



VIKRAMA SIMHAPURI UNIVERSITY COLLEGE :: KAKUTURU  
NELLORE - 524 324. A.P., INDIA

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Kakuturu  
Date:26.12.2023

**C I R C U L A R**

I am by direction to inform all the Heads of the Departments of V.S. University College Kakuturu, that Value added courses relevant to the respective departments to be introduced for the students, for the Academic Year 2023-2024. Hence, you are requested to start the relevant value added courses in all departments and to submit the DDC resolutions with circular to the students circular, course curriculum syllabus along with the list of enrolled students to the undersigned.

  
PRINCIPAL  
Principal  
Vikrama Simhapuri University College  
Kakuturu - 524 324.  
SPS Nellore District. A.P.

VIKRAMA SIMHAPURI UNIVERSITY COLLEGE :: KAKUTURU  
NELLORE - 524 324. A.P., INDIA



**The Head**  
Department of Physics

Mobile :7893691631  
Email:physicshodvsu@gmail.com


Kavali  
Date:02.01.2024.

**CIRCULAR**

This is to inform you that the class work of value added course on “Vacuum technology and polymer thin films synthesis and characterization techniques” for the academic year 2023-2024 starts from February’2024 in the Department of Physics, Vikrama Simhapuri University college, Kakuturu. The classes run on every second Saturday and Sunday from 10.00 AM to 5.00 PM. The students who are desirous to attend the classes are advised to make note of the above schedule and follow accordingly. For any details or clarifications, contact the Head of the Department.

**AGENDA:**

- 1.Duration of the Course: 36 hours
2. Timings: Every Month Second Saturday & Sunday
3. Value-added Classes will starts from **10.02.2024**

  
HEAD  
Head  
Department of Physics  
Vikrama Simhapuri University  
Nellore-524324, Andhra Pradesh



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**DDC RESOLUTIONS**

Minutes of the meeting of Department Development Committee hold on 02.02.2024 at 11.00 A.M in the Department of Physics VSU College, Kakuturu.

**Member Present:**

S.No	Name of the Faculty Member	Designation
1.	Dr.N.O.Gopal	Assistant Professor/Head
2.	Dr.A.Sivasankar Reddy	Assistant Professor
3.	Dr.K.Bhgya Sree	Guest Faculty
4.	Dr.R.Subba Reddy	Guest Faculty

**Agenda:**

To discuss about the introduction of Value Added Course paper entitled "Vacuum Technology & Polymer thin films synthesis and Characterization Techniques" and its out comes in the Department of Physics, Vikrama Simhapuri University College, Kavali.

**Resolutions:**

- The DDC recommends that the Value Added Course should be introduced by Department of Physics on "Vacuum Technology & Nanoparticles Synthesis and Characterization Techniques" from February'2024.
- It is resolved that class work may be taken during second Saturday & Sundays.
- It is resolved that the duration of the course is 36 Hrs.
- After completion of the course, certificate may be issued.
- 

Signatures of the Members

S.No	Name of the Faculty Member	Signature
1.	Dr.N.O.Gopal	
2.	Dr.A.Sivasankar Reddy	
3.	Dr.K.Bhgya Sree	
4.	Dr.R.Subba Reddy	

HEAD  
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**PHY Solar Energy – Thermal and Photovoltaic Properties**

**UNIT - I: Basic Concepts of Solar Energy**

Introduction - Distribution of solar radiation – Solar Constant, Zenith Angle, Air Mass, Standard Time, Local Apparent Time, Equation of Time, Declination, Hour Angle, Azimuth Angles (all definitions only). Radiation Measurement using Pyranometer and Pyrheliometer – Principle and working.

Kirchoff's law – Solar transmittance, absorptance, emittance and reflectance – Their relation. Selective coatings - Methods of Preparation of coatings - Measurement of solar absorptance and emittance of a selective surface.

**UNIT – II: Solar Photovoltaic Systems**

Photovoltaic (PV) Module assembly - Description of steps involved in the fabrication of solar module - Performance of module – I-V Characteristics, Modules design for different current and voltages - Module protection - Use of bypass and blocking diodes, Solar PV system - Components – PV Array, battery, inverter and load. Bifacial solar modules – Advantages over mono-facial cells; Applications of solar PV systems – Stand-alone system – Design methodologies, Hybrid system – Types and issues, Grid connected systems.

**Books for Study**

1. Solar Energy Utilization, G. D. Rai, Khanna Publishers, 1987.
2. Solar Energy - Fundamentals, Design, Modelling and Applications, G.N. Tiwari, Narosa Publications, 2005.
3. Solar Energy-Principles of Thermal Energy Collection & Storage, S.P. Sukhatme, Tata Mc-Graw Hill Publishers, 1999.
4. Science and Technology of Photovoltaics, P. Jayarama Reddy, CRC Press (Taylor & Francis Group, Leiden, Netherlands) & BS Publications, 2009.
5. Solar Photovoltaics- Fundamentals, Technologies and Applications, Chetan Singh Solanki, PHI Learning Pvt. Ltd., 2015.

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Code: PHY "Solar Energy – Thermal and Photovoltaic Properties"

Title: Vacuum Teaching & Nanoparticles Synthesis and Characterization Techniques  
List of Students enrolled in the value -added course entitled "**Solar Energy – Thermal and Photovoltaic Properties**" during the period from February'2024.

Sl. No.	Hall-Ticket number	Name of the Student(III Sem)
1	220411042001	Thalari Manjula
2	220411042002	Makkapu Jyothika
3	220411042003	Bommanaboyina Nirmal Kumar
4	220411042004	Vellugudi Kaveri
5	220411042005	Sarvepalli Harshitha
6	220411042007	Chinthamreddy Koteswari

Head  
Department of Physics  
Vikrama Simhapuri University  
Nellore-524324, Andhra Pradesh





**VIKRAMA SIMHAPURI UNIVERSITY COLLEGE :: KAKUTURU**  
**DEPARTMENT OF PHYSICS**  
**III SEMESTER STUDENT ATTEDANCE SHEET (TIME AND DATE)**  
**2023-2024**

S.No	Student Name	Roll Number	10-Feb-24						11-Feb-24						18-Feb-24		
			10AM-11AM	11AM-12AM	12PM-01PM	2PM-3PM	3PM-4PM	4PM-5PM	10AM-11AM	11AM-12AM	12PM-01PM	2PM-3PM	3PM-4PM	4PM-5PM	10AM-11AM	11AM-12AM	12PM-01PM
1	Thalari Manjula	220411042001	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
2	Makkapu Jyothika	220411042002	P	P	P	A	A	A	P	P	P	A	A	A	P	P	P
3	Bommanaboyina Nirmal Kumar	220411042003	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
4	Vellugudi Kaveri	220411042004	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
5	Sarvepalli Harshitha	220411042005	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
6	Chinthamreddy Koteswari	220411042007	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

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S.No	Student Name	Roll Number	25-Feb-23						3-Mar-24						10-Mar-24		
			10AM-11AM	11AM-12AM	12PM-01PM	2PM-3PM	3PM-4PM	4PM-5PM	10AM-11AM	11AM-12AM	12PM-01PM	2PM-3PM	3PM-4PM	4PM-5PM	10AM-11AM	11AM-12AM	12PM-01PM
1	Thalari Manjula	220411042001	P	P	P	P	P	P	P	P	P	A	A	A	P	P	P
2	Makkapu Jyothika	220411042002	A	A	A	P	P	P	P	P	P	P	P	P	P	A	A
3	Kumar	220411042003	P	P	P	P	P	P	A	A	A	P	P	P	P	P	P
4	Vellugudi Kaveri	220411042004	P	P	P	A	A	A	P	P	P	P	P	P	P	P	P
5	Sarvepalli Harshitha	220411042005	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
6	Chinthamreddy Koteswari	220411042007	P	P	P	P	P	P	P	P	P	A	A	A	P	P	P

*A A Ry F. A A F. Ry A A F. Ry A A F. Ry A F. A*

*F.A.*  
Head

**Department of Physics**  
**Vikrama Simhapuri University**  
**Nellore-524324, Andhra Pradesh**



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**The Head**  
Department of Physics



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Kakuturu  
Date:26.03.2024.

**CIRCULAR**

This is to inform you that the class work of value added course on “Vacuum technology and polymer thin films synthesis and characterization techniques” for the academic year 2023-2024 starts from April’2024 in the Department of Physics, Vikrama Simhapuri University college, Kakuturu. The classes run on every second Saturday and Sunday from 10.00 AM to 5.00 PM. The students who are desirous to attend the classes are advised to make note of the above schedule and follow accordingly. For any details or clarifications, contact the Head of the Department.

**AGENDA:**

1. Duration of the Course: 36 hours
2. Timings: Every Month Second Saturday & Sunday
3. Value-added Classes will starts from **13.04.2024**

Head  
Department of Physics  
Vikrama Simhapuri University  
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Department of Physics**



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**DDC RESOLUTIONS**

Minutes of the meeting of Department Development Committee hold on 04.04.2024 at 11.00 A.M in the Department of Physics VSU College, Kakuturu.

**Member Present:**

S.No	Name of the Faculty Member	Designation
1.	Dr.N.O.Gopal	Assistant Professor/Head
2.	Dr.A.Sivasankar Reddy	Assistant Professor
3.	Dr.K.Bhagha Sree	Guest Faculty
4.	Dr.R.Subba Reddy	Guest Faculty

**Agenda:**

To discuss about the introduction of Value Added Course paper entitled “Vacuum Technology & Polymer thin films synthesis and Characterization Techniques” and its out comes in the Department of Physics, Vikrama Simhapuri University College, Kakuturu.

**Resolutions:**

- The DDC recommends that the Value Added Course should be introduced by Department of Physics on “Vacuum Technology & Nanoparticles Synthesis and Characterization Techniques” from April’2024.
- It is resolved that class work may be taken during second Saturday & Sundays.
- It is resolved that the duration of the course is 36 Hrs.
- After completion of the course, certificate may be issued.
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Signatures of the Members

S.No	Name of the Faculty Member	Signature
1.	Dr.N.O.Gopal	
2.	Dr.A.Sivasankar Reddy	
3.	K.Bhgya Sree	
4.	R.Subba Reddy	

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**Department: M.Sc., PHYSICS**

**Course Title:** Vacuum Technology & Polymer thin films Synthesis and Characterization Techniques

**Course Code: 21PHYVAC-01**

**UNIT-I:**

Rotary Pump, Diffusion pump, Pirani Gauge, Penning Gauge Resistive heating. Flash evaporation. Reactive sputtering.

Thickens measurements, Sheet resistance and temperature coefficients of resistance of metal films, Electrical conductivity, Hall Effect in semiconductor films. Annealing, Photoconductivity. Photocatalytic activity measurements conductivity measurements.

**UNIT-II:**

**Polymer thin films:**

Introduction –Classification-Some basic definitions – Addition and condensation polymerizations, and copolymerization – Glassy solids: Glass transition melting temperatures and their determination by DSC –Factors affecting T<sub>g</sub>. Importance of T<sub>g</sub>. relationship between T<sub>m</sub> and T<sub>g</sub> and their control – Crystallinity in polymers: Degree of crystallinity, factors affecting crystallinity of polymers. Effect of crystallinity on the properties of polymers.

**Preparation and characterization** – Solution casting technique, Spin-coating –Polymerization using metal catalysts and surfactants.

UV-visible spectroscopy Photoluminescence (PL), Raman Spectroscopy, Differential Scanning Calorimetry (DSC). Thermo Gravimetric Analysis (TGA) Conductivity Measurements. Anti microbial activity test.

Applications of Polymer thin films: Transparent conducting coatings. Thin film solar cells. Flexible solid-state super capacitors. Anti microbial polymer films.

**REFERENCES:**

1. Handbook of Thin Films: L.I. Maissel and R Glang. Mc Graw Hill Co., 1979.
2. Thin Film Phenomena: K.L.Chopra. Mc Graw Hill Co., 1969
3. The Materials Science of Thin Films: M.Ohring. Academic Press, New York 1992.
4. Gowariker and Viswanathan, Polymer Science, Wiley Eastern. 1986
5. Bill Meyer, A Text Book of Polymer Chemistry. John Wiley & Sons. Singapore. 1994
6. L.I. Maissel and R. Glang, Handbook of Thin Films. Mc Graw Hill Co., 1979.
7. K.L.Chopra and S.R. Das. Thin Film Solar Cells. Plenum press. New York. 1983.
8. S.B. Sullia S.Shantharam. General Microbiology. Oxford & IBH Publications. New Delhi. 2000

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Code:21-PHYVAC-01

Title: Vacuum Teaching & Nanoparticles Synthesis and Characterization Techniques  
List of Students enrolled in the value-added course entitled "**Vacuum Technology & Polymer thin films Synthesis and Characterization Techniques**" during the period from June-2024.

Sl. No.	Hall-Ticket No	Name of the Student (IV sem)
1	220411042001	Thalari Manjula
2	220411042002	Makkapu Jyothika
3	220411042003	Bommanaboyina Nirmal Kumar
4	220411042004	Vellugudi Kaveri
5	220411042005	Sarvepalli Harshitha
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VIKRAMA SIMHAPURI UNIVERSITY COLLEGE :: KAVALI  
DEPARTMENT OF PHYSICS  
IV SEMESTER STUDENTS ATTEDANCE SHEET (DATE & TIME)  
2023-2024

S.No	Student Name	Roll Number	13-Apr-23						14-Apr-23						21-Apr-23		
			10AM-11AM	11AM-12AM	12PM-01PM	2PM-3PM	3PM-4PM	4PM-5PM	10AM-11AM	11AM-12AM	12PM-01PM	2PM-3PM	3PM-4PM	4PM-5PM	10AM-11AM	11AM-12AM	12PM-01PM
1	Thalari Manjula	220411042001	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
2	Makkapu Jyothika	220411042002	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
3	Bommanaboyina Nirmal Kumar	220411042003	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
4	Vellugudi Kaveri	220411042004	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
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6	Chinthamreddy Koteswari	220411042007	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

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S.No	Student Name	Roll Number	28-Apr-23						5-May-23						11-May-23		
			10AM-11AM	11AM-12AM	12PM-01PM	2PM-3PM	3PM-4PM	4PM-5PM	10AM-11AM	11AM-12AM	12PM-01PM	2PM-3PM	3PM-4PM	4PM-5PM	10AM-11AM	11AM-12AM	12PM-01PM
1	Thalari Manjula	220411042001	P	P	P	A	A	A	P	P	P	P	P	P	P	P	P
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*Ft. N & Ry & N N Ry Ft. & Ry N Ft. Ry A*

*Ft.*  
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