodesign products, current status and future prospects of biodesign in India and International Market.

Unit 2

PO2 Characteristics features of limestone producing bacteria. Bio-designing and preparation of biobrick by Bacteria. Biodesigning of nanoparticles from microbes.

Unit 3

PO3 Introduction, importance and application of Mushrooms, Biodesigning of Mushrooms: Ecocardle and papers.

Unit 4

PO4 Biodesigning of Latrolamps and Moss Table and its application.

Unit 5

PO5 Hydroponics: Introduction, Importance and Biodesigning for Hydroponics. Micropropagation of creepers, climbers and Horticulture plants and their application.

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Course outcome of Certificate Course:

- Bio-design certificate course views the process of how to learn from Nature as an innovation strategy translating principles of function, performance and aesthetics from biology to human technology.
- Students will learn about design innovation in the field of biological system and their scope.
- The students will be able to learn how to make innovative and eco-friendly products with social impact.
- The course will be able to aware students about lime stone bacteria and synthesis of nano-particles by using microbes.
- Students will understand the importance of microbes and plants in development of innovative products.
- Students will also gain knowledge about hydroponics their types and application in the field of agriculture.
- The course provides a unique opportunity to gain real research and innovation experiences while still in an academic environment.
- Students will be able to recognize, describe and apply the needs-driven Bio-design approach to the creation of innovative concept solutions

LOCF of DIC Certificate Course:

The main objectives of the course are to provide platform for students and innovator in field of Design and Innovation and develop eco-friendly products for human use. The course will also provide creative bio-design skill to the students and organize training and awareness programs for the Tribal. The course will introduce students to the novel environment management strategies through innovative waste treatment methods.



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