تنبيهات هامة

1- عدد أفراد كل جروب يتراوح من **3 الى 5** أفراد فقط.

2- أفراد كل جروب لابد أن يكونوا من نفس السكشن.

3- كل جروب هيختار موضوع معين من المواضيع المتاحة.

4- كل تقرير منقسم الى جزئين أحداهما هيكون بحث عادى جدا من أى مكان (النت او اى كتاب) والجزء التانى عبارة عن برنامج سوفت وير لحساب أو رسم حاجه معينة (كما هو موضح بالموضوع نفسه).

5 -التقرير سوف يتم تسليمه على هيئة
(Pdf file) به كل حاجه حضراتكم عملتوها (نسخة ورقية ونسخة سوف ترسل علي الايميل)

6-يتم توزيع درجات التقرير (10 درجات) كالاتى :

- درجتين على التنظيم والشكل العام للتقرير.
- خمسة درجات على محتوى الريبورت نفسه (بما فيه شغل البرنامج اللى حضراتكم عملتوه).
- ثلاثة درجات على مناقشة التقرير.

7- ميعاد تسليم التقرير من يوم 2022/11/27 الي يوم 2022/11/30 .

8- ميعاد مناقشة التقرير من يوم 2022/12/4 الي يوم 2022/12/8 .

9- شخص فقط من كل جروب هو اللي هيتواصل مع الدكتور او المعيد لو فيه اي استفسار.

10- اللي حابب يسلم او يناقش قبل المواعيد المحددة مفيش اي مشكلة.

Topic # 1

1.A) Different braking methods of the three-phase induction motor (search from any source)

1.B) Write a computer program to calculate the parameters of the equivalent circuit and study the performance characteristics of a three-phase induction motor at any operating speed.

- The inputs to the program are the rated voltage, rated frequency, no of poles, and the motor rated speed. In addition to the readings of DC test, No load test, and Locked rotor test.

The program must be able to obtain the following items:

1) R_1	2) X_1
3) R'_2	4) X'_{2o}
5) X_m	6) R_c
7) Motor input current	8) No load current
9) Input power factor	10) Input power
11) Stator copper loss	12) Air gap power
13) Rotor copper loss	14) Developed mechanical power
15) Developed torque	16) Output power
17) Output Torque	18) Motor efficiency
19) Draw the torque-speed characteristics for a slip range from 2 to - 1	
20) Draw the input current for a slip range from 0 to 1	
21) Draw the input power factor for a slip range from 0 to 1	

Topic # 2

2.A) Different mounting methods of the three-phase induction motor (search from any source)

2.B) Write a computer program to draw the torque-speed characteristics for a three- phase squirrel cage induction motors at slip range from 0 to 1 in cases of:

1. f = 20 Hz, 30 Hz, 40 Hz, 50 Hz, 60 Hz, 70 Hz, and 80 Hz.
2. Pole changing (Two speeds only)
3. V/f operation for f = 20 Hz, 30 Hz, 40 Hz, 50 Hz, 60 Hz, 70 Hz, and 80 Hz.

- The inputs to the program are the rated voltage, rated frequency, no of poles, and motor rated speed. In addition to, the parameters of the equivalent circuit of the motor.

Topic # 3

3.A) NEMA design classes of cage induction-motor (search from any source)

3.B) Write a computer program to draw the torque-speed characteristics for a three-phase slip ring induction motor at slip range from 0 to 1 in cases of:

1. V = (0.1, 0.3, 0.5, 0.7, 0.9, 1) of V_{rated}
2. R_{add} =2 R2', R_{add} =3 R2', R_{add} = 4 R2' and R_{add} =5 R2'.

- The inputs to the program are the rated voltage, rated frequency, no of poles, and motor rated speed. In addition to, the parameters of the equivalent circuit of the motor.

Topic # 4

4.A) Cooling and Ventilation (IC) of the three-phase induction motor (search from any source)

4.B) Write a computer program to draw the developed torque and input current verses the motor speed (or the motor slip) in case of starting a three-phase squirrel cage induction motor in cases of:

1. Direct online starting.
2. Star delta starter
3. Autotransformer with a=0.4, 0.6, 0.8

- The inputs to the program are the rated voltage, rated frequency, no of poles, and motor rated speed. In addition to, the parameters of the equivalent circuit of the motor.

Topic # 5

5.A) Duty cycles of the three phase induction-motor (search from any source)

5.B) Write a computer program to draw the developed torque and input current verses the motor speed (or the motor slip) in case of starting a three-phase slip ring induction motor in cases of:

1. Direct online starting.
2. R_{add} =2 $R_{2'}$, R_{add} =3 $R_{2'}$, R_{add} =4 $R_{2'}$ and R_{add} =5 $R_{2'}$.

- The inputs to the program are the rated voltage, rated frequency, no of poles, and motor rated speed. In addition to, the parameters of the equivalent circuit of the motor.