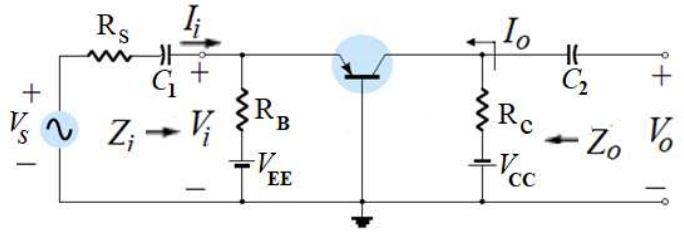
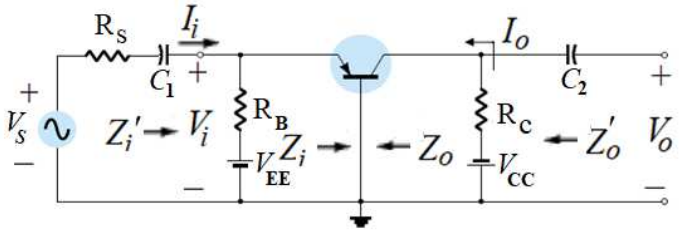
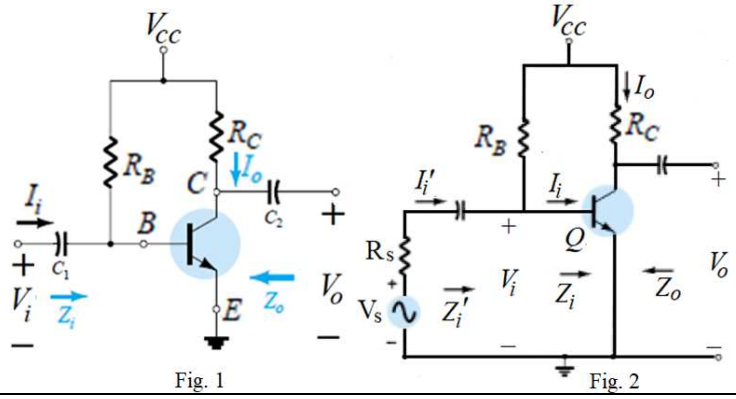
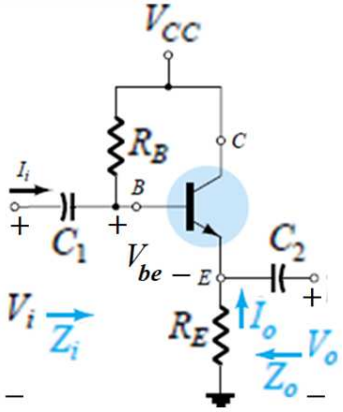
Name of the Course: Electronics (2)

الفرقة الأولي

Research point	Description
(1) Study for Common base BJT characteristics and applications	- Explain input and output characteristics for common base BJT. - Discuss re and hybrid models for common base BJT, define each circuit element. - Define and derive the ac circuit parameters $Z_i, Z_o, A_v,$ and A_i for the network shown in Fig.1, replacing the transistor with its re model. - Define and derive the ac circuit parameters $Z_i', Z_o', A_v,$ and A_i for the network shown in Fig.2, replacing the transistor with its hybrid model. - Search for common base BJT linear amplifier applications.  Fig.1  Fig. 2
(2) Study for Common Emitter BJT characteristics and applications	- Explain input and output characteristics for common emitter BJT. - Discuss re and hybrid models for common emitter BJT, define each circuit element. - Define and derive the ac circuit parameters $Z_i, Z_o, A_v,$ and A_i for the network shown in Fig.1, replacing the transistor with its re model. - Define and derive the ac circuit parameters $Z_i', Z_o', A_v,$ and A_i for the network shown in Fig.2, replacing the transistor with its hybrid model. - Search for common emitter BJT linear amplifier applications.  Fig. 1 Fig. 2
(3) Study for Common Collector BJT characteristics	- Explain input and output characteristics for common collector BJT. - Discuss re and hybrid models for common collector BJT, define each circuit

and applications	element. - Define and derive the ac circuit parameters Z_i, Z_o, A_v, and A_i for the network shown in Fig.1, replacing the transistor with its re model. - Search for Emitter follower applications. 
(4) BJT construction, characteristics and applications	- Describe the basic construction of BJT, and demonstrate the flow of currents (major, and minor) through the BJT. - Define the Common base current amplification factor, and common emitter current amplification factor and derive the relation between them. - Draw and explain the output characteristics for Common base and common emitter. - Compare between the re model for CB, CE, and CC configurations. - Search for the BJT analog applications.
(5) Comparison study for BJT different configuration	- Compare between the input characteristics for Common base and common emitter. - Compare between the output characteristics for Common base and common emitter. - Compare between the r_e model for CB, CE, and CC configurations. - Compare between the *hybrid* model for CB, CE, and CC configurations. - Search for the BJT digital and analog applications.

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