COURSE CODE: **1154EE126**	COURSE TITLE: **STANDARDS, CALIBRATION, TESTING & MAINTENANCE OF ELECTRICAL EQUIPMENTS**	L	T	P	C
		3	**0**	**0**	**3**

COURSE CATEGORY:

University Elective

PREAMBLE :

This course introduces the Electrical safety operations and IEEE Standards

PREREQUISITE COURSES:

Basic Electrical Engineering

RELATED COURSES:

Measurement and Instrumentation

COURSE EDUCATIONAL OBJECTIVES:

The objectives of the course are to make the students,

- To develop Calibration Professionals capable of handling calibration laboratories & managing calibration system in an organization
- Understand Measurement Units, Standards, Systems, Testing & Calibration, Traceability & Uncertainty, Mathematics &and Applied Statistics
- Understanding standards ISO 9001 & 17025 requirements with regard to Laboratory Management for implementation & maintenance of accreditation

COURSE OUTCOMES :

Upon the successful completion of the course, students will be able to:

CO Nos.	Course Outcomes	Knowledge Level (Based on revised Bloom's Taxonomy)
CO1	Measurement standards and its units	K2
CO2	Measurement methods and characteristics of measurements	K2
CO3	Calibration procedures and methods of calibration	K2
CO4	Basics of Statistics and applied mathematics	K2
CO5	To estimate the uncertainty & reporting about uncertainty	K2

CORRELATION OF COs AND POs

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			M					L	M			L
CO2	L		M	M				L	M			
CO3			M	L				L	M			
CO4				L				L			M	
CO5	M			H				L	M			

COURSE CONTENT:		
UNIT I	**GENERAL METROLOGY**	**9**
Global metrology scenario, Measurement units, Measurement standards & Measurement traceability		
UNIT II	**MEASUREMENT SYSTEM**	**9**
Measurement methods, Measurement data & characteristics of measurements, T&ME specifications, Primary error sources, Measurement systems and capabilities & Measurement assurance programs		
UNIT III	**CALIBRATION SYSTEM**	**9**
Calibration procedures & methods, Industry practices & regulations, Control of calibration environment, Calibration processes, Manual & automated calibration, Calibration results & reporting and Records & records management		
UNIT IV	**APPLIED MATHEMATICS & STATISTICS**	**9**
Technical & Applied mathematics, QC tools and Applied statistics		
UNIT V	**UNCERTAINTY**	**9**
Uncertainty management, Uncertainty components, Estimation of uncertainty, Evaluation of uncertainty & Reporting uncertainty		
		TOTAL: 45 PERIODS

TEXT BOOKS:

1. Operation and maintenance of electrical equipments by B.V.S Rao, media promoters and publishers, volume1.

REFERENCE BOOKS:

1. Measurement and instrumentation: Theory and application by Alan s Morris, 2nd edition 2015 Elsevier.