

Nano Science and Nano Technology

Ref No - KVSCOS/BT/2020/VAC-60

08-01-2020

NOTICE

Subject: Value Added courses regarding

It is hereby informed to all UG and PG students that for enhancement of knowledge and skills, the department have introduced a value added courses Nano Science and Nano Technology.

Students are suggested to register themselves for participating in value added courses:

S. No.	Course	Course Code	Course duration
1	Nano Science and Nano Technology	VAC BT 107	13-01-2020 to 18-01-2020

The course is of 30 hrs and a certificate will be issued after the completion of the course.

Registration can be made two days before the start of the course.

For more information and registration, contact HoD.

Copy to:

1. The Dean ... for information
2. Notice Board ... for students information
3. Concern Course Coordinators


Registrar
Swam Vivekanand
Subharti University
MEERUT


(Dr. Amit Kumar)

HOD

Ref.No. -KVSCOS/BT/2020/VAC-61

DEPARTMENT OF BIOTECHNOLOGY
KERAL VERMA FACULTY OF SCIENCE

Session: 2019-20

Time Table

Name of Value Added Course: Nano Science and Nano Technology

Course Code: VAC BT 107

S. No.	Date	Time	Faculty
1	13.01.2020 to 18.01.2020	8:30 AM – 12:30 PM	Ms. Sonali Rana
		2:00 PM – 04:00 PM	Ms. Sonali Rana

Copy to:

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[Dr. Amit Kumar]

HOD Biotechnology

Name of Value Added Course: **Nano Science and Nano Technology**

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

Time: **30hrs**

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

Course Contents:

Unit I:

NANOSCALE SYSTEMS: Length scales in physics, Band structure and density of states of materials at nanoscale, Size Effects in nano systems, Quantum confinement: Applications of Schrodinger equation- Infinite potential well, potential step, potential box

Unit II:

SYNTHESIS OF NANOSTRUCTURE: Thermal evaporation, E-beam evaporation, Pulsed Laser deposition, Chemical vapor deposition (CVD), Sol-Gel, Electro deposition, Spray pyrolysis, Hydrothermal synthesis, Preparation through colloidal methods, MBE growth of quantum dots.

Unit III:

PROPERTIES: General formalization-absorption, emission and luminescence. Optical properties of heterostructures and nanostructures.

Unit IV:

APPLICATIONS: CNT based transistors, Nanomaterial Devices: Quantum dots heterostructure lasers, optical switching and optical data storage, Magnetic quantum well; magnetic dots -magnetic data storage, Micro Electromechanical Systems (MEMS), Nano Electromechanical Systems (NEMS).

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 (PHJ Learning Private Limited).
4. Introduction to Nanoelectronics, V.V. Mitin, V.A. Kochelap and M.A. Stroscio, 2011, Cambridge University Press. Richard Booker, Earl Boysen, Nanotechnology (John Wiley and Sons).



Department of Biotechnology
Keral Verma Subharti College of Science
SWAMI VIVEKANAND SUBHARTI UNIVERSITY

(Established under U.P. Govt. Act no. 29 of 2008 and approved under section 2(f) of UGC Act 1956)

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Ref. No. KVSCOS/BT/2020/VAC-62

Dated: 18-01-2020

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 50 students registered themselves in the course. The sessions were handled by course coordinator Ms. Sonali 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 successfully completed the course. Students felt that the course was very much helpful and they got the basic knowledge on creation and formulation of nano particles.

Amit Kumar

HOD

Department of Biotechnology


Registrar
Swami Vivekanand
Subharti University
MEERUT




Participants during VAC: Nano Science and Nano Technology

VAC
Nano Science and Nano Technology

List of Participants

Nano Science and Nano Technology	VAC BT 107	Aakhya Tyagi
		Ankit Kumar
		Apurva Pandey
		Bindu Agarwal
		Charu Shridhar
		Fauzia Khan
		Karnika Rajmurti
		Km. Rasika
		Manjeet
		Nisha Chauhan
		Rinky Choudhary
		Shivani Tyagi
		Shreesh Sharma
		Tannu Chandra
		Vidushi Chaudhary
		Mansi Sharma
		Shaharyab Ali
		Vidisha Gupta
		Akash Phillip
		Abhijeet Choudhary
		Anshul Jain
		Gaurav Baliyan
		Moh Munavvar
		Priyanka Dawer
		Adnan Ansari
Zuber Khan		
Namra Khan		
Sagar Purohit		
Monish Choudhary		
Alok Tyagi		


Registrar
Swami Vivekanand
Subharti University
MEERUT


[Dr. Amit Kumar]
HOD Biotechnology



Swami Vivekanand Subharti University, Meerut

CERTIFICATE OF COMPLETION

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

*This is to certify that..... Bindu Agarwal..... Class..... B.Sc Biotechnology
Department/College..... Biotechnology, KVSCOS..... has successfully completed the
Value Added Course entitled "Nano Science and Nano Technology" during, 13.01.2020 to
18.01.2020.*

उत्तिष्ठतः जाग्रतः प्राप्य वरान्निबोधत

Amit Kumar

Dr. Amit Kumar
(HOD)

Sonali

Ms. Sonali Rana
(Coordinator)

Registrar
Swami Vivekanand
Subharti University
MEERUT