

Faculty of Engineering & Technology

Scientific Thinking

Information :

Course Code : SCT 101

Level : Undergraduate

Course Hours : 2.00- Hours

Department : University Requirements

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 :

This course provides students with basic understanding of scientific thinking. Students will be exposed to concepts, terminology, principles and theories that comprise a course in thinking scientifically. Topics covered are to synthesize the broad range of knowledge about thinking scientifically, to emphasize research methodology, to encourage critical thinking, and to convey a scientific as well as systematic approach to think over a concept

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
Convergent and divergent thinking	4	2	0
Relation Between language, thought, and arguments	4	3	0

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
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).