

Course Name: Fundamentals of Nanotechnology
Course code: VAC BT 107
Duration: 07.05.2018 – 12.05.2018



Course offered by:
Department of Biotechnology
VALUE ADDED COURSES
SESSION 2017-18



Fundamentals of Nanotechnology

Objectives :

Students will get overview of the principles nanoscience, nanomaterials, properties of nanomaterials and applications of nanotechnology

Coordinator Name: Ms. Sonali Rana
Designation: Assistant Professor
Department, Biotechnology, : KVSCOS ,SVSU, Meerut
Email ID: Sonalir12@gmail.com
Ph No. 8708997907

VALUE ADDED COURSES Session 2017-18
REGISTRATION FORM

REGISTRATION FORM

Name:.....
Enrolment No:.....
Program:.....
Sem. & Year:.....
Contact No./Mobile:.....
E-mail:.....
Course Opted:.....
Course Code:.....
Signature with date:.....

Coordinator Name: Ms. Sonali Rana
Designation: Assistant Professor
Department: Biotechnology, KVSCOS, SVSU, Meerut
Email ID: Sonalir12@gmail.com
Ph No. 8708997907

Course Schedule

07.05.2018 – 12.05.2018

8.30 am – 12.30 pm
2.00 pm 4.00 pm

Name of Value Added Course: **Fundamentals of Nanotechnology**

Course Code: **VAC-BT-107**

Time: **30hrs**

Course Objectives: Students will get overview of the principles nanoscience, nanomaterials, properties of nanomaterials and applications of nanotechnology

Course Contents:

Unit I:

NANOSCALE SYSTEMS: Length scales in physics, Nanostructures: 1D, 2D and 3D nanostructures (nanodots, thin films, nanowires, nanorods).

Unit II:

SYNTHESIS OF NANOSTRUCTURE MATERIALS: Top down and Bottom up approach, Photolithography, Ball milling, Gas phase condensation, Vacuum deposition, Physical vapor deposition (PVD).

Unit III:

OPTICAL PROPERTIES: Coulomb interaction in nanostructures. Concept of dielectric constant for nanostructures and charging of nanostructure. Quasi-particles and excitons. Excitons in direct and indirect band gap semiconductor nanocrystals..

Unit IV:

APPLICATIONS: Applications of nanoparticles, quantum dots, nanowires and thin films for photonic devices (LED, solar cells). Single electron transfer devices (no derivation). CNT based transistors.

Course outcome: At the end of the course, a student would be able to –

- **Understand** the fundamental principles of nanotechnology and their **application**
- **Apply** engineering and physics concepts to the **nano-scale** and non-continuum domain.
- **Identify** the instruments used in nanotechnology.
- **Explain** properties and Characterizations of nanoparticles.
- **Demonstrate** the process of UV spectrophotometer, FTIR and SEM/TEM.
- **Discuss** about antimicrobial activities of chemical-nano and bio-nanoparticles

Recommended books:

1. C.P. Poole, Jr. Frank J. Owens, Introduction to Nanotechnology (Wiley India Pvt. Ltd.).
2. S.K. Kulkarni, Nanotechnology: Principles & Practices (Capital Publishing Company)
3. K.K. Chattopadhyay and A. N. Banerjee, Introduction to Nanoscience and Technology (PHI Learning Private Limited).
4. Introduction to Nanoelectronics, V.V. Mitin, V.A. Kochelap and M.A. Stroscio, 2011, Cambridge University Press.
5. Richard Booker, Earl Boysen, Nanotechnology (John Wiley and Sons).

Registrar
Swami Vivekanand
Subharti University
MEERUT

Ref. No. - KVSCOS/BT/2018/VAC-56

DEPARTMENT OF BIOTECHNOLOGY

Report on Value Added Course

A one week value added course on FUNDAMENTALS OF NANO TECHNOLOGY was conducted in the department for UG students. The course starts on 07-05-2018 and all the students registered themselves in the course. The sessions were handled by course coordinator Dr. Rana, for improving the skills of the students in Nano science and related technology.

The course was completed on 12-05-2018 and all the 50 students registered in the course completed the course. Students felt that the course was very much helpful and it has provided them with knowledge on creation and formulation of nano particles.



HOD

Department of Biotechnology



Registrar
Swami Vivekanand
Subharti University
MEERUT

List of Students

Sl. No	Name of the Students
1.	Aakhya Tyagi
2.	Amit Kumar
3.	Ankit Kumar
4.	Ankur
5.	Apurva Pandey
6.	Bindu Agarwal
7.	Charu Shridhar
8.	Fauzia Khan
9.	Karnika Rajmurti
10.	Km. Rasika
11.	Manjeet
12.	Nisha Chauhan
13.	Rahul Chaudhary
14.	Rinky Choudhary
15.	Shivani Tyagi
16.	Shreesh Sharma
17.	Tannu Chandra
18.	Vidushi Chaudhary
19.	Akash Verma
20.	Jahangir Khan
21.	Kanchan Pal
22.	Kirti Avinash
23.	Km. Minakshi Yadav
24.	Km. Preeti Saini
25.	Monika Tivari
26.	Mukarram
27.	Reetika Chaudhary
28.	Sanjana Chaudhary
29.	Shallu
30.	Shan Mohd
31.	Vanshika Tyagi
32.	Yashvi Chaudhary
33.	Akshay
34.	Annu
35.	Anushka
36.	Faisal Salmani
37.	Malsawmtluangi
38.	Rashmi
39.	Vivek Sagar
40.	Atul Kumar
41.	Deepa
42.	Keshav Tyagi
43.	Nidhi Yadav

44.	Pooja Sharma
45.	Simran Gulati
46.	Sorabh Kumar
47.	Teetu Chauhan
48.	Vansh Teotia
49.	Varsha Sharma
50.	Vijay Lukshmi



Registrar
Swami Vivekanand
Subharti University
MEERUT

Sample Certificate



Swami Vivekanand Subharti University, Meerut

CERTIFICATE OF COMPLETION

Organized by
Department of Biotechnology,
Keral Verma Subharti College of Science

*This is to certify that..... Fauzia Khan..... Class..... B.Sc Biotechnology
Department/College..... Biotechnology, KVSCOShas successfully
completed the Value Added Course entitled "Fundamentals of Nano Technology" during,
07.05.2018 to 12.05.2018.*

उत्तिष्ठतः जाग्रतः प्राप्य वरान्निबोधत

Rekha Dixit
Dr. Rekha Dixit
(HOD)

Sonal Rana
Ms. Sonali Rana
(Coordinator)

Registrar
Swami Vivekanand
Subharti University
MEERUT