

Faculty of Engineering & Technology

Scientific Thinking

Information :

Course Code : SCT 101

Level : Undergraduate

Course Hours : 2.00- Hours

Department : University Requirments

Area Of Study :

The overall aims of the course are:

- 1- Enrich students' knowledge about the scientific thinking and factors affecting it.
- 2- Develop students' scientific thinking skill.
- 3- Enrich students' knowledge about professional responsibilities, ethical, cultural and societal aspects about thinking scientifically.

Description :

Scientific thinking is the process of thinking logically, critically and creatively about real, as opposed to imaginary, problems. Students will develop an understanding of the scientific thinking process from a psychological perspective and will develop skill in scientific thinking. Topics will include the psychology of thought, logical operations and fallacies, convergent and divergent thinking, the relationship between language and thought, valid and invalid arguments, logic and probability, decision making and hypothesis testing in the science of psychology.

Course outcomes :

a.Knowledge and Understanding: :

1 -	a1. Describe the scientific thinking process from a psychological perspective.
2 -	a2. Define different scientific thinking terms, concepts and principles.
3 -	a3. List main perspectives in scientific thinking.
4 -	a4. Discuss the ways that scientific thinking theories are used to assess, and change human thinking.

c.Professional and Practical Skills: :

1 -	Collaborate effectively within multidisciplinary team.
2 -	Communicate effectively.
3 -	Search for information and engage in life-long self-learning discipline.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction to scientific process	2	1	0
Types of scientific thinking-scientific thinking components	2	1	0
Elements of science-scientific method-collecting information	2	1	0
The psychology of thought, logical operations and fallacies	2	1	0

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Convergent and divergent thinking	4	2	0
Relation Between language, thought, and arguments	4	3	0
Hypothesis Testing	4	3	0
Decision making	4	2	0

Teaching And Learning Methodologies :

Interactive Lecturing

Discussion

Research

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Class Quizzes	10.00		
Final exam	40.00		
Midterm	30.00		
Performance/assignments	5.00		
Research	15.00		

Course Notes :

Course Notes are available with all the slides used in lectures in electronic form on Learning Management System (Moodle).