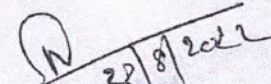


Hindustan College of Science & Technology, Farah, Mathura
Department of Physics

Date: 23 Aug. 2022

Notice

All the students of B. Tech. Biotechnology and Chemical Engineering (II Year) are hereby informed that the registration for value added course entitled "Fundamental Concepts and Advances in Nanotechnology (VAS2201)" will be started from 25th August 2022. They are required to register on and before 30th August 2022. **The regular classes for value added course will be started from 03 September 2022.**


23/8/2022
HOD, Physics


Director
Hindustan College of
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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY,
FARAH -MATHURA



DEPARTMENT OF PHYSICS

Value Added Course

Fundamental Concepts and advances in Nanotechnology (VAS2201)
3rd Sep '2022 – 12th Dec 2022 - Every Saturday: 2:20 PM – 4:50 PM

Students of Biotechnology and Chemical Engineering

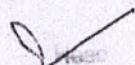
By

Prof. M.S. Gaur
Professor and Head
Dean R & D
Department of Physics
Hindustan College of Science & Technology
Farah, Mathura

Registration Dates
25th– 30th Aug. 2022

For Registration: Please contact
Dr. Vinod Kushwah (Asstt. Professor)
Room No.411

Prerequisites: Basics of science & technology


Department of Physics
Hindustan College of Science & Technology
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DEPARTMENT OF PHYSICS

Value Added Course

Fundamental Concepts and advances in Nanotechnology (VAS2201)

3rd Sep '2022 – 12th Dec 2022 - Every Saturday: 2:20 PM – 4:50 PM

Course Objectives

The main objectives of the value added course are as follows:

1. To attain world-class quality in learning (theory and practical) and research related to engineering sciences and technology
2. To provide comprehensive and interdisciplinary knowledge on analyses, design, and creation of novel and environmentally benign engineering solutions for short-term and long-term pertinent problems in the society
3. To give a comprehensive hands-on training in the theory and experiments related to processing, characterization, testing of advanced materials and engineering components.
4. To produce high quality and industrially relevant human resource for possible employment in industries, and academic and research organizations.

Course Syllabus

Units	Details	Course Out comes
1	apply the fundamentals of solid state physics and chemistry to nanoscience	CO ₁
2	correlate physical behavior of materials at the nanoscale with quantum mechanics	CO ₂
3	analyse the requirement of statistical mechanics for understanding the physical and chemical behavior of materials at the nanoscale	CO ₃
4	apply the knowledge to suggest different applications of nanoscience and technology.	CO ₄

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DEPARTMENT OF PHYSICS

Value Added Course

Fundamental Concepts and advances in Nanotechnology (VAS2201)

3rd Sep '2022 – 12th Dec 2022 - Every Saturday: 2:20 PM – 4:50 PM


Evaluation Criteria: 1. Evaluation of Practical /assignments, Group project, Viva/Quiz

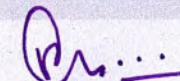
Course Outcomes

CO-PO Mappings

- CO₁ apply the fundamentals of solid state physics and chemistry to nanoscience.
- CO₂ correlate physical behavior of materials at the nanoscale with quantum mechanics
- CO₃ analyse the requirement of statistical mechanics for understanding the physical and chemical behavior of materials at the nanoscale
- CO₄ apply the knowledge gained to suggest different applications of nanoscience and technology.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO6	PO 7	PO 8	PO9	PO1 0	PO 11	PO 12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2	2	3	3	3	3	2	2	2	2	2	1	3	2	2	1
CO2	2	2	3	3	2	2	2	2	2	2	2	1	2	2	2	1
CO3	2	2	3	3	2	2	2	2	2	2	2	1	2	2	2	1
CO4	2	2	3	1	1	2	2	2	2	2	2	1	2	2	2	1


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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH - MATHURA
DEPARTMENT OF PHYSICS



Value Added Course

Fundamental Concepts and advances in Nanotechnology (VAS2201)
3rd Sep '2022 – 12th Dec 2022 - Every Saturday: 2:20 PM – 4:50 PM

Program Schedule

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	3-Sep	2:20 PM – 4:50 PM	2.5	Introduction to NanoScience & Technology	Dr. Vinod Kushwah
2	10-Sep	2:20 PM – 4:50 PM	2.5	Quantum Theory for Nano Science: Particle in a box, Potential step	Dr. Vinod Kushwah
3	17-Sep	2:20 PM – 4:50 PM	2.5	Energy bands and gaps of semiconductors	Dr. Vinod Kushwah
4	24-Sep	2:20 PM – 4:50 PM	2.5	Basics concept of Quantum Dots, Quantum wires and Quantum well, Demonstration in the Lab	Dr. Vinod Kushwah/ Dr. R.K. Tiwari
5	01-Oct	2:20 PM – 4:50 PM	2.5	Single electron Tunneling, Infrared detectors; Quantum dot laser superconductivity.	Dr. Vinod Kushwah
6	08-Oct	2:20 PM – 4:50 PM	2.5	Nano Particles: Metal nano clusters; Magic numbers;	Dr. Vinod Kushwah
7	15-Oct	2:20 PM – 4:50 PM	2.5	Inert gas clusters; Superfluid clusters; Molecular clusters.	Dr. Vinod Kushwah
8	22-Oct	2:20 PM – 4:50 PM	2.5	Litho and Nonlithographic techniques	Prof. M.S. Gaur
9	29-Oct	2:20 PM – 4:50 PM	2.5	Fabrication of nano materials -Top-Down approach (CVD) , Demonstration in the Lab	Prof. M.S. Gaur/ Dr. R.K. Tiwari and Dr. Vinod Kushwah
10	05-Nov	2:20 PM – 4:50 PM	2.5	Bottom-Up approach (Sol Gel) of nanomaterials	Prof. M.S. Gaur
11	12-Nov	2:20 PM – 4:50 PM	2.5	X-ray Diffraction Technique, Particle size determination, surface structure, Microscopy	Prof. M.S. Gaur
12	19-Nov	2:20 PM – 4:50 PM	2.5	Spectroscopy, Luminescence.	Prof. M.S. Gaur
13	26-Nov	2:20 PM – 4:50 PM	2.5	Bucky Ball and Carbon Nano- Tubes; Nano structures of carbon (fullerene), Fabrication, Structure. Electrical, Mechanical and Vibrational properties and applications	Prof. M.S. Gaur
14	3-Dec	2:20 PM – 4:50 PM	2.5	Nano-Biometrics, Nano Robots, Demonstration in the Lab	Prof. M.S. Gaur/ Dr. R.K. Tiwari and Dr. Vinod Kushwah
Total Number of Hours covered			35hrs		

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DEPARTMENT OF BIOTECHNOLOGY ENGINEERING, HCST, MATHURA
CLASS TIME TABLE wef: 07/11/2022

SESSION: 2022-23		Room No. : 303				Class Teacher & Counsellor : Dr. Ajay Kumar Sharma			
YEAR/SEM: 2nd Yr/ III Sem									
Time / Day	I 09:40 - 10:30	II 10:30 - 11:20	III 11:20 - 12:10	IV 12:10 - 01:00	V 01:00 - 01:30	VI 01:30 - 02:20	VII 02:20 - 03:10	VIII 03:10 - 04:00	IX 4:00 - 4:50
MONDAY	BC (KBT 303) APC		BC Lab.		LUNCH/BREAK.	TBT (KBT 301) SS	TC (KAS 301) KD	CSS (KNC 301) DS	ESE (KOE 033) RKT
TUESDAY	CSS (KNC 301) DS	PDP PDP Trainers		MI (KBT 302) AKS		TBT-T (KBT 301) SS	TBT Lab (KBT 351) SS		
WEDNESDAY	MI (KBT 302) AKS	TBT (KBT 301) SS	BC (KBT 303) APC	ESE (KOE 033) RKT		PDP PDP Trainers		MI (KBT 302) AKS	TC (KAS 301) T KD
THURSDAY	BC (KBT 303) APC	ESE (KOE 033) RKT	TC (KAS 301) KD	TBT (KBT 301) SS		BC (KBT 303) APC		MI Lab. AKS	
FRIDAY	ESE (KOE 033) RKT	TC (KAS 301) KD	MI (KBT 302) AKS	MI-T (KBT 302) AKS		TBT (KBT 301) SS	MP/I (KBT 354) AKS	CSS (KNC 301) DS	
SATURDAY	VALUE ADDED COURSE-"Mushroom Cultivation Technology" (VBT-2206) APC					Value Added Course-"Fundamental Concepts and Advances in Nanotechnology" (VAS-2201)			

Subject S.No.	Subject code	Name of Subject	Abrv. Used	Name of the Faculty Member	Faculty code	Faculty mob. No
1	KOE 033	Energy Sciences & Engineering	ESE	Dr. R.K. Tiwari	RKT	
2	KAS 301	Technical Communication	TC	Dr. Keshav Dev	KD	9568006051
3	KBT 301	Techniques in Biotechnology	TBT	Mr. Shivi Sharma	SS	941258688
4	KBT 302	Microbiology & Immunology	MI	Dr. Ajay Kumar Sharma	AKS	9410224170
5	KBT 303	Biochemistry	BC	Dr. Arun Prasad Chopra	APC	9412104179
6	KNC 301	Computer System Security	CSS	Mr. Diwakar Shrivastav	DS	9568006057
7	KBT 351	Personality Development Program	PDP			8949835892
8	KBT 352	Techniques in Biotechnology Lab	TBT-lab	Mr. Shivi Sharma	SS	9410224170
9	KBT 353	Microbiology & Immunology Lab	MI-lab	Dr. Ajay Kumar Sharma	AKS	9412104179
10	KBT 354	Biochemistry Lab	BC-lab	Dr. Arun Prasad Chopra	APC	9568006057
11	KBT 354	Mini Project or Internship Assessment	MP/I	Dr. Ajay Kumar Sharma	AKS	9412104179
12	VBT-2206	Value Added Course-"Mushroom Cultivation Technology"	SKILL DEVELOPMENT	Dr. Arun Prasad Chopra	APC	9568006057
13	VAS-2201	Value Added Course-"Fundamental Concepts and Advances in Nanotechnology"	SKILL DEVELOPMENT	Dr. M. S. Gaur/DR. VINOD KASHYAP	MSG/VK	7060885544
TIME TABLE INCHARGE		Ms. Shivi Sharma, Mob. 9410224170, E-mail shivi.sharma.hcst@ngel.org			H.O.D.	Dr. Ajay Kumar Sharma, Mob. 9412104179

Director
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Head
Dept. of Bio Technology
Hindustan College of Science & Technology
Farah, Mathura

Director
Hindustan College of
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FARAH (MATHURA)

Template : Value Added Course Registration Form

Hindustan College of Science & Technology					
Department of Physics					
Value Added Course - Registration Form					
Course Name: Fundamental Concepts and advances in Nanotechnology (VAS2201)					
Session 2022-23			From August, 2022 to December, 2022		
Sr. No.	Roll No.	Name	Department	Semester	Signature of Student
1	2100640540003	Aditi Garg	Biotechnology	III	Aditi
2	2100640540004	Anisha Agarwal	Biotechnology	III	Anisha
3	2100640540005	Anushka Pathak	Biotechnology	III	Anushka
4	2100640540006	Ashi Jain	Biotechnology	III	Ashi
5	2100640540008	Gungun Verma	Biotechnology	III	Gungun
6	2100640540010	Kajal Sharma	Biotechnology	III	Kajal
7	2100640540011	Kiran Rawat	Biotechnology	III	Kiran
8	2100640540012	Krishika Gautam	Biotechnology	III	Krishika
9	2100640540014	Mahima Bhandari	Biotechnology	III	Mahima
10	2100640540018	Shaurya Jain	Biotechnology	III	Shaurya
11	2100640540021	Tanisha Singh	Biotechnology	III	Tanisha
12	2100640510007	Vishal Kuntal	Chemical Engineering	III	Vishal
13	2100640510004	Krishna Sarswat	Chemical Engineering	III	Krishna
14	2200640519001	Manish	Chemical Engineering	III	Manish

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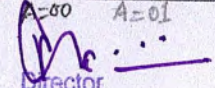
Template : Value Added Course

HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH - MATHURA
 Department of Physics
 Value Added Course - Registration Form
 Fundamental Concepts and advances in Nanotechnology (VAS2201)
 Session - 2022 - 2023
 Session wise Attendance Sheet

Sr. No.	Roll No.	Name	Signature of the Student by Session 2022-23 (Year 2022)														Sign.
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	
			3 Sept	10 Sept	17 Sept	24 Sept	01 Oct	08 Oct	15 Oct	22 Oct	29 Oct	5 Nov	12 Nov	19 Nov	26 Nov	03 Dec	
1	2100640540003	Aditi Garg	P	P	P	P	P	P	P	P	P	P	P	P	P	P	Aditi
2	2100640540004	Anisha Agarwal	P	P	P	P	P	P	P	P	P	P	P	P	P	P	Anisha
3	2100640540005	Anushka Pathak	P	(A)	P	P	P	P	P	P	P	P	P	(A)	P	P	Anushka
4	2100640540006	Ashi Jain	P	P	P	P	P	P	P	P	P	P	P	P	P	P	Ashi
5	2100640540008	Gungun Verma	P	P	P	P	P	P	P	P	P	P	P	P	P	P	Gungun
6	2100640540010	Kajal Sharma	P	P	P	P	(A)	P	P	P	P	P	(A)	P	P	P	Kajal
7	2100640540011	Kiran Rawat	P	P	P	P	P	P	P	P	P	P	P	P	P	P	Kiran
8	2100640540012	Krishika Gautam	(A)	P	P	P	P	P	P	P	P	P	P	P	P	P	Krishika
9	2100640540014	Mahima Bhandari	P	P	P	P	P	P	P	P	P	P	P	P	P	P	Mahima
10	2100640540018	Shaurya Jain	P	P	P	P	P	P	P	P	P	P	P	P	P	P	Shaurya
11	2100640540021	Tanisha Singh	P	P	P	P	P	P	P	P	P	P	P	P	P	P	Tanisha
12	2100640510007	Vishal Kuntal	P	(A)	P	P	P	P	P	P	P	P	P	P	P	(A)	Vishal
13	2100640510004	Krishna sarswat	P	P	P	P	P	P	P	P	P	P	P	P	P	P	Krishna
14	2200640519001	Manish	P	P	P	P	P	P	P	(A)	P	P	P	P	P	P	Manish

Total Reg.	14	R=14	R=14	R=14	R=14	R=14	R=14	R=14	R=14	R=14	R=14	R=14	R=14	R=14	R=14	R=14	R=14
Total Pr.	13	P=12	P=14	P=14	P=14	P=14	P=14	P=14	P=14	P=14	P=14	P=14	P=14	P=13	P=13	P=14	P=14
Total Ab.	(01)	A=02	A=00	A=00	A=01	A=00	A=00	A=00	A=01	A=00	A=00	A=01	A=01	A=01	A=00	A=01	A=01

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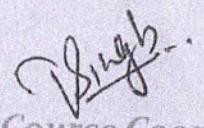
Certificate of Completion Value added Course

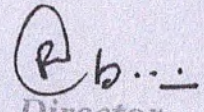
*Department of Physics
Academic Session 2022-23*

This is to certify that Mr/Ms ADITI GARG (Roll No. 2100640540003) Department of Physics has successfully completed 35 hours of Value Added Course "Fundamental Concepts and advances in Nanotechnology (VAS2201)"


Head of Department

Department of Physics
Hindustan College of Science & Technology
Farah, Mathura


Course Coordinator


Director


Director
Hindustan College of
Science & Technology
FARAH (MATHURA)



HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY,
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Certificate of Completion Value added Course

*Department of Physics
Academic Session 2022-23*

This is to certify that Mr/Ms ANISHA AGARWAL(Roll No. 2100640540004) Department of Physics has successfully completed 35 hours of Value Added Course "Fundamental Concepts and advances in Nanotechnology (VAS2201)"

Head of Department

Course Coordinator

Director

*Department of Physics
Hindustan College of Science & Technology
Farah Mathura*

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