



PRESIDENCY UNIVERSITY

(Established under the Presidency University Act, 2013 of the Karnataka Act 41 of 2013)

Name of the School: SOE

Name of the Department: Physics

Area of Specialization: Solar Energy

Name of the Faculty Member: Dr. Mohan Kumar Naidu

Title of the Value Added Course: Photovoltaic Solar Energy

Course Duration: [30 hours] [AY-2019-20]

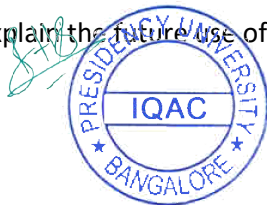
Course Code: PHY V 001

Introduction to the Course:

The main objective of this course is to study the fundamentals of solar energy and its applications. This course covers the overview of semiconductors, its properties and fundamentals of photovoltaic conversions. This course is also covers the different methods of synthesis of photovoltaic cells and students can able to study the Characterization of synthesized materials using IV characteristics, open-circuit voltage and operating voltage of a PV cell, standard rating and performance indicator for PV modules.

Course Outcomes: On successful completion of the course the students shall be able to :

1. Enabling the Students to learn the basics of solar energy
2. Impart basic knowledge on various synthesis and characterization techniques involved in solar cells
3. Explain the future use of photovoltaic cells in different areas.



Course Content (Syllabus):

Module -1

Overview of semiconductors, properties, the electron band structure of semiconductors, n-type doping , p-type doping, direct and indirect band gap semiconductors, exciton formation, fundamentals of photovoltaic conversions- photon energy, electron-hole concentration and Fermi –level, p-n junction, light absorption in a semiconductor, solar cell materials.

[15 Hrs] [Blooms level selected: Knowledge]

Module: 2:


Generations of photovoltaic cells, Voltage and current characteristics of photovoltaic devices (i-v curve), open-circuit voltage and operating voltage of a PV cell, dependence of voltage and current on temperature, different types of photovoltaic devices, standard rating and performance indicator for PV modules, photovoltaic system schematic design, photovoltaic applications.

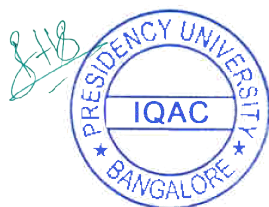
[15 Hrs] [Blooms level selected: Application]

Reference Books

1. Solar Energy, Fundamentals and Applications, H P Garg and J Prakash, Mc Graw Hill.
2. Solar Energy, Technologies and Project Delivery for Buildings, Andy Walker, Wiley.

Approval by the HOD.


Department of Physics
School of Engineering
PRESIDENCY UNIVERSITY
Laxmankunte, Yelahanka, Bengaluru -54




REGISTRAR


Presidency University, Bengaluru
Department of Physics
School of Engineering

NOTE-1: If 1 or more classes are engaged on same day. Then change timings by repeating date
2: Enter date and timings according to the VAC class engaged

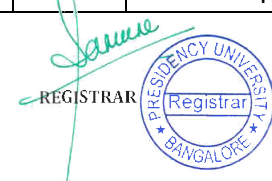
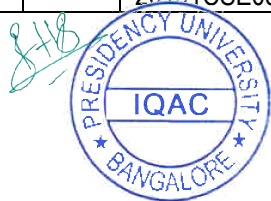
VAC DETAILS
 Total number of hours:30
 Value added Course(VAC) Name and Code: Photovoltaic Solar Energy, PHY V001
 Name of the Instructor: Dr P Mohan Kumar Naidu

S.No.	STUDENT ID NO	STUDENT NAME	13-02-2020	16-02-2020	16-02-2020	17-02-2020	17-02-2019	23-02-2019	23-02-2019	23-02-2019	24-02-2019	04-02-2019	03-02-19	03-03-19	03-03-19	03-06-19	03-08-19	03-08-19	03-10-19	03-10-19	16-03-19	16-03-19	20-03-2019	21-03-2019	23-03-2019	23-03-2019	24-03-2019	24-03-2019	04-06-19	04-06-19	20-04-2019	20-04-2019	Total classes	Total classes	Percentage	
			1.30 to 2.30	2.30 to 3.30	3.30 to 4.30	2 to 3	3 to 4	2 to 3	3 to 4	2 to 3	3 to 4	2 to 3	3 to 4	2 to 3	3 to 4	2 to 3	3 to 4	7 to 8	2 to 3	3 to 4	2 to 3	3 to 4	2 to 3	3 to 4	7 to 8	7 to 8	2 to 3	3 to 4	2 to 3	3 to 4	2 to 3	3 to 4	2 to 3	3 to 4	conducted	attended
1	2019/CSE0289	M.S.LIKHITA	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	29	97
2	2019/CSE0301	M.SAJASWATHI REDDY	P	P	P	A	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	30	27	90
3	2019/CSE0305	MADDOREDDY VISHNU VARDHAN RE	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	30	29	97
4	2019/CSE0308	MAHANTHI DURGA MANKANTA SIV	A	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	30	27	90
5	2019/CSE0309	MAHESH S N	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100
6	2019/CSE0310	MAHRUKH HUSSAIN KHAN	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P	P	30	27	90
7	2019/CSE0312	MALIGI REDDY AKHIL REDDY	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	29	97
8	2019/CSE0317	MAVINURU YAMINI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	30	29	97
9	2019/CSE0319	MANOJA	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	29	97
10	2019/CSE0321	MANOJ P KUMAR	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A	P	P	P	P	P	P	30	27	90
11	2019/CSE0322	MANU K N	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100
12	2019/CSE0323	MAKUR N	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100
13	2019/CSE0324	MD SHANAWAZUDDIN	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	29	97
14	2019/CSE0325	MEDHAPANDIT	A	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A	P	P	P	P	P	P	30	26	87
15	2019/CSE0328	MEGHASHI VAMSI KRISHNA NAKKIRI	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	A	P	P	30	27	90




Presidency University, Bengaluru
Value Added Course Marksheet
School of Engineering

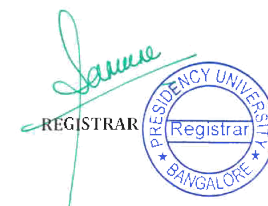
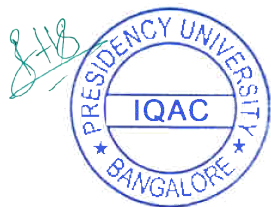
Course Code :		PHY V 001		Academic Year :			2019-2020	
Course Name :		Photovoltaic Solar Energy		Semester :			Odd	
				Instructor-in-Charge Name :			Dr P Mohan Kumar Naidu	
				Instructor-in-Charge Employee ID :			PUNIV0023	
S. No	UID No	Roll No	Name	SoE	Attendance (in %)	Marks	Eligible for Certificate (Y/N)	Remark
1		20191CSE0299	M S LIKHITA	SoE	96%	79	Y	NIL
2		20191CSE0301	M SAI JASWANTH REDDY	SoE	90%	83	Y	NIL
3		20191CSE0305	MADDIREDDY VISHNU VARDHAN REDDY	SoE	96%	85	Y	NIL
4		20191CSE0308	MAHANTHI DURGA MANIKANTA SWAMYNAIDU	SoE	90%	77	Y	NIL
5		20191CSE0309	MAHESH S N	SoE	100%	76	Y	NIL
6		20191CSE0310	MAHRUKH HUSSAIN KHAN	SoE	90%	91	Y	NIL
7		20191CSE0312	MALIGI REDDY AKKHIL REDDY	SoE	96%	70	N	NIL
8		20191CSE0317	MANNURU YAMINI	SoE	96%	78	Y	NIL
9		20191CSE0319	MANOJ A	SoE	96%	75	N	NIL
10		20191CSE0321	MANOJ P KUMAR	SoE	90%	77	Y	NIL
11		20191CSE0322	MANU K N	SoE	100%	87	Y	NIL
12		20191CSE0323	MAYUR N	SoE	100%	65	N	NIL
13		20191CSE0324	MD SHANAWAZUDDIN	SoE	96%	82	Y	NIL
14		20191CSE0325	MEDHA PANDIT	SoE	86%	75	Y	NIL



15		20191CSE0328	MEGHASAI VAMSI KRISHNA NAKIRIKANTI	SoE	90%	65	Y	NIL
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Department of Physics
School of Engineering
PRESIDENCY UNIVERSITY
Lajekunte, Yelahanka, Bengaluru -54

Signature of HOD





PRESIDENCY UNIVERSITY

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Name of the School: SOE

Name of the Department: Physics

Area of Specialization: Materials Science

Name of the Faculty Member: Dr. Naveen C S

Title of the Value Added Course: Metal oxide nanomaterials for gas sensor applications.

Course Duration: [30 hours]

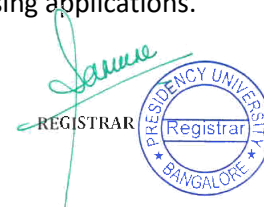
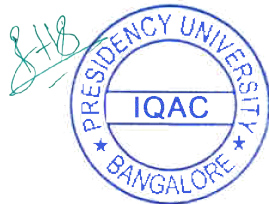
Course Code: PHYV007

Introduction to the Course:

The main objective of this course is to study the basic concepts of Metal oxide nanomaterials and their application in the field of gas sensors. The course includes the introduction to classification of nanomaterials, quantum size effect, Distinction between bulk materials and nanomaterials. It also includes different methods of preparation techniques and structural characterizations of metal oxide nanomaterials. Further, the classification of gas sensors, gas sensing mechanism, choice of sensing material and gas sensor characteristics are included. Class 11th and 12th Physics and Chemistry are course prerequisites.

Course Outcomes: On successful completion of the course the students shall be able to :

- 01 Understand the basic concept of nanomaterials and metal oxide nanomaterials.
- 02 Know the different types of preparation techniques and structural characterizations of metal oxide nanomaterials.
- 03 Apply the knowledge of preparation and structural characterizations of metal oxide nanomaterials in gas sensing applications.



Course Content (Syllabus):

Module:1: Introduction: Definitions, Classification of nanostructures- 1D, 2D and 3D, Effects of making into small, Distinction between nanomaterials and bulk materials in terms of energy band, Quantum size effect- Quantum confinement in 1D, 2D and 3D, Metal oxides- Types of metal oxides nanomaterials, Applications.

[10 Hrs] [Blooms level selected: Knowledge]

Module: 2: Preparation and Structural Characterizations of Metal oxide nanomaterials: Preparation techniques: Top Down method - Ball milling, Bottom up method - Sol gel process, Solution combustion method and Hydrothermal Process. Structural Characterizations: UV-Visible spectrophotometer, Fourier-transform infrared spectrometer (FTIR), X-ray Diffractometer (XRD), Scanning Electron Microscopy (SEM), Energy dispersive X-ray analysis (EDAX), ; Transmission Electron Microscope (TEM)

[12 Hrs] [Blooms level selected: Comprehension]

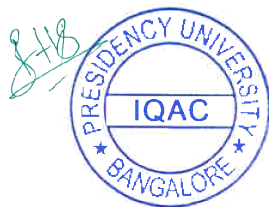
Module: 3: Metal oxide gas sensors: Introduction, Gas sensor terminology, Classification of gas sensors, General sensing mechanism, Ideal gas sensor characteristics, Choice of sensing material, Advantages and disadvantages of metal oxide gas sensors, Future perspectives.

[08 Hrs] [Blooms level selected: Application]

References

- R1. NANO: The Essentials: Understanding Nanoscience and Nanotechnology by T Pradeep, McGraw-Hill education.
- R2. Materials Characterization by Yang Leng, JohnWiley & Sons (Asia) Publications.
- R3. Introduction to Nanotechnology by Charles Poole and Frank J. Owens, Wiley Publications.
- R4. Metal Oxide Nanostructures: Synthesis, Properties and Applications by Daniela Nunes, Ana Pimentel, Lidia Santos, Pedro Barquinha, Elvira Fortunato, Luis Pereira, Rodrigo Martins, Elsevier Science Publications.
- R5. Gas Sensors: Principles, Operation and Developments by G. Sberveglieri, Springer Publications.

Approval by the HOD.



Presidency University, Bengaluru		
Department of Physics		
School of Engineering		
VAC DETAILS		
Total number of hours:30		
Value added Course(VAC) Name and Code:PHYV007		
Name of the Instructor: Dr Naveen C S		

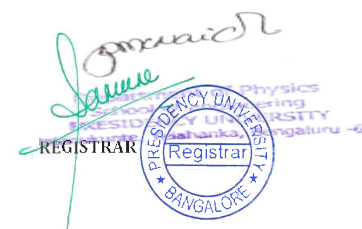
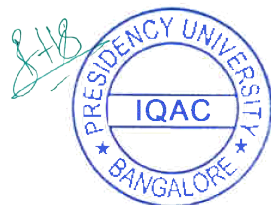
NOTE:1. If 1 or more classes are engaged on same day. Then change timings by repeating date
2. Enter date and timings according to the VAC class engaged

S.No.	STUDENT ID NO	STUDENT NAME	3/12/19	4/12/19	7/12/19	10/12/19	12/12/19	14/12/19	15/12/19	17/12/19	19/12/19	21/12/19	22/12/19	24/12/19	27/12/19	28/12/19	29/12/19	Total classes conducted	Total classes attended	Percentage attended
			6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM			
1	20191IST0039	DANDU SAI SATYA VAMSI KRISHNA RAJU	A	P	p	p	p	p	p	A	p	p	p	p	A	p	P	30	24	80%
2	20191IST0042	DRISHITTA MISHRA	p	A	A	p	p	p	p	A	p	p	p	p	P	p	A	30	22	73%
3	20191MEC0026	BHARATH H	p	P	p	p	p	p	p	P	p	A	p	p	P	p	P	30	28	93%
4	20191COM0052	DISHA B	p	p	p	p	A	p	p	p	p	p	A	p	p	p	p	30	24	80%
5	20191CSE0127	DHANUSH P	p	p	p	p	p	p	p	A	P	p	p	p	p	p	p	30	28	93%
6	20191CSE0153	GAGANA G	p	p	A	p	p	p	p	a	a	p	p	p	A	p	A	30	20	67%
7	20191CSE0161	GANGARAJU KIRAN	p	p	p	p	p	p	p	P	p	A	p	p	p	p	p	30	28	93%
8	20191ECE0081	CHODAPUNEEDI HARI	A	p	p	p	p	p	A	a	p	p	p	p	p	p	p	30	24	80%
9	20191ECE0083	DADE RAHUL	p	p	p	p	p	p	P	p	p	p	p	p	A	p	p	30	28	93%
10	20191ECE0084	DARSHAN R	A	p	p	P	A	p	P	a	p	A	A	p	p	p	p	30	20	67%
11	20191EEE0024	NAVYA SHREE M	p	p	p	A	p	A	a	p	p	A	p	A	p	p	p	30	20	67%
12	20191ISE0043	DHANUSH B C	p	A	A	P	p	p	P	a	p	P	p	p	A	P	A	30	20	67%



Presidency University, Bengaluru
Value Added Course Marksheet
School of Engineering

Course Code :		PHYV007			Academic Year :		2019-2020	
Course Name :		Metal oxide nanomaterials for gas sensor applications			Semester :		Odd Semester	
					Instructor-in-Charge Name :		Dr Naveen C S	
					Instructor-in-Charge Employee ID :		Dr Naveen C S	
S. No	UID No	Roll No	Name	School (e.g. SoE/SoL etc)	Attendance (in %)	Marks	Eligible for Certificate (Y/N)	Remark
1		20191IST0039	DANDU SAI SATYA VAMSI KRISHNA RAJU	SOE	80%	80	Y	NIL
2		20191IST0042	DRISHTITA MISHRA	SOE	73%	56	Y	NIL
3		20191MEC0026	BHARATH H	SOE	93%	80	Y	NIL
4		20191COM0052	DISHA B	SOE	80%	78	Y	NIL
5		20191CSE0127	DHANUSH P	SOE	93%	45	Y	NIL
6		20191CSE0153	GAGANA G	SOE	67%	43	Y	NIL
7		20191CSE0161	GANGARAJU KIRAN	SOE	93%	50	Y	NIL
8		20191ECE0081	CHODAPUNEEDI HARI	SOE	80%	87	Y	NIL
9		20191ECE0083	DADE RAHUL	SOE	93%	29	N	NIL
10		20191ECE0084	DARSHAN R	SOE	67%	56	Y	NIL
11		20191EEE0024	NAVYA SHREE M	SOE	67%	76	Y	NIL
12		20191ISE0043	DHANUSH B C	SOE	67%	70	Y	NIL





PRESIDENCY UNIVERSITY

(Established under the Presidency University Act, 2013 of the Karnataka Act 41 of 2013)

Name of the School: Engineering

Name of the Department: Physics

Area of Specialization: Nanomaterials

Name of the Faculty Member(s): Dr. Anindita B

Title of the Value Added Course: Nanostructured Materials

Course Code: PHY V 008

Course Duration: 30 hours [From Dec 1, 2019 to Jan 20,2020]


Introduction to the Course: Nanotechnology is considered as the base of next technological revolution. This course is intended to make students aware of different nanostructured materials. Students will be given knowledge of different synthesis techniques of nanomaterial, characterization of nanomaterial by several techniques. Student should be able to analyze the need of proper characterization technique for a particular material. Applications of nanostructured materials in different fields of technology will be discussed.

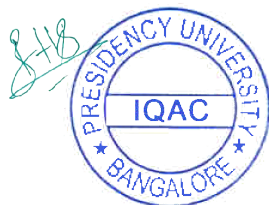
Course Outcomes: On successful completion of the course the students shall be able to:

1. Understand different nanostructured materials, their properties and synthesis techniques.
2. Demonstrate different nanostructured materials, their properties and synthesis techniques
3. Explain the application of nanomaterials in different technological fields.

Course Content: Topics include Introduction to nanomaterials, effects of nanosize, mesoscopic state, Effect of size on material properties: scaling effect on the properties of materials, Different nanostructures : nanofilm, nanowire, quantum dot, Synthesis of nanomaterials : top down and bottom up method, Characterization techniques like TEM, SEM, UV spectrometer, properties and applications of nanomaterials.

Approval by the HOD


Department of Physics
School of Engineering
PRESIDENCY UNIVERSITY
Jagajyoti, Yeshwanthpur, Bangalore - 56




REGISTRAR


Presidency University, Bengaluru
Department of <u>PHYSICS</u>
School of <u>ENGINEERING</u>

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2. Enter date and timings according to the VAC class engaged

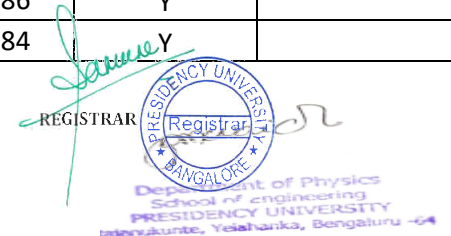
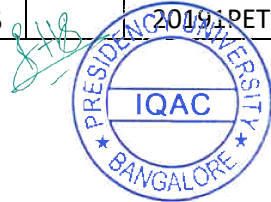
VAC DETAILS
 Total number of hours:30
 Value added Course(VAC) Name and Code: NANOSTRUCTURED MATERIALS , PHY V 008
 Name of the Instructor: DR. ANINDITA B

S.No.	STUDENT ID NO	STUDENT NAME	02/12/19	04/12/19	06/12/19	09/12/19	11/12/19	13/12/19	16/12/19	18/12/19	20/12/19	23/12/19	27/12/19	07/01/20	09/01/20	11/01/20	17/01/20	Total classes conducted	Total classes attended	Percent age attende
			6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM	6-8 PM			
1	20191CIV0016	CHIRAYUSH SUNIL VYAS	P	P	P	P	A	P	P	P	P	P	A	P	P	P	P	30	26	87%
2	20191COM0044	CHITTURI MOKSHITH SRI SAI EKANATH	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	31	28	90%
3	20191IST0044	FARWAH ASMATH	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	32	30	94%
4	20191CIV0022	GANYA N	P	P	P	A	P	P	A	P	P	P	P	A	P	P	P	33	24	73%
5	20191ECE0115	GITTOLLA RAVI TEJA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	34	30	88%
6	20191COM0068	GOTHAM VENKATESH	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	35	28	80%
7	20191CIV9004	HARISH R N	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	36	28	78%
8	20191CSE0202	I LOHITHA REDDY	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	37	30	81%
9	20191PET0018	JESWIN JAVAD	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	38	30	79%
10	20191CSE0240	KATRAGADDA SINDHU PRIYA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	39	30	77%
11	20191CSE0327	MEGHANA SPARSHA A	P	P	P	P	A	P	P	A	P	P	P	P	P	P	P	40	26	65%
12	20191CSE0336	MOHAMED MUTHMEIN	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	41	30	73%
13	20191PET0030	MOHAMMED ISHAQ	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	42	28	67%
14	20191MEC0081	MOHAMMED ZAIN	P	P	P	P	P	P	P	P	P	P	A	A	P	P	P	43	26	60%
15	20191PET0036	MOHAMMED ZAIN Y C	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	44	28	64%



Presidency University, Bengaluru
Value Added Course Marksheet
School of Engineering

Course Code :		PHY V 008			Academic Year :		2019-2020	
Course Name :		NANOSTRUCTURED MATERIALS			Semester :		Odd Semester	
					Instructor-in-Charge Name :		Dr. Anindita B	
					Instructor-in-Charge Employee ID :		PUNIV01030	
S. No	UID No	Roll No	Name	School (e.g. SoE/SoL etc)	Attendance (in %)	Marks	Eligible for Certificate (Y/N)	Remark
1		20191CIV0016	CHIRAYUSH SUNIL VYAS	SOE	87%	82	Y	
2		20191COM0044	CHITTURI MOKSHITH SRI SAI EKANATH	SOE	93%	78	Y	
3		20191IST0044	FARWAH ASMATH	SOE	100%	91	Y	
4		20191CIV0022	GANYA N	SOE	80%	76	Y	
5		20191ECE0115	GITTOLLA RAVI TEJA	SOE	100%	90	Y	
6		20191COM0068	GOTHAM VENKATESH	SOE	93%	86	Y	
7		20191CIV9004	HARISH R N	SOE	93%	83	Y	
8		20191CSE0202	I LOHITHA REDDY	SOE	100%	94	Y	
9		20191PET0018	JESWIN JAVAD	SOE	100%	90	Y	
10		20191CSE0240	KATRAGADDA SINDHU PRIYA	SOE	100%	90	Y	
11		20191CSE0327	MEGHANA SPARSHA A	SOE	87%	88	Y	
12		20191CSE0336	MOHAMED MUTHMEIN	SOE	100%	89	Y	
13		20191PET0030	MOHAMMED ISHAQ	SOE	93%	87	Y	
14		20191MEC0081	MOHAMMED ZAIN	SOE	87%	86	Y	
15		20191PET0036	MOHAMMED ZAIN Y C	SOE	93%	84	Y	





PRESIDENCY UNIVERSITY

(Established under the Presidency University Act, 2013 of the Karnataka Act 41 of 2013)

Name of the School: Engineering

Name of the Department: Physics

Area of Specialization: Games

Name of the Faculty Member(s): Dr. Pradeep Bhaskar

Title of the Value Added Course: Introduction to Polymers and Plastics

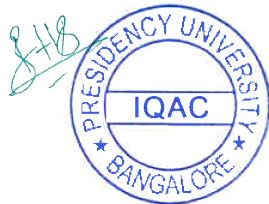
Course Code: PHY V 010

Course Duration: 30 hours [From Jan 6 to Jan 28 2020]

Introduction to the Course: Synthetic plastics and plastics product manufacturing is the downstream industry of the wider petroleum industry. This course introduces the engineering field of polymers with emphasis on plastics, the most widely used synthetic polymers. The course also informs the students regarding engineering aspects of tyres, adhesives and some specialty polymers.

Computer science and related students would find this course advantageous in expanding their knowledge base and understanding of the traditional industry and manufacturing sector. This would help them in future when making software for this industry. Mechanical engineering and Civil engineering students would find the industrial manufacturing process, including dies and moulds, testing and design for stiffness of products beneficial.

The course is designed to enhance the students understanding and knowledge of polymers, plastics industry, testing process and common terms used in this field. This course emphasizes the engineering aspect Engineering Physics, the application of physics especially in the design, fabrication and testing of polymers will be highlighted. This is a beginner level course and is suitable for curious students of all branches.




Course Outcomes: On successful completion of the course the students shall be able to:

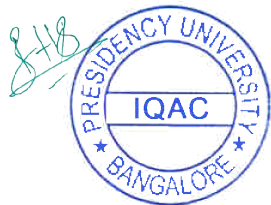
- 01) Define common terminology used in the Plastics industry
- 02) Understand and explain the physics behind major testing methods
- 03) Apply knowledge for evaluating various solutions to select the best for an application

Course Content:

- 1. Module 1: Introduction to different types of plastics and common properties, manufacturing processes, properties and applications of major plastics.
- 2. Module 2: Basics of special polymers, important testing methods, fabrication processes, major additives and recycling.
- 3. Module 3: Rubber and introduction to tyre technology, mould and die design, design for stiffness, basics of adhesives.

Approval by the HOD


Department of Physics
School of engineering
PRESIDENCY UNIVERSITY
Lajewakunte, Yelahanka, Bengaluru -64



Presidency University, Bengaluru		
Department of Physics		
School of Engineering		
VAC DETAILS		
Total number of hours:30		
Value added Course(VAC) Name and Code: Introduction to Polymers and Plastics PHY V010		
Name of the Instructor: Dr. Pradeep Bhaskar		

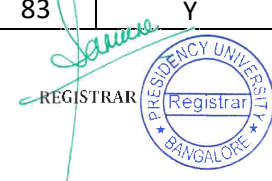
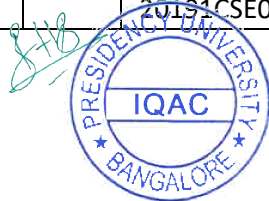
NOTE:1. If 1 or more classes are engaged on same day. Then change timings by repeating date
2. Enter date and timings according to the VAC class engaged

S.No.	STUDENT ID NO	STUDENT NAME	6-01-2020	7-01-2020	8-01-2020	9-01-2020	10-01-2020	11-01-2020	12-01-2020	13-01-2020	14-01-2020	15-01-2020	16-01-2020	17-01-2020	18-01-2020	19-01-2020	20-01-2020	21-01-2020	22-01-2020	23-01-2020	24-01-2020	25-01-2020	26-01-2020	27-01-2020	28-01-2020	Total classes conducted	Total classes attended	Percentage attended
			5:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm	6:00pm-7:00pm			
1	20191CSE0097	CHATAKONDU VENKATA SUMANTH	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	28	93%	
2	20191CSE0104	CHINTHANA V	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	30	26	87%	
3	20191CSE0258	KISHAN GOWDA M	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100%	
4	20191CSE0268	KONDURU NITHYA	P	P	A	P	A	P	P	A	P	P	A	P	P	P	P	P	P	P	P	P	P	P	30	24	80%	
5	20191CSE0374	NARRA VENKATA SAI	P	P	A	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	30	26	87%	
6	20191CSE0377	NAVEEN S	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	30	26	87%	
7	20191CSE0394	NITHESH KUMAR	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	30	28	93%	
8	20191CSE0409	PALLAPOLU PAVAN KUMAR REDDY	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	30	28	93%	
9	20191CSE0513	S SANJAY SRIVATSA	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	30	26	87%	
10	20191CSE0521	SAI SREE AMARA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100%	
11	20191CSE0531	SANSKAR SINGH	P	A	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	30	24	80%	
12	20191CSE0579	SOMAROUTHU GNANA JYOTHI	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	28	93%	
13	20191CSE0671	VARUN KUMAR D N	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	30	28	93%	
14	20191CSE0673	VEENA R	P	A	P	A	P	A	A	A	A	P	P	A	A	P	A	P	A	P	A	P	P	30	14	47%		
15	20191CSE0679	VEMULA THARUN	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	30	28	93%	
16	20191CSE0680	VENGA VAMSI KRISHNA MAANAM	A	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	26	87%	
17	20191ECE0060	BULLE JAYA KUMAR	P	P	P	P	P	P	P	P	P	A	P	P	P	P	A	P	P	P	P	P	P	P	30	26	87%	

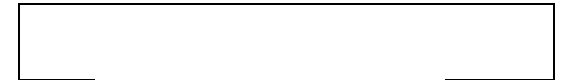


Presidency University, Bengaluru
Value Added Course Marksheet
School of Engineering

Course Code :		PHY V 010			Academic Year :		2019-2020	
Course Name :		Introduction to Polymers and Plastics			Semester :		Even Semester	
					Instructor-in-Charge Name :		Dr. Pradeep Bhaskar	
					Instructor-in-Charge Employee ID :		PUNIV01281	
S. No	UID No	Roll No	Name	School	Attendance (in %)	Marks	Eligible for Certificate (Y/N)	Remark
1		20191CSE0097	CHATAKONDU VENKATA SUMANTH KUMAR	SoE	93%	95	Y	NIL
2		20191CSE0104	CHINTHANA V	SoE	87%	83	Y	NIL
3		20191CSE0258	KISHAN GOWDA M	SoE	100%	99	Y	NIL
4		20191CSE0268	KONDURU NITHYA	SoE	80%	72	Y	NIL
5		20191CSE0374	NARRA VENKATA SAI	SoE	87%	71	Y	NIL
6		20191CSE0377	NAVEEN S	SoE	87%	91	Y	NIL
7		20191CSE0394	NITHESH KUMAR	SoE	93%	98	Y	NIL
8		20191CSE0409	PALLAPOLU PAVAN KUMAR REDDY	SoE	93%	72	Y	NIL
9		20191CSE0513	S SANJAY SRIVATSA	SoE	87%	95	Y	NIL
10		20191CSE0521	SAI SREE AMARA	SoE	100%	88	Y	NIL
11		20191CSE0531	SANSKAR SINGH	SoE	80%	91	Y	NIL
12		20191CSE0579	SOMAROUTHU GNANA JYOTHI	SoE	93%	92	Y	NIL
13		20191CSE0671	VARUN KUMAR D N	SoE	93%	65	Y	NIL
14		20191CSE0673	VEENA R	SoE	47%	45	N	NIL
15		20191CSE0679	VEMULA THARUN	SoE	93%	79	Y	NIL
16		20191CSE0680	VENGA VAMSI KRISHNA MAANAM	SoE	87%	83	Y	NIL

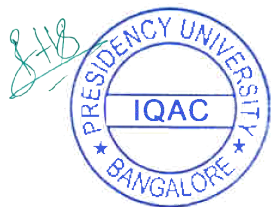


17	20191ECE0060	BULLE JAYA KUMAR	SoE	87%	89	Y	NIL
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Bulle Jaya Kumar
Department of Physics
School of engineering
PRESIDENCY UNIVERSITY
Lajenzakunte, Yelahanka, Bengaluru -64

Signature of HoD





PRESIDENCY UNIVERSITY

(Established under the Presidency University Act, 2013 of the Karnataka Act 41 of 2013)

Name of the School: Engineering

Name of the Department: Physics

Area of Specialization: Applications of Amorphous Materials

Name of the Faculty Member(s): Dr. N Sivasankara Reddy

Title of the Value Added Course: Applications of Amorphous Materials for Engineers

Course Code: PHY V 015

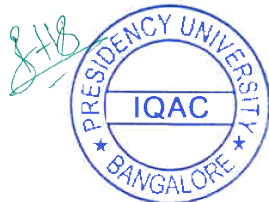
Course Duration: 30 hours [From Oct 1 to Oct 30 2019]

Introduction to the Course: Glass, method of preparation, types of glasses and their properties. Structural properties of glasses. Glasses for optical fibers communication and Fiber drawing method. Glass ceramics for missile nose which is IR transparent, extreme durability, corrosion resistant and low thermal expansion. Glasses for CD-RW, DVD-RW, bio active glass for bone implant, wound healing, Anti-bacterial glasses, strong glasses for display panels, radiation shielding material, laser material.

Course Outcomes: On successful completion of the course the students shall be able to:

1. Understand the basic concept of amorphous materials
2. Know the different types of preparation techniques and structural characterizations of amorphous materials.
3. Apply the knowledge of amorphous materials for engineering applications.

Course Content: Introduction to glasses, methods of preparation and their general and special properties. Structural properties of glasses in contrast to crystalline materials. Types of glasses for special engineering applications. Glass ceramics for missile nose which is IR transparent, extreme durability, corrosion resistant and low thermal expansion.



Approval by the HOD

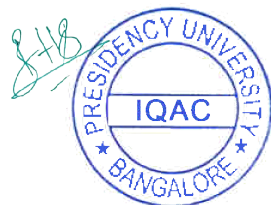
[Signature]
 Department of Physics
 School of engineering
 PRESIDENCY UNIVERSITY
 Jayanukunte, Yelahanka, Bengaluru -54

Presidency University, Bengaluru
 Department of Physics
 School of Engineering

VAC DETAILS
 Total number of hours:15
 Value added Course(VAC) Name and Code: Advanced Amorphous Materials
 Name of the Instructor: Dr N Sivasankara Reddy

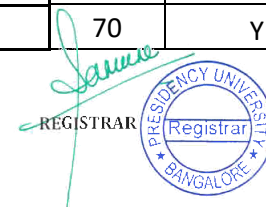
NOTE: 1. If 1 or more classes are engaged on same day. Then change timings by repeating date
 2. Enter date and timings according to the VAC class engaged

S.No	STUDENT ID NO	STUDENT NAME	1/10/19	1/10/19	3/10/19	3/10/19	4/10/19	4/10/19	5/10/19	5/10/19	7/10/19	7/10/19	8/10/19	8/10/19	9/10/19	9/10/19	10/10/19	11/10/19	12/10/19	14/10/19	15/10/19	16/10/19	17/10/19	18/10/19	19/10/19	21/10/19	22/10/19	23/10/19	24/10/19	25/10/19	26/10/19	28/10/19	Total classes conducted	Total classes attended	Percentage attended	
			5 to 6 PM	6 to 7 PM	5 to 6 PM	6 to 7 PM	5 to 6 PM	6 to 7 PM	5 to 6 PM	6 to 7 PM	5 to 6 PM	6 to 7 PM	5 to 6 PM	6 to 7 PM	5 to 6 PM	6 to 7 PM	5 to 6 PM	6 to 7 PM	5 to 6 PM	6 to 7 PM	5 to 6 PM	5 to 6 PM	5 to 6 PM	5 to 6 PM	5 to 6 PM	5 to 6 PM	5 to 6 PM	5 to 6 PM	5 to 6 PM	5 to 6 PM	5 to 6 PM	5 to 6 PM	5 to 6 PM			
1	2019ICCE0042	R VAISHNAVI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	28	93
2	2019ICCE0051	SANJAY GOWDA N	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	29	97
3	2019ICV0035	LEELA KRISHNA R	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	27	90
4	2019ICV0044	NAYAN B S	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100
5	2019ICV0050	PRASHAN CHOUHAN	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100
6	2019ICV9003	ABHISHEK A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	29	97
7	2019ICOM0054	DUDYALA LAVANYA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	29	97
8	2019ICOM0063	GAURAV CHAUHAN	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	28	93
9	2019ICOM0082	JAYAVIJAY PRASANNA SANDEEP KUMAR	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	27	90
10	2019ICOM0129	MOHAMMED AYAN	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	27	90
11	2019ICOM0182	SHAIK MOHAMMED INTHIAZ	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	29	97
12	2019ICOM0193	SREEREDDY SAI PRADEEP REDDY	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100
13	2019ICOM0198	SUNKARA PREM KUMAR REDDY	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	26	87
14	2019ICOM0214	V PRUDHVI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	25	83
15	2019ICOM0227	YERRAGUNTA TARUN SAI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	27	90



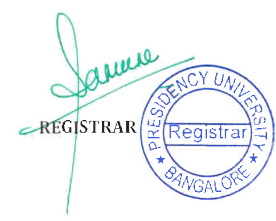
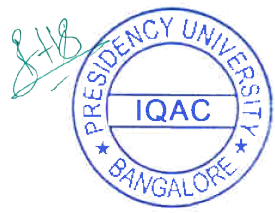
Presidency University, Bengaluru
Value Added Course Marksheet
School of Engineering

Course Code :		PHYV015			Academic Year :		2019-20	
Course Name :		Advanced Amorphous Materials			Semester :		Odd	
					Instructor-in-Charge Name :		Dr N Sivasankara Reddy	
					Instructor-in-Charge Employee ID :		PUNIV00473	
S. No	UID No	Roll No	Name	School SoE/SoL (e.g. SoE/SoL etc)	Attendance (in %)	Marks	Eligible for Certificate (Y/N)	Remark
1	20191CCE0042	20191CCE0042	R VAISHNAVI	SoE	93	87	Y	NIL
2	20191CCE0051	20191CCE0051	SANJAY GOWDA N	SoE	97	94	Y	NIL
3	20191CIV0035	20191CIV0035	LEELA KRISHNA R	SoE	90	91	Y	NIL
4	20191CIV0044	20191CIV0044	NAYAN B S	SoE	100	95	Y	NIL
5	20191CIV0050	20191CIV0050	PRASHAN CHOUHAN	SoE	100	93	Y	NIL
6	20191CIV9003	20191CIV9003	ABHISHEK A	SoE	97	88	Y	NIL
7	20191COM0054	20191COM0054	DUDYALA LAVANYA	SoE	97	87	Y	NIL
8	20191COM0063	20191COM0063	GAURAV CHAUHAN	SoE	93	88	Y	NIL
9	20191COM0082	20191COM0082	JAVVAJI L V PRASANNA SANDEEP KUMAR	SoE	90	86	Y	NIL
10	20191COM0129	20191COM0129	MOHAMMED AYAN	SoE	90	67	Y	NIL
11	20191COM0182	20191COM0182	SHAIK MOHAMMED INTHIAZ	SoE	97	87	Y	NIL
12	20191COM0193	20191COM0193	SREEREDDY SAI PRADEEP REDDY	SoE	100	88	Y	NIL
13	20191COM0198	20191COM0198	SUNKARA PREM KUMAR REDDY	SoE	87	75	Y	NIL
14	20191COM0214	20191COM0214	V PRUDHVI	SoE	83	70	Y	NIL



15	20191COM0227	20191COM0227	YERRAGUNTA TARUN SAI	SoE	90	75	Y	NIL
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[Handwritten Signature]
Department of Physics
School of Engineering
PRESIDENCY UNIVERSITY
Lajekunte, Yelahanka, Bengaluru -64





PRESIDENCY UNIVERSITY

(Established under the Presidency University Act, 2013 of the Karnataka Act 41 of 2013)

Name of the School: Engineering

Name of the Department: Physics

Area of Specialization: Condensed Matter Physics Name of the Faculty Member(s): Dr.T.Ranjeth Kumar Reddy

Title of the Value Added Course: Solid State Physics

Course Code: PHY V 006

Course Duration: 30 hours [From July 1 to July 30 2020]

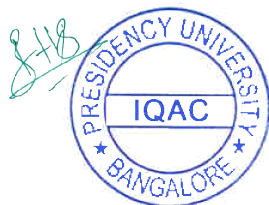
Introduction to the Course: This course is intended to provide an introduction to the physics of solids. We will begin by characterizing the properties of static (crystal structure) and dynamic (lattice vibrations) arrangements of atoms. Next we will study electrons in solids and will identify key features distinguishing metals, insulators and semiconductors. We will end with nearly free electron model, tight binding approximation. Topics of current interest will be covered throughout the course.

Course Outcomes: On successful completion of the course the students shall be able to:

1. Understand the crystal structure, electronic and vibrational properties of solid-state systems.
2. Explain the crystal systems in different materials
3. Predict the structure of solid-state systems

Course Content: Crystal Physics: Classification of condensed matter-crystalline and noncrystalline solids, Bonding in solids - Ionic, covalent and metallic solids, the van der Waals interaction, hydrogen bonding, crystal symmetry, point groups, space groups, lattices and basis, typical crystal structures. Unit 2: Reciprocal lattice, Bragg's law of diffraction, X-ray, neutron, and electron diffraction, Brillouin zone, structure factor. Defects in Crystals: Point defects - Frenkel and Schottky defects; Dislocations - models of screw and edge dislocations, Burgers vector; Surface imperfections – grain boundaries, tilt boundaries, twin boundaries and stacking faults; Volume defects.

Approval by the HOD

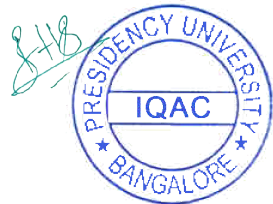


Presidency University, Bengaluru
Department of Physics
School of Engineering

VAC DETAILS
Total number of hours:30
Value added Course(VAC) Name and Code:PHY V006
Name of the Instructor:Dr T Ranjeth Kumar Reddy

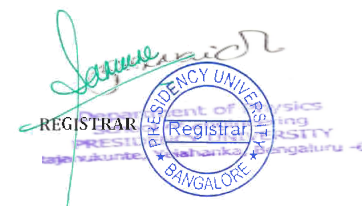
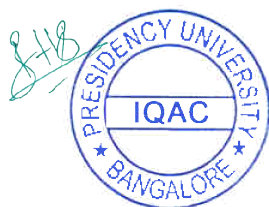
NOTE:1. If 1 or more classes are engaged on same day. Then change timings by repeating date
2. Enter date and timings according to the VAC class engaged

S.No.	STUDENT ID NO	STUDENT NAME	2/12/19	4/12/19	6/12/19	9/12/19	12/12/19	14/12/19	16/12/19	18/12/19	20/12/19	21/12/19	22/12/19	24/12/19	27/12/19	28/12/19	29/12/20	Total classes conducted	Total classes attended	Percentage attended
			5-7 PM	5-7 PM	5-7PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM			
1	2019ECE0139	JEENAGALA HARSHA VARDHAN NAI	p	P	p	p	p	p	p	P	p	p	p	p	A	p	P	30	28	93%
2	2019ECE0148	KANDULA JITHENDRA SUBRAMANYA	p	A	A	p	p	p	p	A	p	p	p	p	P	p	p	30	24	80%
3	2019ECE0168	KUMMARI BHARATH KUMAR	p	P	p	p	p	p	p	P	p	A	p	p	P	p	P	30	28	93%
4	2019ECE0174	LEBAKU SRAVAN KUMAR REDDY	p	p	p	p	P	p	p	p	p	p	p	A	p	p	p	30	28	93%
5	2019ECE0216	NIRANJAN L	p	p	p	p	p	p	p	A	P	p	p	p	p	p	p	30	28	93%
6	2019EEE0001	ABHISHEK C	p	p	A	p	p	p	p	a	a	p	p	p	p	p	p	30	24	80%
7	2019EEE0022	NANDA KISHORE KIRAN DESHPAND	p	p	p	p	p	p	p	P	p	A	p	p	p	p	p	30	28	93%
8	20191COM0117	MADDULA VENKATA SUNIL KUMAR	A	p	p	p	p	p	A	P	p	p	p	p	p	p	p	30	26	87%
9	20191COM0140	NARREDDY VISHNU VARDHAN REDD	p	p	p	p	p	p	P	p	p	p	p	p	A	p	p	30	28	93%
10	20191COM0178	SATISH C	A	p	p	p	P	p	P	P	p	A	P	p	p	p	p	30	26	87%
11	20191COM0207	THIMMANA CHARAN AJAY KUMAR	p	p	p	A	p	A	a	p	p	A	p	A	p	p	p	30	20	67%
12	20191CSE0142	EDIGA MAHENDRA GOUD	p	A	P	P	p	p	P	a	p	P	p	p	P	P	P	30	26	87%
13	20191CSE0179	GUNJAPODUGU RAKESH	p	P	p	p	p	p	P	p	p	p	A	p	P	p	P	30	28	93%



Presidency University, Bengaluru
Value Added Course Marksheet
School of Engineering

Course Code :		PHYV006			Academic Year :		2019-2020	
Course Name :		Solid State Physics			Semester :		Odd Semester	
					Instructor-in-Charge Name :		Dr T Ranjeth Kumar Reddy	
					Instructor-in-Charge Employee ID :		PUNIV00873	
S. No	UID No	Roll No	Name	School (e.g. SOE/SOL etc)	Attendance (in %)	Marks	Eligible for Certificate (Y/N)	Remark
1		20191ECE0139	JEENAGALA HARSHA VARDHAN NAIDU	SOE	93%	64	Y	NIL
2		20191ECE0148	KANDULA JITHENDRA SUBRAMANYAM	SOE	80%	65	Y	NIL
3		20191ECE0168	KUMMARI BHARATH KUMAR	SOE	93%	65	Y	NIL
4		20191ECE0174	LEBAKU SRAVAN KUMAR REDDY	SOE	93%	78	Y	NIL
5		20191ECE0216	NIRANJAN L	SOE	93%	45	Y	NIL
6		20191EEE0001	ABHISHEK C	SOE	80%	43	Y	NIL
7		20191EEE0022	NANDA KISHORE KIRAN DESHPANDE	SOE	93%	76	Y	NIL
8		20191COM0117	MADDULA VENKATA SUNIL KUMAR	SOE	87%	56	Y	NIL
9		20191COM0140	NARREDDY VISHNU VARDHAN REDDY	SOE	93%	78	Y	NIL
10		20191COM0178	SATISH C	SOE	87%	56	Y	NIL
11		20191COM0207	THIMMANA CHARAN AJAY KUMAR	SOE	67%	76	Y	NIL
12		20191CSE0142	EDIGA MAHENDRA GOUD	SOE	87%	78	Y	NIL
13		20191CSE0179	GUNJAPODUGU RAKESH	SOE	93%	79	Y	NIL





PRESIDENCY UNIVERSITY

(Established under the Presidency University Act, 2013 of the Karnataka Act 41 of 2013)

Name of the School: SoE

Name of the Department: Physics

Area of Specialization: Condensed Matter Physics

Name of the Faculty: Dr. Harish Sharma Akkera

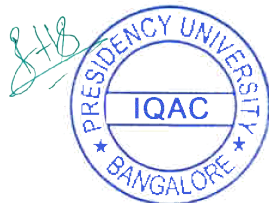
Title of the Value Added Course: Semiconductor Optoelectronic devices

Course Code: PHY V 009

Course Duration: [30 hours]

Introduction to the Course:

The main objective of this course is to study the concepts of semiconductor optoelectronics that help develop the ability to fabricate, design, and apply to engineering applications. This course covers the areas, namely, semiconductor physics, semiconductor light sources, and optoelectronic photodetector devices. The course includes the concepts of band gap engineering, heterostructure p-n junction diodes, Schottky junctions, and fabrication of heterostructure devices are discussed in a detailed manner. It also emphasizes LED device structure and output characteristics, materials for LED, Lasers, semiconductors & quantum well lasers. Finally, general characteristics of photodetectors, photoconductors, semiconductor photo-diodes, PIN diodes, and APDs: structure, materials, characteristics, and device performance, other photodetectors: Photo-Transistors, Solar cells, and CCDs are discussed.



Course Outcomes: On successful completion of the course the students shall be able to :

01. Explain the properties of semiconductors, semiconductor light sources and optoelectronic photodetector devices.

02. Apply the knowledge of semiconductor physics in various optoelectronic device applications.


Course Content:

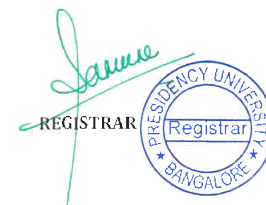
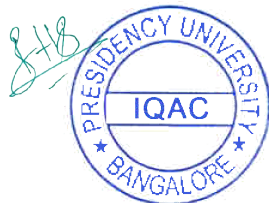
Module 1: Review on Semiconductors; Introduction to semiconductors, Types of Semiconductors, Band gap engineering, heterostructure p-n junction diodes, Schottky Junctions and Ohmic contacts, Fabrication of Heterostructure devices.

Module 2: Semiconductor light sources; Injection Electroluminescence, Light Emitting Diode: Device structure and output characteristics, modulation bandwidth, materials for LED, and applications, Laser basics, semiconductor laser: Device structure and output characteristics, Quantum well lasers, Practical laser diodes & handling

Module 3: Semiconductor Photodetectors; General characteristics of photodetectors, the Impulse response of photodetectors, Photoconductors, semiconductor photo-diodes, PIN diodes, and APDs: Structure, Materials, Characteristics, and Device performance, Other photodetectors: Photo-Transistors, Solar cells, and CCDs.

Approval by the HOD.


Department of Physics
School of engineering
PRESIDENCY UNIVERSITY
Lajekunte, Yelahanka, Bengaluru -56



Presidency University, Bengaluru

Department of Physics

School of Engineering

VAC DETAILS
 Total number of hours:30
 Value added Course(VAC) Name and Code: Semiconductor Optoelectronic Devices
 Name of the Instructor: Dr. Harish Sharma Akkera

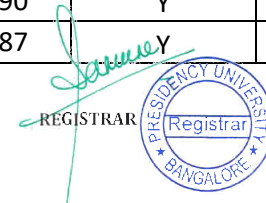
NOTE:1. If 1 or more classes are engaged on same day. Then change timings by repeating date
2. Enter date and timings according to the VAC class engaged

S.No.	STUDENT ID NO	STUDENT NAME	8/12/2019	9/12/2019	10/12/2019	11/7/2019	12/12/2019	13/12/2019	15/12/2019	16/12/2019	19/7/2019	20/7/2019	21/7/2019	22/7/2019	23/7/2019	24/7/2019	27/7/2019	Total classes conducted	Total classes attended	Percentage attended
			5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM	5-7 PM				
1	20191ECE0359	VISHAL V M	P	A	P	P	P	P	P	A	P	P	P	A	P	P	A	30	22	73%
2	20191ECM0028	SHRIKRISHNA	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	30	28	93%
3	20191ECM0035	T SATHYANARAYANA REDDY	P	P	P	P	P	P	P	A	A	A	A	P	A	P	P	30	20	67%
4	20191ECM0043	VARSHA V GONDHKAR	P	P	A	P	P	P	P	P	P	P	P	P	P	P	A	30	26	87%
5	20191EEE0026	PERAM BHARGAV REDDY	A	A	P	A	P	P	P	P	P	P	A	P	P	P	A	30	20	67%
6	20191ISE0003	ABHISHEK K	P	P	A	P	P	A	A	A	A	A	A	A	A	A	P	30	10	33%
7	20191ISE0081	LEHARI U	P	A	P	P	A	P	P	A	P	P	P	P	P	P	P	30	24	80%
8	20191ISE0098	MANJUSHREE S	P	P	P	A	P	P	P	P	P	P	P	A	A	P	A	30	24	80%
9	20191ISE0100	MANVITA M	A	P	A	P	P	A	P	P	A	P	P	P	P	A	P	30	20	67%
10	20191ISE0161	SIRIPURAM RAJESH	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	30	28	93%
11	20191IST0002	ADITI	A	P	P	P	A	P	A	P	P	P	P	P	P	P	A	30	22	73%
12	20191IST0006	AMRITA BHATTACHARJEE	P	A	P	P	P	P	P	P	P	P	P	A	P	P	A	30	24	80%
13	20191IST0015	ASHISH KUMAR CHAUDHARY	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100%
14	20191IST0027	BUGIDI SAI PRASAD	P	A	P	A	P	P	P	A	P	A	P	P	P	P	P	30	22	73%
15	20191IST0030	CHANDANA K S	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100%



Presidency University, Bengaluru
Value Added Course Marksheet
School of Engineering

Course Code :		PHYV 009		Academic Year :			2019-2020	
Course Name :		Semiconductor Optoelectronic Devices		Semester :			Odd Semester	
				Instructor-in-Charge Name :			Dr. Harish Sharma Akkera	
				Instructor-in-Charge Employee ID :			PUNIV01155	
S. No	UID No	Roll No	Name	School (e.g. SoE/SoL etc)	Attendance (in %)	Marks	Eligible for Certificate (Y/N)	Remark
1		20191ECE0359	VISHAL V M	SoE	73%	76	Y	NIL
2		20191ECM0028	SHRIKRISHNA	SoE	93%	89	Y	NIL
3		20191ECM0035	T SATHYANARAYANA REDDY	SoE	67%	54	Y	NIL
4		20191ECM0043	VARSHA V GONDHKAR	SoE	87%	85	Y	NIL
5		20191EEE0026	PERAM BHARGAV REDDY	SoE	67%	69	Y	NIL
6		20191ISE0003	ABHISHEK K	SoE	33%	32	N	NIL
7		20191ISE0081	LEHARI U	SoE	80%	77	Y	NIL
8		20191ISE0098	MANJUSHREE S	SoE	80%	75	Y	NIL
9		20191ISE0100	MANVITA M	SoE	67%	59	Y	NIL
10		20191ISE0161	SIRIPURAM RAJESH	SoE	93%	78	Y	NIL
11		20191IST0002	ADITI	SoE	73%	79	Y	NIL
12		20191IST0006	AMRITA BHATTACHARJEE	SoE	80%	69	Y	NIL
13		20191IST0015	ASHISH KUMAR CHAUDHARY	SoE	100%	90	Y	NIL
14		20191IST0027	BUGIDI SAI PRASAD	SoE	73%	87	Y	NIL



15		20191IST0030	CHANDANA K S	SoE	100%	90	Y	NIL
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Department of Physics
School of Engineering
PRESIDENCY UNIVERSITY
Jayanukunte, Yelahanka, Bengaluru -64





PRESIDENCY UNIVERSITY

(Established under the Presidency University Act, 2013 of the Karnataka Act 41 of 2013)

Name of the School: Engineering

Name of the Department: Physics

Area of Specialization: Material Science

Name of the Faculty Member(s): Dr. Deepthi P R

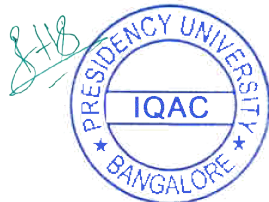
Title of the Value Added Course: Crystal Growth and Technology

Course Code: PHY V 002

Course Duration: 30 hours [From Feb 16 to Apr 20 2020]

Introduction to the Course: For many decades, semiconductor crystals have been the core in applications such as electronics and optoelectronics. New semiconductor crystals with exceptional physical and chemical properties will continuously allow us to envision a new pattern in a wide range of technological fields, therefore developing capability of growing new semiconductor crystals that have desirable physical and chemical properties is the key to further advancement. The growth of crystals critically depends on the nature of environment in which crystals grow. Understanding fundamental processes involved in the growth of crystals therefore is very important. In this course, we will discuss several key processes that occur in the growth of crystals to build a coherent picture of how growth conditions impact these processes. This course is also intended to give students a more complete picture of different crystal growth techniques such as, melt growth, vapor growth and solution growth techniques. This course emphasizes the application of crystal growth especially in the design and fabrication of sensors and optoelectronic devices.


Course Outcomes: On successful completion of the course the students shall be able to:

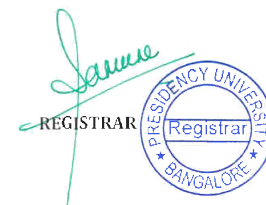
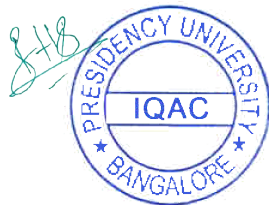


1. Define common terminology used in crystallography
2. Identify nucleation in crystal growth process.
3. Identify different crystal systems.
4. Understand different growth techniques.
5. Differentiate solution growth from other methods.

Course Content: This course will give an introduction to crystal growth techniques. This course is also intended to give students a more complete picture of saturation and nucleation. A much more detailed discussion of melt growth, vapour growth and solution growth techniques will be discussed in detail.

Approval by the HOD


Department of Physics
School of engineering
PRESIDENCY UNIVERSITY
Lajekarunte, Yelahanka, Bengaluru -64



Presidency University, Bengaluru
Department of Physics
School of Engineering
VAC DETAILS
Total number of hours:30
Value added Course(VAC) Name and Code: Crystal Growth and Technology PHY V002
Name of the Instructor: Dr Deepthi P R

NOTE: 1. If 1 or more classes are engaged on same day, Then change timings by repeating date
 2. Enter date and timings according to the VAC class engaged

S.No.	STUDENT ID NO	STUDENT NAME	16-02-2020	16-02-2020	16-02-2020	17-02-2020	17-02-2020	23-02-2020	23-02-2020	24-02-2020	24-02-2020	02-03-2020	03-03-2020	03-03-2020	06-03-2020	09-03-2020	09-03-2020	10-03-2020	10-03-2020	16-03-20	16-03-20	20-03-2020	21-03-2020	23-03-2020	24-03-2020	24-03-2020	06-04-2020	06-04-2020	20-04-2020	20-04-2020	Total classes conducted	Total classes attended	Percentage attended	
			1.30 to 2.30	2.30 to 3.30	3.30 to 4.30	2 to 3	3 to 4	2 to 3	3 to 4	2 to 3	3 to 4	2 to 3	3 to 4	2 to 3	3 to 4	7 to 8	2 to 3	3 to 4	2 to 3	3 to 4	2 to 3	3 to 4	7 to 8	7 to 8	2 to 3	3 to 4	2 to 3	3 to 4	2 to 3	3 to 4				2 to 3
1	20191CCE0001	A CHARAN	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	29	96.67
2	20191CCE0003	AKSHAYA BHAMANI H S	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	30	28	93.33	
3	20191CIV0003	ABHISHEK B	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100.00	
4	20191CIV9001	DINAKAR NAIK A T	A	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	30	27	90.00	
5	20191COM0001	ABDUL BASITH T C	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100.00	
6	20191COM0003	ADITYA SAI NATEKAR	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	30	29	96.67	
7	20191COM0004	AKULA ANUDEEP	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	29	96.67	
8	20191COM0006	ALYA ARCHANA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	30	29	96.67	
9	20191COM0007	AMRUTHA S	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100.00	
10	20191COM0010	ANGADALA JALAPATHI NAAGA DAS	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A	P	P	P	30	27	90.00	
11	20191CSE0001	A S NITESH KUMAR	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100.00	
12	20191CSE0004	ABDUR RAHMAN MUSHTAQ SHAWU	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100.00	
13	20191CSE0006	ABHISHEK H M	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30	30	100.00	
14	20191CSE0010	ADNAN SAIF S	A	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A	P	P	P	P	30	26	86.67	
15	20191CSE0013	AISHWARYA RAIKAR	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	A	30	27	90.00	



Presidency University, Bengaluru
Value Added Course Marksheet
School of Engineering

Course Code :		PHY V 002			Academic Year :		2019-2020	
Course Name :		Crystal Growth and Technology			Semester :		Even Semester	
					Instructor-in-Charge Name :		Dr Deepthi P R	
					Instructor-in-Charge Employee ID :		PUNIV00021	
S. No	UID No	Roll No	Name	School (e.g. SoE/SoL etc)	Attendance (in %)	Marks	Eligible for Certificate (Y/N)	Remark
1		20191CCE0001	A CHARAN	SoE	97%	82	Y	NIL
2		20191CCE0003	AKSHAYA BHAMANI H S	SoE	94%	83	Y	NIL
3		20191CIV0003	ABHISHEK B	SoE	100%	80	Y	NIL
4		20191CIV9001	DINAKAR NAIK A T	SoE	90%	77	Y	NIL
5		20191COM0001	ABDUL BASITH T C	SoE	100%	72	Y	NIL
6		20191COM0003	ADITYA SAI NATEKAR	SoE	97%	91	Y	NIL
7		20191COM0004	AKULA ANUDEEP	SoE	97%	68	Y	NIL
8		20191COM0006	ALYA ARCHANA	SoE	97%	78	Y	NIL
9		20191COM0007	AMRUTHA S	SoE	100%	88	Y	NIL
10		20191COM0010	ANGADALA JALAPATHI NAAGA DASTAGIRI	SoE	90%	77	Y	NIL
11		20191CSE0001	A S NITESH KUMAR	SoE	100%	82	Y	NIL
12		20191CSE0004	ABDUR RAHMAN MUSHTAQ SHAWL	SoE	100%	89	Y	NIL
13		20191CSE0006	ABHISHEK H M	SoE	100%	82	Y	NIL
14		20191CSE0010	ADNAN SAIF S	SoE	87%	77	Y	NIL
15		20191CSE0013	AISHWARYA RAIKAR	SoE	90%	76	Y	NIL

