



SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act, 1956)

Accredited with B⁺⁺ Grade by NAAC

(A CHRISTIAN MINORITY INSTITUTION)

Jeppiaar Nagar, Old Mamallapuram Road, Chennai 600 119.



FACULTY OF ELECTRICAL AND ELECTRONICS

Minutes of Board of Studies Meeting held on 30-04-2016

Venue: Conference Hall, Central Library, Sathyabama University, Chennai-119

- The Faculty Head, Dr.E.Logashanmugam greeted and welcomed all members of Board of studies. The HODs of ECE, EEE, E&I, E&C and ETCE under the Faculty of Electrical and Electronics, Staff members from the faculty attended the meeting to have an effective interaction with the members as and when required.
- Dr.V.Sivachidambaranathan, Prof.& Head, Dept. of Electrical and Electronics Engineering requested Dr.Susitra, Faculty/EEE to present the curriculum revisions before the board.
- She has presented the old and new syllabus for DC machines and transformer (theory and practical) before the board and discussed the valid additions made in the syllabus.
- Dr.V.Sivachidambaranathan put forth the syllabus of the new courses, 'Advanced Power Electronics', 'Electric Vehicles' for the approval of the board.
- Dr.N Sivakumaran approved the Syllabus for these new courses.
- The meeting ended with vote of thanks from the Faculty Head Dr.E.Logashanmugam.

Name of the Course: **DC MACHINES AND TRANSFORMERS**

Course Code : **SEE1204**

Unit	Content	Remarks
I	<p>ELECTRO-MECHANICAL CONVERSION</p> <p>Introduction - Principles of Energy Conversion - Field Energy and Co-energy in Linear Systems - Energy Flow - Losses and Efficiency - Singly and Multiply Excited Magnetic Field Systems - Torque Production in Rotating Machines - General Analysis of Electromechanical system</p> <p>Constructional details – Principle of operation – E.M.F equation – Methods of excitation: Types – No load & load characteristics of series, shunt & compound generators – Armature reaction, effects, methods of compensation – Commutation : methods of improving Commutation – Applications – DC Tachogenerator</p>	<p>To have exposure on energy conversion principles.</p> <p>Inclusion Content shifted to unit 2 Deletion</p>
II	<p>D.C. GENERATORS</p> <p>Constructional Details - Principle of Operation - E.M.F Equation - Methods of Excitation - Types - No load & Load characteristics of Series, Shunt & Compound generators - Armature Reaction, Effects, Methods of Compensation - Commutation: Methods of Improving Commutation - Applications.</p> <p>D.C. MOTORS</p> <p>Principle of operation – Back emf & Torque equation – Characteristics of series, shunt & compound motors – starting of DC motors – Type of starters – Speed control of DC series & shunt motors – Applications.</p>	<p>Content shifted to unit 3</p>
III	<p>D.C. MOTORS AND TESTING OF D.C. MACHINES</p> <p>Principle of Operation - Back E.M.F & Torque Equation - Characteristics of Series, Shunt & Compound Motors - Starters - Speed Control of DC Series & Shunt Motors - Electrical Braking - Testing of DC Machines - Brake Test, Swinburne's Test & Hopkinson's Test</p> <p>TESTING OF D.C MACHINES</p> <p>Parallel operation of DC shunt generators – Losses & efficiency – condition for maximum efficiency – Testing of DC machines – Brake test, Swinburne's test & Hopkinson's test – Introduction to electric braking of DC shunt and series motor – Plugging, Dynamic & Regenerative braking .</p>	<p>Content shifted to unit 3</p>

IV	TRANSFORMERS 9 Hrs. Principle of Operation - Constructional Details - E.M.F. Equation - Transformation Ratio - Transformer on No Load - Parameters Referred to HV / LV Windings - Equivalent Circuit - Transformer On Load - Phasor diagram - Regulation - Testing of Transformer - Open Circuit and Short Circuit Test - All day Efficiency - Sumpner's Test.	No change
V	SPECIAL TRANSFORMERS AND THEIR APPLICATIONS Auto Transformer - Saving of copper in comparison with Two winding Transformer - Parallel Operation of Single Phase Transformers - Construction of Three Phase Transformer - Transformer Connections – Scott connection - Three Phase to Single Phase Transformer conversion - Elementary Ideas on Instrument Transformers and Toroidal Transformer.	No change

Name of the Course: DC MACHINES AND TRANSFORMERS LAB Course Code : SEE4053		
Unit	Content	Remarks
	SUGGESTED LIST OF EXPERIMENTS <ol style="list-style-type: none"> OCC and load characteristics of self excited dc shunt generator OCC and load characteristics of separately excited dc shunt generator Load characteristics of DC series generator Load characteristics of DC compound generator (Differential and Cumulative) Load characteristics of DC shunt motor Load characteristics of DC series motor Load characteristics of DC compound motor (Differential and Cumulative) Speed control of DC shunt motor Swinburne's test on DC shunt motor Hopkinson's test. OC and SC test on single phase transformer Load test on single phase transformer Parallel Operation of Single Phase Transformer Sumpner's Test on Single Phase Transformer SUGGESTED LIST OF EXPERIMENTS <ol style="list-style-type: none"> OCC and load characteristics of self excited dc shunt generator OCC and load characteristics of separately excited dc shunt generator Load characteristics of DC series generator Load characteristics of DC compound generator (Differential and Cumulative) Load characteristics of DC shunt motor Load characteristics of DC series motor Load characteristics of DC compound motor (Differential and Cumulative) Speed control of DC shunt motor Swinburne's test on DC shunt motor OC and SC test on single phase transformer Load test on single phase transformer Parallel Operation of Single Phase Transformer 	Theory related experiments are included

