

PROSPECTUS

B.Sc.(H) Programme in Nanoscience and Nanotechnology (Based on CBCS Pattern)

**Three years B.Sc.(H) Programme in
Nanoscience and Nanotechnology
2018-21 onwards**

**NANOSCIENCE AND NANOTECHNOLOGY
UNIVERSITY DEPARTMENT OF CHEMISTRY
DR. SHYAMA PRASAD MUKHERJEE UNIVERSITY, RANCHI**

B. Sc.(H) Nanoscience and Nanotechnology (CBCS Pattern)

This course provides a broad overview of Nanoscience and Nanotechnology. The course structure is technology-centric where students basically learn technology and are taught necessary basic subjects for that purpose.

Objectives of the course:

The objectives of B.Sc.(H) in Nanoscience and Nanotechnology course are

- To provide an intensive and in-depth learning to the students.
- Beyond simulating, learning, understanding the techniques, the course also addresses the underlying recurring problems of disciplines in today scientific and changing business world.
- To develop awareness and knowledge of current scientific and research organization's requirement.
- Build up knowledge through varied subjects and training methodology in students.
- To train the students to take up wide variety of roles like researchers, scientists, consultants, entrepreneurs, academicians, industry leaders and policy makers.

Advantages of the course:

Nanoscience and Nanotechnology has tremendous job potential in,

- Scientific Research Organizations.
- Universities in India and abroad.
- Hospitals and Healthcare sector.
- Trading,
- Industrial job,
- Entrepreneurship,
- Consultancy organizations in pharmaceuticals, Electronics, Energy, Material Science, Medical, Defense, Agriculture, Environment Protection etc.

Eligibility: A candidate possessing 10+2 (Science) / I.Sc. degree with any two subjects from Chemistry / Physics / Botany / Zoology shall be eligible for admission into B.Sc.(H) course in Nanoscience and Nanotechnology.

Admission: Merit list based on percentage of marks obtained in 10+2 (Science) / I.Sc.

Total Seat : 40

Duration: The duration for this program is of 3 years with semester pattern (06 Semesters)

Course Fee: GEN/OBC – 15000 Per Annum
SC/ST – 13500 Per Annum

Course Module

SEM	COURSE	COURSE NAME
I	AECC-I	EC-I/ ES-I
	CC-I + CC-I(P)	Basic Inorganic Chemistry
	CC-II+ CC-II(P)	Basic Physical Chemistry
	GE-1+ GE-1(P)/(T)	GE-1
II	AECC-II	EC-II/ ES-II
	CC-III+ CC-III(P)	Basic Organic Chemistry
	CC-IV+ CC-IV(P)	Solid State Chemistry
	GE-2+ GE-2(P)/(T)	GE-2
III	CC-V+ CC-V(P)	Physical Properties of Nanomaterials
	CC-VI+ CC-VI(P)	Chemical Properties of Nanomaterials
	CC-VII+ CC-VII(P)	Basics of Nanoscience and Technology
	SEC-1	SEC-1
	GE-3+ GE-3(P)/(T)	GE-3
IV	CC-VIII+ CC- VIII(P)	General Characteristics of Nanomaterials
	CC-IX+ CC-IX(P)	Nanomaterials - Structure and Fabrication
	CC-X+ CC-X(P)	Nanostructures in Biological Systems
	SEC-2	SEC-2
	GE-4+ GE-4(P)/(T)	GE-4
V	CC-XI+ CC-XI	Nanocomposites
	CC-XII+ CC-XII(P)	Nanomaterials for Energy and Environment
	DSE-1+ DSE-1(P)	DSE-1
	DSE-2+ DSE-2(P)	DSE-2
VI	CC-XIII+ CC-XIII(P)	Carbon and Nanoforms of Carbon
	CC-XIV+ CC-XIV(P)	Characterization of Nanomaterials
	DSE-3+ DSE-3(P)	DSE-3
	DSE-4+ DSE-4(P)	DSE-4

Other Discipline (Four papers of any one discipline) - GE 1 to GE 4

1. Mathematics (5) + Tut (1)
2. Physics (4) + Lab (4)
3. Botany (4) + Lab (4)
4. Zoology (4) + Lab (4)

Discipline Specific Elective Papers: (4 papers to be selected)

1. Nanomachines (4) + Lab (4)
2. Green Manufacturing Technology (4) + Lab (4)
3. Fundamentals of Bio-Nanotechnology (4) + Lab (4)
4. Nanotoxicology (4) + Lab (4)
5. Spectroscopy (4) + Lab (4)
6. Synthesis and Applications of Nanomaterials (4) + Lab (4)
7. Nano-Electronics (4) + Lab (4)
8. Nanopharmaceuticals (4) + Lab (4)

Note: Universities may include more options or delete some from this list.

Skill Enhancement Courses (02 papers) (Credit: 02 each) - SEC1 to SEC2

- SEC-1 : Intellectual Property Rights and Technology
 SEC-2 : Social Implications of Nanotechnology

B.Sc.(H) in Nanoscience and Nanotechnology

- 1. Dr. Rajeev Ranjan** **Faculty Member**
Assistant Professor
& Course Co-ordinator
University Department of Chemistry,
DSPMU, Ranchi
- 2. Dr. N. K. Roy** **Faculty Member**
Assistant Professor
University Department of Chemistry,
DSPMU, Ranchi
- 3. Dr. A. K. Acharya** **Faculty Member**
Assistant Professor
University Department of Chemistry,
DSPMU, Ranchi
- 4. Dr. Poonam Bhardwaj** **Faculty Member**
Assistant Professor
University Department of Chemistry,
DSPMU, Ranchi
- 5. Dr. Khurshid Akhtar** **Faculty member**
Head
University Department of Chemistry,
DSPMU, Ranchi

Advisory Council :

- 1. Prof. R. K. Dey** **Member**
Professor
Department of Chemistry,
CUJ, Ranchi
- 2. Dr. Lawrence Kumar** **Member**
Assistant Professor
Centre for Nanotechnology
CUJ, Ranchi