

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

CONTENT OF STUDIES

ELECTRICAL MACHINERY

SUBJECT NAME/ACTIVITY	CODE	CONCEPTION ()
Laboratory of Three-phase electrical Machinery	TEE00122	ALTERATION: NAME () CL () TRANSLATION: (X)

DEPARTMENT/IMPLEMENTATION COORDINATION: ELECTRICAL ENGINEERING DEPARTMENT

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

PROGRAM CONTENT

EXPERIMENTS: 1ST - MOTOR START - GOAL: VERIFY THE METHODS FOR START ELECTRICAL INDUCTION OR SYNCHRONOUS MOTORS;
2ND - BLOCKED ROTOR, NO LOAD AND FULL LOAD TESTS IN AN INDUCTION MOTOR WITH SQUIRREL CAGE - GOAL: DETERMINATION OF PARAMETERS AND VERIFY OPERATION;
3RD - TESTS IN COILED ROTOR INDUCTION MOTOR WITH EXTERNAL RESISTORS - GOAL: VERIFY THE RELATION BETWEEN TORQUE AND SLIP;
4TH - REACTIVE COMPENSATION OF INDUCTION MOTOR BY MEANS OF A SYNCHRONOUS MOTOR - GOAL: VERIFY THE OPERATION OF A INDUCTION MOTOR AND DRAW THE "V" CURVE FROM A SYNCHRONOUS MOTOR;
5TH - OPERATIONS OF INDUCTION MACHINERY AS A GENERATOR - GOAL: VERIFY THE FUNCTIONING CHARACTERISTICS OF ALTERNATIVE POWER SOURCES FOR RENEWABLE ENERGY GENERATION;
6TH - NO LOAD AND SHORT-CIRCUIT TESTS ON SYNCHRONOUS MACHINERY - GOAL: DRAW GRAPHIC CURVES OF SATURATION ON NO LOAD REGIME, DETERMINE ARMOUR RESISTANCE AND SYNCHRONOUS REACTANCE NON-SATURATED AND SATURATED.
7TH - LOW SLIP TEST. - GOAL: DETERMINATION OF DIRECT AND QUADRATURE AXIS REACTANCES.
8TH - PARALLELISM TEST OF SYNCHRONOUS MACHINES. - GOAL: VERIFICATION OF THE PROCEDURES FOR THE CONNECTION OF A SYNCHRONOUS MACHINE TO THE ELECTRICAL NETWORK, AND BETWEEN TWO SYNCHRONOUS MACHINES OF SIMILAR POWERS SHARING COMMON LOAD.

OPTIONAL LABORATORY PRACTICES

9TH - TEST WITH ZERO POWER FACTOR. - GOAL: DETERMINATION OF THE DISPERSION REACTANCE AND VERIFICATION OF THE ARMATURE REACTION.
10TH - TRANSIENT SHORT-CIRCUIT CHARACTERISTIC IN A SYNCHRONOUS MACHINE. - GOAL: DETERMINATION OF TIME CONSTANTS AND SUB-TRANSIENT AND TRANSIENT REACTANCES.

BASIC BIBLIOGRAPHY:

1. A. MARTIGNONI, "ENSAIOS DE MÁQUINAS 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; 1ª EDIÇÃO, 2012;
3. R. RAMSHAW, R. G. HEESWIJK, "ENERGY CONVERSION – ELECTRIC MOTORS AND GENERATORS", SAUNDERS COLLEGE PUBLISHING, 1990;
4. P. C. SEN, "PRINCIPLES OF ELECTRIC MACHINES AND POWER ELECTRONICS", 3RD ED., 2014;
5. S. CHAPMAN, "ELECTRIC MACHINERY FUNDAMENTALS", MCGRAW-HILL, 2004;
6. A. E. FITZGERALD, C. KINGSLEY JR., S. D. UMANS, "ELECTRIC MACHINERY", MCGRAW-HILL, 2003;



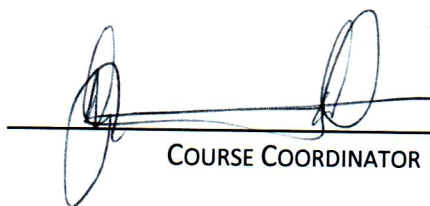
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COORDENADORIA DE APOIO AO ENSINO DE GRADUAÇÃO



7. P. C. SEN, "PRINCIPLES OF ELECTRIC MACHINES AND POWER ELECTRONICS", WILEY, 1997;
8. A. MARTIGNONI, "MÁQUINAS DE CORRENTE ALTERNADA", GLOBO, 1987;
9. CYRIL G. VEINOTT, "FRACTIONAL AND SUBFRACTIONAL HORSE-POWER ELECTRIC MOTORS", MCGRAW-HILL, 1970.

COMPLEMENTARY BIBLIOGRAPHY:

1. A. MARTIGNONI, "MAQUINAS DE CORRENTE ALTERNADA", ED. GLOBO LIVROS, 10ª ED., 1995;
2. S. A. NASAR, "ELECTRIC MACHINES AND ELECTROMECHANICS", MCGRAW-HILL, 1998;
3. V. DEL TORO, O. A. MARTINS, "BASIC ELECTRIC MACHINES", PRENTICE-HALL, 1990;
4. I. L. KOSOW, "MÁQUINAS ELÉTRICAS E TRANSFORMADORES", GLOBO, 2005.

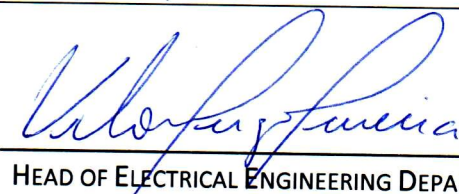


COURSE COORDINATOR

DATE 23 / 01 / 2018

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November/2017



HEAD OF ELECTRICAL ENGINEERING DEPARTMENT

DATE 23 / 01 / 2018

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