University/Academy: Arab Academy for Science and Technology & Maritime Transport
Faculty/Institute: College of Engineering & Technology
Program: Electrical and Control Engineering

Form no. (12)
Course Specification

1- Course Data

Course Code:	**Course Title:**	**Academic Year/Level:**
EE 424	Electrical Drives (1)	4
Specialization:	**No. of Instructional Units:**	**Lecture** 2
Electrical and Control Eng.	3	**Tutorial /Practical** 2

2- Course Aim	• Providing detailed skills related to the subject of DC and AC electrical drives • To investigate the different a aspects of DC and AC drives. • To study the open closed loop operation of the DC drives. • To study the open closed loop operation of the AC drives.
3- Intended Learning Outcome	
a- Knowledge and Understanding	A.4 Principles of design including elements design, process and/or a system related to specific disciplines A.12 Contemporary engineering topics A.28 Applications of industrial automated systems for electrical and control engineering A.29 Understand the principle and design of power electronic and drive system

b- Intellectual Skills	B.2 Select appropriate solutions for engineering problems based on analytical thinking B.11 Analyze results of numerical models and assess their limitations
c- Professional Skills	C.3 Create and/or re-design a process, components or system, and carry out specialized engineering designs C.4 Practice the neatness and aesthetics in design and approach C.19 Implement hardware and interface circuit for digital control and electrical drives system. C.20 Evaluate different techniques and strategies for solving electrical engineering problems
d- General Skills	D.4 Demonstrate efficient IT capabilities D.6 Effectively manage tasks, time, and resources

4- Course Content According to Course Matrix (**Form 11a**), Course File Summary (**ISO MPC 3/2-1** and session Plan (**ISO MPC 3/3-1**)	*Week Number 1:* Single phase separately excited DC motor drives *Week Number 2:* Single phase self excited DC motor drives *Week Number 3:* Semi - converter DC drives *Week Number 4:* Full – converter DC drives *Week Number 5:* Dual converter *Week Number 6:* Reversible converter *Week Number 7:* Closed loop control of DC drives *Week Number 8:* DC chopper drives for DC motors *Week Number 9:* DC chopper drives for DC motors *Week Number 10:* Discontinuous operation of DC chopper drives *Week Number 11:* Induction motor drives, operation & performance *Week Number 12:* V and f control of 3-phase induction motor drives *Week Number 13:* Current control of the 3 -phase induction motor *Week Number 14:* Closed loop control of induction motor drives *Week Number 15:* Synchronous motor drive *Week Number 16:* Final exam
5- Teaching and Learning Methods	- Lectures - Tutorials - Reports & sheets - Laboratories
6- Teaching and Learning Methods for Students with Special Needs	- Lectures - Tutorials - Reports & sheets - Laboratories - Condensed office hours
7- Student Assessment:	Written Examinations to asses The Intended Learning Outcomes Class Activities (Reports, Discussions, ------) to asses The Intellectual Skills
a- Procedures used:	Written Examinations to asses The Intended Learning Outcomes Class Activities (Reports, Discussions, ------) to asses The Intellectual Skills
b- Schedule:	Assessment 1 — 7th Week Written Exam Assessment 2 — 12th Week Written Exam Assessment 3 — Continuous Assessments Assessment 4 — 16th Week Final Written Exam
c- Weighing of Assessment:	7th Week Examination — 30% 12th Week Examination — 10%+10% practical Final-term Examination — 40% Oral Examination — 0% Semester Work — 10%

	Total 100%
8- List of References:	A .F. Fitzgerald, "Electric Machinery", McGraw-Hill Publishing company, 1990
a- Course Notes	
b- Required Books (Textbooks)	M. El-Sharkawi, "Fundamentals of Electric Drive", Brooks/Cole USA, 2000
c- Recommended Books	
d- Periodicals, Web Sites, ..., etc.	

Course Instructor

Name: **Dr. Mostafa Saad**

Signature:

Head of Department

Name: **Prof. Hamdy Ashour**

Signature:

Dean of College of Engineering and Technology of AASTMT

Name: **Prof. Moustafa Hussein Aly**

Signature:

Executive Manager of Quality Assurance Center of AASTMT

Name: **Prof. Aziz Ezzat**

Signature: