NARSIMHA REDDY ENGINEERING COLLEGE
UGC AUTONOMOUS INSTITUTION
Maisammaguda (V), Kompally - 500100, Secunderabad, Telangana State, India
UGC - Autonomous Institute
Accredited by NBA & NAAC with 'A' Grade
Approved by AICTE
Permanently affiliated to JNTUH

UNIT-I PRINCIPLES OF SOLAR ENERGY

SI.NO	**Questions** Part–A(Short answer questions)	LO	CO	PO
1	What are the key differences between renewable and non-Renewable energy sources?	L1	CO1	1,2,3,6,7
2	Explain the importance of developing renewable energy sources	L1	CO1	1,2,3,6,7
3	What are hybrid energy systems? Provide an example.	L2	CO1	1,2,3,6,7
4	Explain methods of measuring solar radiation	L2	CO1	1,2,3,6,7
5	Explain the principle and working of solar flat plate collectors.	L1	CO1	1,2,3,6,7
6	What are the key elements of renewable electricity systems?	L1	CO1	1,2,3,6,7
7	Discuss the potential of renewable energy sources inIndia.	L1	CO1	1,2,3,6,7
8	What is the role of renewable energy in sustainable development L1	L2	CO1	1,2,3,6,7
9	HowcanrenewableenergyhelpreduceCO2emissions?	L1	CO1	1,2,3,6,7
10	. Define renewable energy and give two examples	L1	CO1	1,2,3,6,7
SI.NO	**Questions** **Part–B(Long answer questions)**	**LO**	**CO**	**PO**

1	Discuss the global and Indian energy scenarios in detail, highlighting the role and potential of renewable energy sources in meeting future energy demands	L1	CO1	1,2,3,6,7
2	Explain the basic principles of solar radiation and its interaction with Earth.	L2	CO1	1,2,3,6,7
3	Discuss the solar spectrum and its importance in solar energy utilization	L1	CO1	1,2,3,6,7
4	Derive the expression for the angle of incidence on a tilted surface. • Geometry of sun-earth relationship • Effect of tilt and orientation • Applications in solar collectors	L1	CO1	1,2,3,6,7
5	Explain the solar constant and factors affecting it. • Definition (~1367 W/m²) • Variation due to Earth's orbit	L1	CO1	1,2,3,6,7