

## Faculty of Computers and Information Technology

### Scientific Thinking

#### Information :

**Course Code :** SCT 101

**Level :** Undergraduate

**Course Hours :** 2.00- Hours

**Department :** Faculty of Computers and Information Technology

#### Area Of Study :

Apply the basic concepts, theories and information about the scientific thinking and factors affecting it.  
Use basic science in scientific thinking.  
Demonstrate professional responsibilities, ethical, cultural and societal aspects about thinking scientifically.  
Own the needed knowledge and skills in scientific thinking.  
Carry out a self-learning and research in scientific thinking field

#### 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 - | Describe insights into their environment and their scientific thinking well-being                        |
| 2 - | Select different human behavior and ways of its motivation                                               |
| 3 - | Define different scientific thinking terms, concepts and principles                                      |
| 4 - | State major perspectives in scientific thinking                                                          |
| 5 - | Discuss the ways that scientific thinking theories are used to assess, predict and change human behavior |

##### **b.Intellectual Skills: :**

|     |                                                                                                     |
|-----|-----------------------------------------------------------------------------------------------------|
| 1 - | Apply critical thinking using scientific thinking theories and principles on personal relationships |
| 2 - | Assess human behavior in scientific thinking                                                        |
| 3 - | Prepare appropriate strategies for problem solving                                                  |

##### **c.Professional and Practical Skills: :**

|     |                                                                                                            |
|-----|------------------------------------------------------------------------------------------------------------|
| 1 - | Use observational methods to describe, explain, predict as well as control behavior of scientific thinking |
| 2 - | Show scientific thinking to influence and improve lives of human beings                                    |

##### **d.General and Transferable Skills: :**

|     |                                                                                                       |
|-----|-------------------------------------------------------------------------------------------------------|
| 1 - | Communicate effectively with others by applying the information they gained about scientific thinking |
| 2 - | Appreciate continuous professional development and lifelong learning                                  |
| 3 - | Set goals and plans to achieve them                                                                   |

### **Course Topic And Contents :**

| <b>Topic</b>                                                                                                                                                      | <b>No. of hours</b> | <b>Lecture</b> | <b>Tutorial / Practical</b> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------|-----------------------------|
| Introduction: What is scientific Thinking?                                                                                                                        | 2                   | 2              |                             |
| Types of scientific thinking-scientific thinking components                                                                                                       | 2                   | 2              |                             |
| Levels of thinking-bloom taxonomy-scientific thinkers'; behavior, attitudes and tools                                                                             | 2                   | 2              |                             |
| Elements of science-scientific method-collecting information-implementation of tools of thinkers as well as scientific method into phases of thinking             | 2                   | 2              |                             |
| Elements of science-scientific method-collecting information-implementation of tools of thinkers as well as scientific method into phases of thinking [continued] | 2                   | 2              |                             |
| Concept                                                                                                                                                           | 2                   | 2              |                             |
| Hypothesis-Research assignment discussion                                                                                                                         | 2                   | 2              |                             |
| Midterm Exam                                                                                                                                                      | 1                   | 1              |                             |
| Variable                                                                                                                                                          | 2                   |                |                             |
| Strategies and problem solving                                                                                                                                    | 2                   | 2              |                             |
| Analysis-practice                                                                                                                                                 | 2                   | 2              |                             |
| Analysis-practice                                                                                                                                                 | 2                   | 2              |                             |
| Analysis-practice                                                                                                                                                 | 2                   | 2              |                             |
| Decision making                                                                                                                                                   | 2                   | 2              |                             |
| Final exam                                                                                                                                                        | 2                   |                |                             |

### **Teaching And Learning Methodologies :**

Interactive Lectures including Discussions

Self-Study (Project / Reading Materials / Online Material / Presentations)

Case Studies

### **Course Assessment :**

| <b>Methods of assessment</b> | <b>Relative weight %</b> | <b>Week No</b> | <b>Assess What</b> |
|------------------------------|--------------------------|----------------|--------------------|
| Assignments                  | 5.00                     |                |                    |
| Final Exam                   | 40.00                    | 14             |                    |
| Individual Projects          | 15.00                    |                |                    |
| Midterm Exam (s)             | 30.00                    | 7              |                    |
| Quizzes                      | 10.00                    |                |                    |

### **Course Notes :**

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

