

**Dr.V.S.Krishna Govt.Degree College (A) –Visakhapatnam**

**DEPARTMENT OF CHEMISTRY**

**FUNDAMENTALS OF NANOTECHNOLOGY**

Duration : 30h

Learning Objectives:

After the studying the course, the student will be able to understand

1. The nanotechnology of ancient times
2. Synthetic methods of nanomaterials
3. Characterization of nanomaterials
4. Types of nanomaterials
5. Green nanotechnology
6. Green nanotechnology

**Module \_I**

**10h**

Introduction of Nanotechnology - Nanotechnology of ancient times - Classification of nanomaterials - Synthetic methods of nanomaterials-Top down methods Synthetic methods of nanomaterials-Bottom up methods -Synthetic methods of nanomaterials-Biological methods - Characterization of nanoparticles-UV-Visible spectroscopy, FTIR -EDX, SEM,TEM analysis - Physical properties of nanomaterials - Catalytic properties of nanomaterials - Antimicrobial studies of nanomaterials - Cytotoxicity of nanomaterials - nanocomposites

**Module –II**

**10h**

Metal oxide nanoparticles – Graphene- Nanoparticles in water treatment -nanobiotechnology Nanoparticles in electronic devices - Carbon Nanotubes- Dendrimers (Organic nanoparticles) Quantum Dots - Nanotechnology in Drug delivery – Therapeutic applications Nanotechnology in Textiles -Lithography and Nanofabrication - Nanobots- Biological Applications - Green nanotechnology - Nanoglasses -Nano ceramics- nanopolymers Nanomedicine - Nanotoxicology challenges

**Practicals:**

**10h**

1. Green synthesis of silver nanoparticles
2. Green synthesis of CuO nanoparticles

**Dr. V. S. KRISHNA GOVT. DEGREE COLLEGE (A), VISAKHAPATNAM**

**DEPARTMENT OF CHEMISTRY**  
**Certificate Course (Water Quality Assessment) –**

**Blue Print**

<b>Module</b>	<b>No.of Short Answer Questions (each question carries 5M)</b>	<b>WEIGHTAGE (Marks)</b>	<b>No.of Essay type Questions (Each question carries 10M)</b>	<b>WEIGHTAGE (Marks)</b>	<b>Total Weightage (Marks)</b>
I	3	10	2	10	20
II	3	10	2	10	20

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**max marks: 30**

**Time; 1h**

**Part –A**

Answer any FOUR of the following questions. Each question carries 5 marks. **4x5=20**

1. Define nanotechnology.
2. Explain chemical vapour deposition
3. What is the sol-gel method?
4. Write about green nanotechnology.
5. Explain nanocatalysis.
6. Write about SEM analysis.
- 7.

**PART-B**

Answer the following questions. Each question carries 10 marks. **2x10=20**

1. Explain any two characterization techniques of nanoparticles.  
(or)  
Write about applications of nanotechnology in medicine
2. Describe top down methods for nanosynthesis.  
(or)  
Explain classification of nanomaterials.



S.NO	ID.No	Name of the Student	1/3	21/3	22/3	24/3	25/3	26/3	28/3	29/3	30/3	31/3	1/4	4/4	5/4	6/4	7/4
17)	19201077	RENUKA .P III MRC TM	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
18)	19201078	ROHITH .D	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
19)	19201084	SHYAM KUMAR .T	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
20)	19201085	SIVA .N	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
21)	19201086	SREENIVASA RAO .V	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P
22)	19201087	SRINIVAS .CH	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
23)	19201092	UDAY .D	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P
24)	19201094	VARA PRASAD .K	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

Chesamma

course coordinator

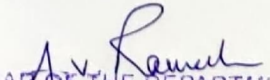
DEPT. OF CHEMISTRY  
 Dr. V. S. KRISHNA GOVT. DEGREE COLL  
 VISAKHAPATNAM-13

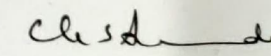
*A. V. Ramani*

HEAD OF THE DEPARTMENT  
 Department of Chemistry  
 Dr. V.S. Krishna Degree College  
 Visakhapatnam-530013

# AWARD LIST OF CERTIFICATE COURSE - FUNDAMENTALS OF NANOTECHNOLOGY

S.NO	ID.NO	Name of the Student	Marks Obtained		Total (40)	S.NO	ID.NO	Name of the Student	Marks Obtained		Total (40)
			Examina-tion (30)	Viva-Voce (10)					Examina-tion (30)	Viva-Voce (10)	
1)	19201050	AYYAPPA.P	27	08	35	15)	19201074	RAJU.D	28	08	36
2)	19201052	BHASKAR RAO.N	28	09	37	16)	19201075	RAMAPPALA NAIDU.K	30	09	39
3)	19201053	BHASKAR RAO.P	28	09	37	17)	19201077	RENUKA.P	28	09	37
4)	19201054	BHUVJENDRA.V	26	08	34	18)	19201078	ROHITH.D	27	08	35
5)	19201061	KISHOR KUMAR.P	26	08	34	19)	19201084	SHYAM KUMAR.T	30	10	40
6)	19201063	LAKSHMANA.A	27	08	35	20)	19201085	SIVA.N	27	08	35
7)	19201064	LAVANYA.K	27	09	36	21)	19201086	SREENIVASA RAO.V	28	09	37
8)	19201065	LOVA PRASAD.V	27	08	35	22)	19201087	SRINIVAS.CH	27	08	35
9)	19201066	MAHESH.D	26	08	34	23)	19201092	UDAY.D	27	08	35
10)	19201067	AMJAD.SK	28	09	37	24)	19201094	VARA PRASAD.K	29	10	39
11)	19201068	MURALI.G	25	08	33						
12)	19201070	NARASIMHA MURTHY.M	26	08	34						
13)	19201072	RAGHU.S	25	08	33						
14)	19201073	RAJESWARI.P	29	09	38						

  
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 Department of Chemistry  
 Dr. V.S. Krishna Degree College (A)  
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 VISAKHAPATNAM-13



**Dr.V.S.KRISHNA GOVT. DEGREE COLLEGE**

(An Autonomous Institution Affiliated to Andhra University)

Reaccredited by NAAC with 'A' Grade(3rd Cycle)

District Resource Centre & Center for Research Studies  
Maddilapalem, VISAKHAPATNAM 530 013, Andhra Pradesh



## DEPARTMENT OF CHEMISTRY

### Certificate course on

# Fundamentals of Nanotechnology

#### Course outcomes

- \* Synthesis of nanoparticles
- \* Properties of nanomaterials
- \* Applications of Nanotechnology
  - \* Green nanotechnology

Duration : 30 hours. Date : 02-02-22

Eligibility: BSc with Chemistry

Course Coordinator

Ch.S.Anuradha

Head of the Dept

Dr.A.V.Ramesh

Principal

Dr.I.Vijaya Babu