1. Basic Information

Program Title	B. Sc. in Electrical Engineering (Specialization: Electronics and Communication Engineering)		
Department offering the Program	Electrical Engineering		
Department Responsible for the Course	Electrical Engineering		
Course Code	HUU103		
Year/ Level	First year- First Semester		
Specialization	Minor		
Teaching Hours	Lectures	Tutorial	Practical
	2	-	-

2. Course aims:

No.	Aim
2	Behave professionally to necessary thinking skills for engineering standards and work to develop the profession and the community under realistic constraints such as economic, environmental, social, and sustainability.

3. Learning Outcomes (LOs):

A8.1	Communicate effectively with colleagues to recognize the basic types of Thinking.
A9.1	Use the different types of thinking to give innovative improvements of daily problems.
A10.1	Apply the different types of thinking to give modifications of a case study as the Sustainable development goals.

4. Course Contents:

No.	Topics	Week
1	**Lectures:** • The concept of thinking, creativity, memory, Improving thinking skills, the difference between thinking and Improving thinking skills, the most important characteristics of Improving thinking skills	1-2
2	**Lectures:** • The components of Improving thinking skills, the importance of thinking in our life, the role of each of the axes of the educational process in Improving thinking skills, the difference between thinking, creativity and innovation	3
3	**Lectures:** • Types of thinking, basic thinking, basic thinking skills, creative thinking, creative thinking skills, critical thinking - stages of the creative process. • A case study on Sustainable development goals.	4-6
4	**Lectures:** • The meaning of scientific thinking, complex thinking, - a map of basic thinking skills - examples of each type of thinking skills from the field of specialization.	7
5	**Lectures:** • The difference between a good thinker and a bad thinker - traits and characteristics of a critical thinker	8
6	**Midterm**	9
7	**Lectures:** • Planning - the method of solving problems in a scientific way, steps for feeling a problem and how to solve it - training in the method of problem solving through problems in the field of specialization. • A case study on the future required jobs 2030-2050.	10
8	**Lectures:** Thinking strategies (brainstorming - the theory of the six hats) and how to apply this strategy in the field of specialization.	11-12
9	**Lectures:** Various exercises in the field of specialization to develop thinking skills	13-15

5. Teaching and Learning Methods:

LO's		Teaching and Learning Method													
		Lecture (online/in class)	Interactive lectures	Flipped Classroom	Presentation	Discussion	Tutorial	Problem-solving	Brain storming	Projects	Site visits	Self-learning	Cooperative	Drawing Studio	Computer Simulation	Practical Experiments
A-Level	A8-1	x			x		x	x		x						
	A9-1	x			x		x	x		x						
	A10-1	x			x		x	x		x						

6. Teaching and Learning Methods 0f Disable Students:

No.	Teaching Method
1	Additional Tutorials
2	Online lectures and assignments

7. Student assessment:

7.1 Student Assessment Methods:

No.	Assessment Method	LOs
1	Mid Term Examination (written/ online)	A8-1, A9-1, A10-1
2	Formative (quizzes- online quizzes- presentation - reports)	A8-1, A9-1, A10-1
3	Final Term Examination (written)	A8-1, A9-1, A10-1

7.2 Assessment Schedule:

No.	Assessment Method	Weeks
1	Mid Term Examination (written/ online)	9
2	Formative (quizzes- online quizzes- presentation - reports)	Every week
3	Final Term Examination (written)	Decided by Faculty Council

7.3 Weighting of Assessments:

No.	Assessment Method	Weights
1	Mid Term Examination (written/ online)	20%
2	Formative (quizzes- online quizzes- presentation - reports)	-
4	Final Term Examination (written)	80%
Total		100%

8. List of References

No.	Reference List
1	Butterworth, J., & Thwaites, G. "Thinking Skills: Critical Thinking and Problem Solving", Cambridge University Press, (2nd ed.), 2013.
2	محمد ماهر الجمال, التفكير العلمى ودور المؤسسات التربوية فى تنميته, دار الوفاء للطباعة والنشر, القاهرة 1997
3	حسن حسين زيتون ،رؤية معاصرة في تنمية العقول المفكرة ، عالم الكتب القاهرة 2003.

9. Facilities Required for Teaching and Learning:

No.	Facility
1	Lecture Classroom
2	Online facilities.
3	White Board
4	Data Show System
5	Presenter

10. Matrix of Knowledge and Skills of the Course:

No.	Topic	Aim	LO's
1	**Lectures :** The concept of thinking, creativity, memory, improving thinking skills, the difference between thinking and Improving thinking skills, the most important characteristics of Improving thinking skills	2	A8-1, A9-1, A10-1
2	**Lectures:** The components of Improving thinking skills, the importance of thinking in our life, the role of each of the axes of the educational process in Improving thinking skills, the difference between thinking, creativity and innovation	2	A8-1, A9-1, A10-1

3	**Lectures:** Types of thinking, basic thinking, basic thinking skills, creative thinking, creative thinking skills, critical thinking - stages of the creative process. A case study on Sustainable development goals.	2	A8-1, A9-1, A10-1
4	**Lectures:** The meaning of scientific thinking, complex thinking, - a map of basic thinking skills - examples of each type of thinking skills from the field of specialization.	2	A8-1, A9-1, A10-1
5	**Midterm**	2	A8-1, A9-1, A10-1
6	**Lectures:** The difference between a good thinker and a bad thinker - traits and characteristics of a critical thinker	2	A8-1, A9-1, A10-1
7	**Lectures:** Planning - the method of solving problems in a scientific way, steps for feeling a problem and how to solve it - training in the method of problem solving through problems in the field of specialization. A case study on the future required jobs 2030-2050.	2	A8-1, A9-1, A10-1
8	**Lectures:** Thinking strategies (brainstorming - the theory of the six hats) and how to apply this strategy in the field of specialization.	2	A8-1, A9-1, A10-1
9	**Lectures:** Various exercises in the field of specialization to develop thinking skills	2	A8-1, A9-1, A10-1

Course: Development of Thinking Skills	
Program LOs	**Course LOs**
A8. Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	A8-1 Communicate effectively with colleagues to recognize the basic types of Thinking.
A9. Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	A9-1 Use the different types of thinking to give innovative improvements of daily problems.
A10. Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.	A10-1 Apply the different types of thinking to give modifications of a case study as the Sustainable development goals.

Course Coordinator: Dr. Heba Youssef Soliman.

Program Coordinator: Dr. Rania Abdallah

Head of Department: Prof. Dr. Rawya Yehia Rizk

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