



Indra Ganesan

COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
Accredited by NAAC with 'B+' Grade, 2(f) & 12B Status Institution by UGC

IG Valley, Madurai Main Road, Manikandam, Tiruchirappalli - 620012

NAAC DOCUMENTS

QUALITY INDICATOR FRAME WORK

CRITERION – 1

CURRICULAR ASPECTS

SUBMITTED BY

IQAC

INTERNAL QUALITY ASSURANCE CELL

INDRA GANESAN COLLEGE OF ENGINEERING





DEPARTMENT OF SCIENCE AND HUMANITIES

ACADEMIC YEAR 2019-2020 / EVEN SEMESTER

1.2 Academic Flexibility (30)

1.2.1 Number of Certificate/Value added courses offered and online courses of MOOCs, SWAYAM, NPTEL etc. (where the students of the institution have enrolled and successfully completed during the last five years)

AND

1.2.2 Percentage of students enrolled in Certificate/ Value added courses and also completed online courses of MOOCs, SWAYAM, NPTEL etc. as against the total number of students during the last five years

VAC Title:	RECENT DEVELOPMENT IN NANOTECHNOLOGY				
Resource Person:	Mr,Vivek Managing Director, Azatech, Pvt, Chennai.		Mr A. Saravanan Team Leader, Izone, Chennai.		
Date of conduct from:	11.05.2020	To:	15.05.2020	Duration:	30 Hours
Organized Department:	SCIENCE AND HUMANITIES				
Participant Year:	I Year	Semester:	EVEN	No. of Students Registered:	78
Venue:	AUDITORIUM				

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Madurai Main Road (NH-45B), Manikandam, Trichy-12.
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Department of Science and Humanities

Academic Year 2019-2020 –Even Semester

08.05.2020

DEPARTMENT CIRCULAR

Department of Science and Humanities in association with Azatech Pvt is going to organize Value Added Course for all first year students on “Recent development in Nanotechnology” from 11.05.2020 to 15.05.2020. Certificates will be issued to the eligible participants at the end of the Course. This training is to be provided in our campus.

Resource Person Detail	<ol style="list-style-type: none">1. Mr,Vivek Managing Director Azatech, Pvt Chennai2. Mr A. Saravanan Team Leader Izone, Chennai
Venue	Auditorium, IGCE

S. Boobalan
HOD/S&H

[Signature]
PRINCIPAL

Cc:

- Principal office
- HoD/ S&H
- Class In charges - I-Year
- I-Year S&H Students
- Office File
- NoticeBoard

[Signature]
Dr. G. Balakrishnan, M.E., Ph.D.,
Principal
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IG Valley, Madurai Main Road
Manikandam, Trichy-620 012.



Value Added Course

"Recent development in nanotechnology"

SYLLABUS

S.NO	TOPIC COVERED	DURATION (in hours)	DATE
1	Introduction to Nanoscience and Nanotechnology	3	11.05.2020
2	Synthesis and Characterization of Nanomaterials	3	11.05.2020
3	Synthesis of different types of nanocomposites	3	12.05.2020
4	Instrumentation techniques for characterization of nanomaterials	3	12.05.2020
5	Nanotechnology to diverse science	3	13.05.2020
6	Applications in Displays and other Devices, Building Materials	3	13.05.2020
7	Nanotechnology for Sustainable Energy, Solar energy, batteries	3	14.05.2020
8	Nano carbon Technology and Applications,	3	14.05.2020
9	Carbon nanotube	3	15.05.2020
10	Wastewater Treatment	3	15.05.2020
11	Exam	1	15.05.2020
Total Hours (Excluding Exam)		30	-


VAC Coordinator


Dr. G. Balakrishnan, M.E., Ph.D.,
Principal




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HoD/S&H



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Report on Value Added Course			
Title:	"Recent development in nanotechnology"		
Resource Person:	Mr, Vivek Managing Director Azatech, Pvt Chennai	Mr A. Saravanan Team Leader Izone, Chennai	
Date of conduct from :	11.05.2020	To: 22.05.2020	Duration: 30 Hours
Organized Department:	SCIENCE AND HUMANITIES		
Participant Year:	1	No. of Students Registered :	78
Venue:	AUDITORIUM		
Outcome of Value Added Course (VAC): At the end of the Course, Students can able to			
1. Understand the basics of nano Science and Technology			
2. Priliminary methods of different type of nan composites fabrication.			
3. Understand about different instrumentation techniques like AFM,SEM, TEM for nanomaterial characterization.			
4. Understand information about applications of nano composites in medicine, industry etc.			
5. Provide an oppportunity to develop inter-disciplinary skills for interdisciplinary research.			
Assessment Process			
• Students, who are securing more than 70% on total score and secured more than 75% in attendance is eligible to receive the certificate for the VAC course conducted			
• Total Score = $(0.5 * \text{Attendance in VAC out of 100 percentage} + 0.5 * \text{Test mark in VAC out of 100 marks})$			
 VAC Coordinator	 HoD/S&H	 Principal	


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Value Added Course

STUDENTS PARTICIPATION LIST

"Recent development in nanotechnology"

S.NO	Register Number	Name	I/Year
1	811219104001	ARUN R	I/CSE
2	811219104002	BALAMANIKANDAPRABHU B R	I/CSE
3	811219104003	BHARATHI S	I/CSE
4	811219104004	GOWTHAM C	I/CSE
5	811219104005	INDHUMATHI S	I/CSE
6	811219104006	ISHWARYA P	I/CSE
7	811219104007	KALAIYARASAN V	I/CSE
8	811219104008	KEERTHIKA K	I/CSE
9	811219104009	KEERTHIKA V	I/CSE
10	811219104010	KRISHI GOWTHAM R	I/CSE
11	811219104011	LOGADIPA S P	I/CSE
12	811219104012	MOHAMED NOWSATH M	I/CSE
13	811219104013	MOORTHI C	I/CSE
14	811219104014	NANCY N	I/CSE
15	811219104015	NESAKUMAR R	I/CSE
16	811219104016	PRAVEEN K	I/CSE
17	811219104017	RANJANA S	I/CSE
18	811219104018	RAVINYA K	I/CSE
19	811219104019	SAKTHIVEL M	I/CSE
20	811219104020	SARANYA P	I/CSE
21	811219104021	SUVALAKSHMI P	I/CSE
22	811219104022	SWEATHA B	I/CSE
23	811219104023	VIGNESHWARAN V	I/CSE
24	811219104024	VIJAYALAKSHMI B	I/CSE
25	811219104025	VINCY SHARMILA V K	I/CSE
26	811219104026	YATHESH M	I/CSE
27	811219105001	ARULRAJ A	I/EEE
28	811219105002	BARATH M	I/EEE
29	811219105003	MANIKANDAN A	I/EEE
30	811219105004	MANIKANDAN K	I/EEE

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31	811219105005	PONNALAGU C	I/EEE
32	811219105006	SALAMON A	I/EEE
33	811219105007	SARAVANAKUMAR M	I/EEE
34	811219106001	DAYANA P	I/ECE
35	811219106002	DEVIKA K	I/ECE
36	811219106003	DINESH J	I/ECE
37	811219106004	MOHANA SUNDARAM K	I/ECE
38	811219106005	RAVIKUMAR B	I/ECE
39	811219106006	SANTHANARAJ A	I/ECE
40	811219106007	SHYAM C R	I/ECE
41	811219106008	SRIKANTH M	I/ECE
42	811219106009	SURENDRAN S	I/ECE
43	811219106010	SURYA V	I/ECE
44	811219106011	SWETHA K	I/ECE
45	811219103002	VIGNESH R	I/CIVIL
46	811219114001	AATHILINGAM V	I/MECH
47	811219114002	ABIMANYU C	I/MECH
48	811219114003	AJAY S	I/MECH
49	811219114004	CHRISTY LOURTHU SAMY A	I/MECH
50	811219114005	HARIKRISHNA	I/MECH
51	811219114006	PERIYASAMY P	I/MECH
52	811219114007	RENGANATHAN T	I/MECH
53	811219114008	SARAVANAKUMAR V	I/MECH
54	811219114009	SENTHIL KUMAR M	I/MECH
55	811219114010	SIRIYAC SELVA A	I/MECH
56	811219114011	SURIYAGANESH M	I/MECH
57	811219114012	VAITHIYALINGAM M	I/MECH
58	811219114013	VIKASH R	I/MECH
59	811219205001	AKASH V	I/IT
60	811219205002	AKILANDESWARI J	I/IT
61	811219205003	ARAVINDHAN R	I/IT
62	811219205004	CHITHRA BHARATHY M	I/IT
63	811219205005	JEEVITHA M	I/IT
64	811219205006	KAVIYA K	I/IT
65	811219205007	KEERTHIKROSHAN P	I/IT
66	811219205008	LIBIA POJATHSIYU C	I/IT
67	811219205009	MAGESHWARAN M	I/IT
68	811219205011	RANJITH M	I/IT
69	811219205012	RANJITHKUMAR A	I/IT

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70	811219205013	SHAREEN BANU M R	I/IT
71	811219205014	SHOBANA K	I/IT
72	811219205015	SIVARANJANI P	I/IT
73	811219205016	SOWMIYA P	I/IT
74	811219205017	SURYA A	I/IT
75	811219205018	SWETHA S	I/IT
76	811219205019	TAMIL SELVI T	I/IT
77	811219205020	VIJAYAKUMAR M	I/IT
78	811219205021	VISALINI P	I/IT


VAC Coordinator


HoD/S&H


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Name of the Student:

Year/Sem:

AU Register Number:

Value Added Course

“Recent development in nanotechnology”

MULTIPLE CHOICE QUESTIONS (25 X 4 = 100 Marks)

1. Nanomaterial's are the materials with at least one dimension measuring less than _____

- a) 1 nm
- b) 10 nm
- c) 100 nm
- d) 1000 nm

2. A material with one dimension in Nano range and the other two dimensions are large is called _____

- a) Micro-material
- b) Quantum wire
- c) Quantum well
- d) Quantum dot

3. The colour of the nano gold particles is _____

- a) Yellow
- b) Orange
- c) Red
- d) Variable

4. The melting point of particles in nano form _____

- a) Increases
- b) Decreases
- c) Remains same
- d) Increases then decreases

5. The first talk about nano-technology was given by _____

- a) Albert Einstein
- b) Newton
- c) Gordon E. Moore
- d) Richard Feynman

6. Which of the processes of materials was not described as Nanotechnology?

- a) Separation
- b) Creation
- c) Processing
- d) Consolidation

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7. The initial tools used to help launch the nanoscience revolution were _____

- a) Binoculars
- b) Microscope
- c) Scanning probe instruments
- d) Interferometer

8. The size of atoms is nearly _____

- a) 0.01 nm
- b) 0.1 nm
- c) 1 nm
- d) 10 nm

9. Which property of nanomaterials make them suitable to be used for elimination of pollutants?

- a) High purity
- b) Better thermal conductivity
- c) Enhanced chemical activity
- d) Small size

10. Nano crystalline materials synthesised by sol-gel technique results in a foam like structures called _____

- a) Gel
- b) Aerosol
- c) Foam
- d) Aerogel

11. Which nanomaterial is used for cutting tools?

- a) Fullerene
- b) Aerogel
- c) Tungsten Carbide
- d) Gold

12. A Carbon monoxide sensor made of zirconia uses which characteristic to detect any change?

- a) Capacitance
- b) Resistivity
- c) Activity
- d) Permeability

13. Which components of an automobile are envisioned to be coated with zirconia?

- a) Spark plugs
- b) Liners
- c) Tyres
- d) Brakes

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14. The main purpose of CNTs in fuel cells is _____
- Production of energy
 - Active medium
 - Catalyst
 - Storage
15. Zirconia is a hard, brittle _____
- Metal
 - Non-metal
 - Composite
 - Ceramics
16. Nanoscale aluminium oxide increases the _____
- Conductivity
 - Resistance
 - Ductility
 - Stability
17. Quantum dots can be used in _____
- Crystallography
 - Optoelectronics
 - Mechanics
 - Quantum physics
18. Who is generally credited with the first serious scientific claim that manufacturing on the molecular or even the atomic scale was possible? The claim was made at California Technical Institute and was called, "There's Plenty of Room at the Bottom".
- Richard P. Feynman
 - Ed Regis
 - K. Eric Drexler
 - Ralph Merkle
19. In 1986, Dr. K. Eric Drexler published a book for the layman that gave a wide overview of the potential applications of molecular nanotechnology in such areas as computing, medicine, space science, and the military. What was the name of this ground-breaking book?
- Smaller is Better
 - Engines of Creation
 - A Crowded Blueprint
 - The Atomic Cookbook
20. A particular molecule of carbon made up of sixty carbon atoms has received some press as a structure that shows promise as a basic building block in the area of molecular manufacturing. What is the whimsical nontechnical name for these molecules?
- Fullerods
 - Nanonodes
 - Buckyballs


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d) Nanocubes

21. What is the general name for the class of structures made of rolled up carbon lattices?

- a) Nanorods
- b) Nanotubes
- c) Nanosheets
- d) Fullerrods

22. Nano, as a prefix, denotes what order of magnitude?

- a) 10^{-6}
- b) 10^{-3}
- c) 10^{-12}
- d) 10^{-9}

23. What is the term used in the field of nanotechnology to describe an as-yet theoretical device that "will be able to bond atoms together in virtually any stable pattern?"


- a) Stacker
- b) Replicator
- c) Assembler
- d) Constructor

24. In discussions of the potential of molecular nanotechnology, the possibility has been posited that badly or maliciously designed self-assembling structures could get out of control, and destroy or disassemble all structures they encounter in their blind quest to replicate. What is the term for such a structure or group of structures?

- a) Blue goo
- b) Green Goo
- c) Red goo
- d) Gray goo

25. Scientists discussing the potential of molecular nanotechnology realized the possibility that self-assembling molecular constructs could conceivably get out of control and destroy just about anything. This led to the concept that other constructs could be designed to neutralize and/or destroy the rogue substances before they got out of hand. By what colorful term are these theoretical "antibody" substances collectively known?

- a) Gray goo
- b) Green goo
- c) Red goo
- d) Blue goo


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Value Added Course

“Recent development in Nanotechnology”

ANSWER KEY

1	c	6	b	11	c	16	b	21	B
2	c	7	c	12	c	17	b	22	D
3	d	8	b	13	d	18	a	23	C
4	b	9	c	14	d	19	b	24	D
5	d	10	d	15	d	20	c	25	D


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Department of Science and Humanities



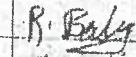
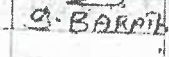

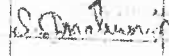
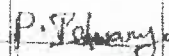
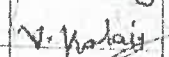
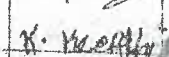
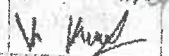
Academic Year 2019-2020 --Even Semester

STUDENTS ATTENDANCE LIST

Value Added Course

"Recent development in nanotechnology"


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S.NO	REGISTER NUMBER	NAME	YEAR/ BRANCH	11.05.2020		12.05.2020		13.05.2020		14.05.2020		15.05.2020		NO OF SESSIONS ATTENDED	SIGNATURE OF STUDENT
				FN	AN	FN	AN	FN	AN	FN	AN	FN	AN		
1	811219104001	ARUN R	I/CSE	✓	✓	a	a	✓	✓	a	a	✓	✓	28	
2	811219104002	BALAMANI KANDA PRABHU B R	I/CSE	✓	✓	✓	✓	✓	✓	a	✓	✓	✓	28	
3	811219104003	BHARATHI S	I/CSE	✓	✓	✓	✓	✓	✓	a	✓	✓	✓	29	
4	811219104004	GOWTHAM C	I/CSE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	30	
5	811219104005	INDHUMATHI S	I/CSE	✓	✓	✓	a	✓	a	a	✓	✓	✓	27	
6	811219104006	ISHWARYA P	I/CSE	✓	✓	✓	✓	a	a	a	a	✓	✓	26	
7	811219104007	KALAIYARASAN V	I/CSE	✓	a	✓	✓	✓	a	a	a	✓	✓	26	
8	811219104008	KEERTHIKA K	I/CSE	a	a	✓	✓	✓	✓	✓	✓	✓	✓	28	
9	811219104009	KEERTHIKA V	I/CSE	✓	a	✓	✓	✓	✓	a	a	✓	✓	27	
				✓	✓	✓	✓	a	✓	a	✓	✓	✓	28	



26	811219104026	YATHESH M	I/CSE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	30	M. Yathesh
27	811219105001	ARULRAJ A	I/EEE	✓	✓	a	a	a	a	✓	✓	✓	✓	26	A. Arulraj
28	811219105002	BARATH M	I/EEE	a	a	a	a	✓	✓	✓	✓	✓	✓	26	M. Barath
29	811219105003	MANIKANDAN A	I/EEE	✓	✓	a	✓	✓	✓	✓	✓	✓	✓	28	A. Manikandan
30	811219105004	MANIKANDAN K	I/EEE	✓	✓	a	a	✓	✓	a	a	✓	✓	28	K. Manikandan
31	811219105005	PONNALAGU C	I/EEE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	26	C. Ponnalagu
32	811219105006	SALAMON A	I/EEE	✓	✓	✓	✓	✓	a	a	a	✓	✓	27	A. Salomon
33	811219105007	SARAVANAKUMAR M	I/EEE	✓	✓	✓	✓	✓	✓	a	a	✓	✓	28	M. Saravanan Kumar
34	811219106001	DAYANA P	I/EEE	✓	✓	✓	✓	✓	✓	a	a	✓	✓	26	P. Dayana
35	811219106002	DEVIKA K	I/ECE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	30	K. Devika
36	811219106003	DINESH J	I/ECE	✓	a	✓	✓	✓	✓	a	a	✓	✓	27	J. Dinesh
37	811219106004	MOHANA SUNDARAM K.	I/ECE	✓	✓	✓	✓	✓	✓	a	a	✓	✓	28	K. Mohana Sundaram
38	811219106005	RAVIKUMAR B	I/ECE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	29	B. Ravi Kumar
39	811219106006	SANTHANARAJ A	I/ECE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	30	A. Santharaj
40	811219106007	SHYAM C R	I/ECE	✓	✓	✓	✓	✓	✓	a	a	✓	✓	27	C.R. Shyam
41	811219106008	SRIKANTH M	I/ECE	✓	✓	✓	✓	✓	✓	✓	a	✓	✓	26	M. Srikanth
42	811219106009	SURENDRAN S	I/ECE	✓	✓	✓	✓	✓	✓	✓	a	✓	✓	26	S. Surendran

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43	811219106010	SURYA V	I/ ECE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	28	V. Surya
44	811219106011	SWETHA K	I/ ECE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	26	K. Swetha
45	811219103002	VIGNESH R	I/ CIVIL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	28	R. Vignesh
46	811219114001	AATHILINGAM V	I/ MECH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	26	R. Vignesh
47	811219114002	ABIMANYU C	I/ MECH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	26	C. Abimanyu
48	811219114003	AJAY S	I/ MECH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	27	S. Ajay
49	811219114004	CHRISTY LOURTHU SAMY A	I/ MECH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	28	A. Christy Lourthu
50	811219114005	HARIKRISHNA	I/ MECH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	29	A. Harikrishna
51	811219114006	PERIYASAMY P	I/ MECH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	30	P. Periyasamy
52	811219114007	RENGANATHAN T	I/ MECH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	27	T. Ranganathan
53	811219114008	SARAVANAKUMAR V	I/ MECH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	26	V. Saravanakumar
54	811219114009	SENTHIL KUMAR M	I/ MECH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	26	M. Senthil Kumar
55	811219114010	SIRIYAC SELVA A	I/ MECH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	28	A. Sriyac Selva
56	811219114011	SURIYAGANESH M	I/ MECH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	26	M. Suriyaganesh
57	811219114012	VAITHIYALINGAM M	I/ MECH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	28	M. Vaithiyalingam
58	811219114013	VIKASH R	I/ MECH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	26	R. Vikash

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59	811219205001	AKASH V	I/IT	✓	✓	✓	✓	α	α	α	α	✓	✓	26	V. Abah
60	811219205002	AKILANDESWARI J	I/IT	✓	✓	α	α	α	α	✓	✓	✓	✓	27	J. Akilandewari
61	811219205003	ARAVINDHAN R	I/IT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	28	R. Aravindhhan
62	811219205004	CHITHRA BHARATHY M	I/IT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	29	M. Chithra
63	811219205005	JEEVITHA M	I/IT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	30	M. Jym
64	811219205006	KAVIYA K	I/IT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	27	Kaviya
65	811219205007	KEERTHIKROSHAN P	I/IT	✓	✓	✓	✓	α	α	α	α	✓	✓	26	P. Keerthikroshan
66	811219205008	LIBIA POJATHSIYU C	I/IT	✓	✓	✓	✓	α	α	α	α	✓	✓	26	C. Libia
67	811219205009	MAGESHWARAN M	I/IT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	26	M. Mageshwaran
68	811219205011	RANJITH M	I/IT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	28	M. Ranjith
69	811219205012	RANJITHKUMAR A	I/IT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	26	A. Ranjithkumar
70	811219205013	SHAREEN BANU M R	I/IT	✓	✓	✓	✓	α	α	α	α	✓	✓	26	M.R. Shareen Banu
71	811219205014	SHOBANA K	I/IT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	27	K. Shobana
72	811219205015	SIVARANJANI P	I/IT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	28	P. Sivaranjani
73	811219205016	SOWMIYA P	I/IT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	29	P. Sowmya
74	811219205017	SURYA A	I/IT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	30	A. Surya
75	811219205018	SWETHA S	I/IT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	27	S. Swetha



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76	811219205019	TAMIL SELVI T	I/IT	a	a	v	v	a	a	v	v	v	v	26	T. Tam/Sri
77	811219205020	VIJAYAKUMAR M	I/IT	v	v	a	a	v	v	a	a	v	v	26	M. Vinackil
78	811219205021	VISALINI P	I/IT	v	v	v	v	v	v	a	a	v	v	28	P. Viji

T. Senthil
 VAC Coordinator

(Signature)

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S. Beobala
 HoD



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Department of Science and Humanities

Academic Year 2019-2020 –Even Semester

VALUE ADDED COURSE ASSESMENT SHEET

Recent Development in Nanotechnology”


Dr. G. Balakrishnan, M.B.A., M.Ed.,
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S.NO	REGISTER NUMBER	STUDENTS NAME	YEAR/ BRANCH	Attendance Details		VAC-MCQ TEST		OVERALL MARK (100)
				No. Of Session Attended	Attendance Mark(100)	No Of Correct Answers	MCQ Mark(100)	(50% Of A + 50% Of B)
(A)	(B)							
1	811219104001	ARUN R	I/CSE	28	85	19	76	80
2	811219104002	BALAMANIKANDAPRABHU B R	I/CSE	29	88	20	80	84
3	811219104003	BHARATHI S	I/CSE	30	91	18	72	81
4	811219104004	GOWTHAM C	I/CSE	27	82	21	84	83
5	811219104005	INDHUMATHI S	I/CSE	26	79	18	72	75
6	811219104006	ISHWARYA P	I/CSE	26	79	18	72	75
7	811219104007	KALAIYARASAN V	I/CSE	28	85	19	76	80



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8	811219104008	KEERTHIKA K	I/CSE	27	82	21	84	83
9	811219104009	KEERTHIKA V	I/CSE	28	85	19	76	80
10	811219104010	KRISHI GOWTHAM R	I/CSE	29	88	20	80	84
11	811219104011	LOGADIPA S P	I/CSE	30	91	18	72	81
12	811219104012	MOHAMED NOWSATH M	I/CSE	27	82	21	84	83
13	811219104013	MOORTHY C	I/CSE	26	79	18	72	75
14	811219104014	NANCY N	I/CSE	26	79	18	72	75
15	811219104015	NESAKUMAR R	I/CSE	28	85	19	76	80
16	811219104016	PRAVEEN K	I/CSE	26	79	18	72	75
17	811219104017	RANJANA S	I/CSE	30	91	18	72	81
18	811219104018	RAVINYA K	I/CSE	27	82	21	84	83
19	811219104019	SAKTHIVEL M	I/CSE	28	85	19	76	80
20	811219104020	SARANYA P	I/CSE	27	82	21	84	83
21	811219104021	SUVALAKSHMI P	I/CSE	30	91	18	72	81
22	811219104022	SWEATHA B	I/CSE	27	82	21	84	83
23	811219104023	VIGNESHWARAN V	I/CSE	28	85	19	76	80
24	811219104024	VIJAYALAKSHMI B	I/CSE	29	88	20	80	84
25	811219104025	VINCY SHARMILA V K	I/CSE	30	91	18	72	81
26	811219104026	YATHESH M	I/CSE	30	91	18	72	81
27	811219105001	ARULRAJ A	I/EEE	26	79	18	72	75
28	811219105002	BARATH M	I/EEE	26	79	18	72	75
29	811219105003	MANIKANDAN A	I/EEE	28	85	19	76	80
30	811219105004	MANIKANDAN K	I/EEE	26	79	18	72	75

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31	811219105005	PONNALAGU C	I/EEE	30	91	18	72	81
32	811219105006	SALAMON A	I/EEE	27	82	21	84	83
33	811219105007	SARAVANAKUMAR M	I/EEE	28	85	19	76	80
34	811219106001	DAYANA P	I/EEE	26	79	18	72	75
35	811219106002	DEVIKA K	I/ECE	30	91	18	72	81
36	811219106003	DINESH J	I/ECE	27	82	21	84	83
37	811219106004	MOHANA SUNDARAM K	I/ECE	28	85	19	76	80
38	811219106005	RAVIKUMAR B	I/ECE	29	88	20	80	84
39	811219106006	SANTHANARAJ A	I/ECE	30	91	18	72	81
40	811219106007	SHYAM C R	I/ECE	27	82	17	68	75
41	811219106008	SRIKANTH M	I/ECE	26	79	18	72	75
42	811219106009	SURENDRAN S	I/ECE	26	79	18	72	75
43	811219106010	SURYA V	I/ECE	28	85	19	76	80
44	811219106011	SWETHA K	I/ECE	26	79	18	72	75
45	811219103002	VIGNESH R	I/CIVIL	28	85	19	76	80
46	811219114001	AATHILINGAM V	I/MECH	26	79	18	72	75
47	811219114002	ABIMANYU C	I/MECH	26	79	18	72	75
48	811219114003	AJAY S	I/MECH	27	82	21	84	83
49	811219114004	CHRISTY LOURTHU SAMY A	I/MECH	28	85	19	76	80
50	811219114005	HARIKRISHNA	I/MECH	29	88	20	80	84
51	811219114006	PERIYASAMY P	I/MECH	30	91	18	72	81
52	811219114007	RENGANATHAN T	I/MECH	27	82	17	68	75
53	811219114008	SARAVANAKUMAR V	I/MECH	26	79	18	72	75

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54	811219114009	SENTHIL KUMAR M	I/ MECH	26	79	18	72	75
55	811219114010	SIRIYAC SELVA A	I/ MECH	28	85	19	76	80
56	811219114011	SURIYAGANESH M	I/ MECH	26	79	18	72	75
57	811219114012	VAITHIYALINGAM M	I/ MECH	28	85	19	76	80
58	811219114013	VIKASH R	I/ MECH	26	79	18	72	75
59	811219205001	AKASH V	I/IT	26	79	18	72	75
60	811219205002	AKILANDESWARI J	I/IT	27	82	21	84	83
61	811219205003	ARAVINDHAN R	I/IT	28	85	19	76	80
62	811219205004	CHITHRA BHARATHY M	I/IT	29	88	20	80	84
63	811219205005	JEEVITHA M	I/IT	30	91	18	72	81
64	811219205006	KAVIYA K	I/IT	27	82	17	68	75
65	811219205007	KEERTHIKROSHAN P	I/IT	26	79	18	72	75
66	811219205008	LIBIA POJATHSIYU C	I/IT	26	79	18	72	75
67	811219205009	MAGESHWARAN M	I/IT	26	79	18	72	75
68	811219205011	RANJITH M	I/IT	28	85	19	76	80
69	811219205012	RANJITHKUMAR A	I/IT	26	79	18	72	75
70	811219205013	SHAREEN BANU M R	I/IT	26	79	18	72	75
71	811219205014	SHOBANA K	I/IT	27	82	21	84	83
72	811219205015	SIVARANJANI P	I/IT	28	85	19	76	80
73	811219205016	SOWMIYA P	I/IT	29	88	20	80	84
74	811219205017	SURYA A	I/IT	30	91	18	72	81
75	811219205018	SWETHA S	I/IT	27	82	17	68	75
76	811219205019	TAMIL SELVI T	I/IT	26	79	18	72	75

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77	811219205020	VIJAYAKUMAR M	I/IT	26	79	18	72	75
78	811219205021	VISALINI P	I/IT	28	85	19	76	80


VAC Coordinator


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This is to certify that **MR. ARUNM**, I Year, CSE has successfully completed the Value Added Course on “**RECENT DEVELOPMENT IN NANOTECHNOLOGY**” Organized by Department of Science and Humanities and IQAC of our Institution in Association with **Azatech Pvt** from 11th May 2020 to 15th May 2020 (5days) during the Academic year 2019-2020.

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Mr. R. Vivek
Managing Director.

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This is to certify that **MR. RANJITH M**, I Year, IT has successfully completed the Value Added Course on “**RECENT DEVELOPMENT IN NANOTECHNOLOGY**” organized by Department of Science and Humanities and IQAC of our Institution in Association with **Azatech Pvt** from 11th May 2020 to 15th May 2020 (5days) during the Academic year 2019-2020.

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This is to certify that **Ms. SARANYA P**, I Year, CSE has successfully completed the Value Added Course on **“RECENT DEVELOPMENT IN NANOTECHNOLOGY”** Organized by Department of Science and Humanities and IQAC of our Institution in Association with **Azatech Pvt** from 11th May 2020 to 15th May 2020 (5 days) during the Academic year 2019-2020.

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This is to certify that **Ms. PONNALAGU C**, I Year, EEE has successfully completed the Value Added Course on **“RECENT DEVELOPMENT IN NANOTECHNOLOGY”** Organized by Department of Science and Humanities and IQAC of our Institution in Association with **Azatech Pvt** from 11th May 2020 to 15th May 2020 (5days) during the Academic year 2019-2020.

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This is to certify that **Ms. DAYANA P**, I Year, ECE has successfully completed the Value Added Course on **“RECENT DEVELOPMENT IN NANOTECHNOLOGY”** Organized by Department of Science and Humanities and IQAC of our Institution in Association with **Azatech Pvt** from 11th May 2020 to 15th May 2020 (5days) during the Academic year 2019-2020.

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This is to certify that **Ms. SRIKANTH K**, I Year, ECE has successfully completed the Value Added Course on **“RECENT DEVELOPMENT IN NANOTECHNOLOGY”** Organized by Department of Science and Humanities and IQAC of our Institution in Association with **Azatech Pvt** from 11th May 2020 to 15th May 2020 (5 days) during the Academic year 2019-2020.

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Managing Director.

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This is to certify that **MR. ABIMANYU**, I Year, Mech has successfully completed the Value Added Course on **“RECENT DEVELOPMENT IN NANOTECHNOLOGY”** Organized by Department of Science and Humanities and IQAC of our Institution in Association with **Azatech Pvt** from 11th May 2020 to 15th May 2020 (5 days) during the Academic year 2019-2020.

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This is to certify that **MR. PERIYA SAMY P**, I Year, Mech has successfully completed the Value Added Course on “**RECENT DEVELOPMENT IN NANOTECHNOLOGY**” Organized by Department of Science and Humanities and IQAC of our Institution in Association with **Azatech Pvt** from 11th May 2020 to 15th May 2020 (5 days) during the Academic year 2019-2020.

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This is to certify that **MR. RENGANATHAN T**, 1 Year, Mech has successfully completed the Value Added Course on **“RECENT DEVELOPMENT IN NANOTECHNOLOGY”** Organized by Department of Science and Humanities and IQAC of our Institution in Association with **Azatech Pvt** from 11th May 2020 to 15th May 2020 (5 days) during the Academic year 2019-2020.

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This is to certify that **Ms. JEEVITHA M**, I Year, IT has successfully completed the Value Added Course on **“RECENT DEVELOPMENT IN NANOTECHNOLOGY”** Organized by Department of Science and Humanities and IQAC of our Institution in Association with **Azatech Pvt** from 11th May 2020 to 15th May 2020 (5 days) during the Academic year 2019-2020.

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Name of the Student: Ravikumar.B

Year/Sem: I/II

AU Register Number: 811219106005

Value Added Course

“Recent development in nanotechnology”

MULTIPLE CHOICE QUESTIONS (25 X 4 = 100 Marks)

20
25

1. Nanomaterial's are the materials with at least one dimension measuring less than _____

- a) 1 nm
- b) 10 nm
- c) 100 nm
- d) 1000 nm

2. A material with one dimension in Nano range and the other two dimensions are large is called _____

- a) Micro-material
- b) Quantum wire
- c) Quantum well
- d) Quantum dot

3. The colour of the nano gold particles is _____

- a) Yellow
- b) Orange
- c) Red
- d) Variable

4. The melting point of particles in nano form _____

- a) Increases
- b) Decreases
- c) Remains same
- d) Increases then decreases

5. The first talk about nano-technology was given by _____

- a) Albert Einstein
- b) Newton
- c) Gordon E. Moore
- d) Richard Feynman

6. Which of the processes of materials was not described as Nanotechnology?

- a) Separation
- b) Creation
- c) Processing
- d) Consolidation

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7. The initial tools used to help launch the nanoscience revolution were _____

- a) Binoculars
- b) Microscope
- c) Scanning probe instruments
- d) Interferometer

8. The size of atoms is nearly _____

- a) 0.01 nm
- b) 0.1 nm
- c) 1 nm
- d) 10 nm

9. Which property of nanomaterials make them suitable to be used for elimination of pollutants?

- a) High purity
- b) Better thermal conductivity
- c) Enhanced chemical activity
- d) Small size

10. Nano crystalline materials synthesised by sol-gel technique results in a foam like structures called _____

- a) Gel
- b) Aerosol
- c) Foam
- d) Aerogel

11. Which nanomaterial is used for cutting tools?


- a) Fullerene
- b) Aerogel
- c) Tungsten Carbide
- d) Gold

12. A Carbon monoxide sensor made of zirconia uses which characteristic to detect any change?

- a) Capacitance
- b) Resistivity
- c) Activity
- d) Permeability

13. Which components of an automobile are envisioned to be coated with zirconia?

- a) Spark plugs
- b) Liners
- c) Tyres
- d) Brakes


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14. The main purpose of CNTs in fuel cells is _____

- a) Production of energy
- b) Active medium
- c) Catalyst
- d) Storage

15. Zirconia is a hard, brittle _____

- a) Metal
- b) Non-metal
- c) Composite
- d) Ceramics

16. Nanoscale aluminium oxide increases the _____

- a) Conductivity
- b) Resistance
- c) Ductility
- d) Stability

17. Quantum dots can be used in _____

- a) Crystallography
- b) Optoelectronics
- c) Mechanics
- d) Quantum physic

18. Who is generally credited with the first serious scientific claim that manufacturing on the molecular or even the atomic scale was possible? The claim was made at California Technical Institute and was called, "There's Plenty of Room at the Bottom".

- a) Richard P. Feynman
- b) Ed Regis
- c) K. Eric Drexler
- d) Ralph Merkle

19. In 1986, Dr. K. Eric Drexler published a book for the layman that gave a wide overview of the potential applications of molecular nanotechnology in such areas as computing, medicine, space science, and the military. What was the name of this ground-breaking book?

- a) Smaller is Better
- b) Engines of Creation
- c) A Crowded Blueprint
- d) The Atomic Cookbook

20. A particular molecule of carbon made up of sixty carbon atoms has received some press as a structure that shows promise as a basic building block in the area of molecular manufacturing. What is the whimsical nontechnical name for these molecules?

- a) Fullerrods
- b) Nanonodes
- c) Buckyballs


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d) Nanocubes

21. What is the general name for the class of structures made of rolled up carbon lattices?

- a) Nanorods
- b) Nanotubes
- c) Nanosheets
- d) Fullerods

22. Nano, as a prefix, denotes what order of magnitude?

- a) 10^{-6}
- b) 10^{-3}
- c) 10^{-12}
- d) 10^{-9}

23. What is the term used in the field of nanotechnology to describe an as-yet theoretical device that "will be able to bond atoms together in virtually any stable pattern?"


- a) Stacker
- b) Replicator
- c) Assembler
- d) Constructor

24. In discussions of the potential of molecular nanotechnology, the possibility has been posited that badly or maliciously designed self-assembling structures could get out of control, and destroy or disassemble all structures they encounter in their blind quest to replicate. What is the term for such a structure or group of structures?

- a) Blue goo
- b) Green Goo
- c) Red goo
- d) Gray goo

25. Scientists discussing the potential of molecular nanotechnology realized the possibility that self-assembling molecular constructs could conceivably get out of control and destroy just about anything. This led to the concept that other constructs could be designed to neutralize and/or destroy the rogue substances before they got out of hand. By what colorful term are these theoretical "antibody" substances collectively known?

- a) Gray goo
- b) Green goo
- c) Red goo
- d) Blue goo


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