



**CURRICULAR STRUCTURE**

FORM Nº 19 – **COURSE SYLLABUS/ACTIVITY**

**CONTENT OF STUDIES**

**ELECTRICAL MACHINE**

<b>SUBJECT NAME/ACTIVITY</b> Electromechanical Energy Conversion I	<b>CODE</b> TEE03054	<b>CONCEPTION ( )</b> ALTERATION: NAME ( ) CL ( ) TRANSLATION: (X)
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DEPARTMENT/IMPLEMENTATION COORDINATION: ELECTRICAL ENGINEERING DEPARTMENT

COURSE LOAD: 60 HOURS      THEORETICAL: 30 HOURS      PRACTICAL: 30 HOURS      INTERNSHIP: 0 HOURS

**PROGRAM CONTENT**

PRINCIPLES OF ELECTROMECHANICAL ENERGY CONVERSION. GENERAL CHARACTERISTIC OF ROTATING MACHINES; DIRECT CURRENT MACHINES: FUNCTIONAL'S PRINCIPLES, CONSTRUCTIVE AND OPERATIONAL CHARACTERISTICS; LABORATORY EXPERIMENTS OF DIRECT CURRENT MACHINES.

1<sup>ST</sup> EXPERIMENT – SINGLE-PHASE TRANSFORMER – VERIFICATION OF CURRENT WAVE FORM ON NO LOAD STATE AND IN-RUSH CURRENT;

2<sup>ND</sup> EXPERIMENT – DETERMINATION OF TRANSFORMER PARAMETERS;

3<sup>RD</sup> EXPERIMENT – EFFICIENCY AND SETTING OF TRANSFORMERS;

4<sup>TH</sup> EXPERIMENT – AUTO-TRANSFORMER TESTS;

5<sup>TH</sup> EXPERIMENT – FUNCTIONING OF A DC ELECTRICAL GENERATOR WITH SEPARATE EXCITATION AND DERIVATION, WITH VARIABLE LOAD;

6<sup>TH</sup> EXPERIMENT – SPEED CONTROL OF DC ELECTRICAL MOTOR WITH CONSTANT LOAD, VARYING VOLTAGE IN ROTOR;

7<sup>TH</sup> EXPERIMENT – BRAKING OF DC ELECTRICAL MOTOR BY ELECTRODYNAMIC EFFECT (UTILIZING GENERATOR);

8<sup>TH</sup> EXPERIMENT – TESTS OF SINGLE-PHASE ELECTRICAL MOTOR – CAPACITOR AND DOUBLE CAPACITOR START.

**BASIC BIBLIOGRAPHY:**

1. A. MARTIGNONI, "ENSAIOS DE MAQUINAS ELÉTRICAS", ED. GLOBO, 2ª EDIÇÃO, 1987;
2. L.P. BARBOSA, Q.G.SANTOS, R.P.LIMA AND V.P.BATISTA JR., "EXPERIMENTOS DE MAQUINAS ELÉTRICAS", AGBOOK; 1ST. EDITION, 2012;
3. FITZGERALD, A.E., KINGSLEY JR. C. E UMANS, S.D., 2006. MÁQUINAS ELÉTRICAS: COM INTRODUÇÃO À ELETRÔNICA DE POTÊNCIA. 6ª EDIÇÃO, BOOKMAN;
4. BIM, E., 2009. MÁQUINAS ELÉTRICAS E ACIONAMENTO. 2ª EDIÇÃO, EDITORA ELSEVIER;
5. CHAPMAN, S., 2010. ELECTRIC MACHINERY FUNDAMENTALS. 5TH ED., MCGRAW-HILL;
6. SEN, P.C., 1997. PRINCIPLE OF ELECTRIC MACHINES AND POWER ELECTRONICS. 2ND ED., JOHN WILEY & SONS;
7. GURU, B.S., HIZIROGLU, H.R., 2001. ELECTRIC MACHINERY AND TRANSFORMERS. 3RD ED. OXFORD UNIVERSITY PRESS.

**COMPLEMENTARY BIBLIOGRAPHY:**

1. MARTIGNONI, A., 2007. MAQUINAS ELÉTRICAS DE CORRENTE CONTÍNUA. 1ª EDIÇÃO, EDITORA GLOBO.



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2. SLEMON, G.R., 1966. MAGNETOELECTRIC DEVICES: TRANSDUCERS, TRANSFORMERS, AND MACHINES. 1ST ED., JOHN WILEY & SONS.  
3. KOSOW, I., 1986. MÁQUINAS ELÉTRICAS E TRANSFORMADORES. EDITORA GLOBO.

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COURSE COORDINATOR

DATE 24 / 01 / 2018

November/2017

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HEAD OF ELECTRICAL ENGINEERING DEPARTMENT

DATE 23 / 01 / 2018

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