Course Code: GNS 104 (HISTORY AND PHILOSOPHY OF SCIENCE) 2 UNITS

Course Content

Nature and importance of Science: Purpose and Limitation of Science. Control of Science: Science in Egypt (Egyptian contribution to Science). Greek Science: Dark ages on the West, 16th and 17th Century Scientific Revolution. Biography of notable scientists – Pythagoras, Evelid, Archimedes, Aristotle, Plolemy, Galileo, Isaac Newton, Michael Faraday, Albert Einstein, Abdul Salaam e t c. The rise of Muslim Scientists: Islamic Mathematics & Mathemacians – Al Khwarizmi, Thabit ibn Qurra, Abdul Wafaal Buzjani, Nasir al din Tusi. Contributions of Muslims to the Study of Astronomy & Medicine. Biography of Ibn Sina (Avicenna) & Al- Razi. State of Islamic civilization in History (Including the effects of crusades on Islamic Institutions)

Course Description

The course focuses on the evolution of Scientific knowledge through the ages including the roles played by earlier civilizations on Science. The contributions of early Muslim Scientists to civilization would be emphasized.

Week I: Nature and Importance of Science

It is the lot of man to share in the deeper aspirations of the universe around him and to shape his own destiny as well as that of the universe, now by putting the whole of his energy to mould its forces to his own ends and purposes. And in this process of progressive change of God becomes a co-worker with him, provided man takes the initiative: '***Verily God will not change the condition of men, till they change what is in themselves (***13:11).' (Iqbal, 1986, p.10)

Week II: Purpose and Limitations of Science

Barely a hundred years after the Prophet's death, have the Muslims made it their task to master the then-known sciences. They founded institutes of advanced studie (Buyut-ul-Hikma), they acquired an absolute ascendancy in the sciences that lasted for over 350 years.

An aspect of reverence for the sciences by Islamic scholars was the patronage they enjoyed in the Islamic Commonwealth.

Week III: Control of Science; Science in Egypt

The ancient Egyptian civilization began in approximately 3000 BC when political control of the Nile Valley was unified under King Narmer. This civilization lasted until 30 BC when the Romans conquered Egypt and subsequently it became part of the Roman Empire.

Week IV : Greek Science: Dark ages on the West.

The golden (dark) age of Science in Islam was doubtless the age around the year 1000 CE, the age of Ibn Sina (Avicenna, the last of the mediaevalists) and of his contemporaries, the first of the moderns, Ibn al Haitham and Al Biruni.

Week V: Biography of notable Scientists.

The biography of notable scientists such as Abu al-Qasim al-Zahrawi, Ibn al- Haytan, Muhammad Al Farghaani, Ibn Yoonus Al-Mistri

Week VI: The rise of Muslim Scientists: Islamic Mathematics and Mathematicians

Week VII: Contributions of Muslims to the study of Astronomy

Islam has had the most significant effect on the development of astronomy. A Muslim starts his day before sunrise in order to check for the break of dawn so he could perform the dawn Prayer. At the end of the day, a Muslim also checks the time of dusk in order to perform the Evening Prayer. Between dawn and the evening, a Muslim also follows the movement of the sun in order to determine the times of the Noon, Afternoon, and Sunset prayers and perform them on their due time.

A Muslim also fasts when he sees the new moon of Ramadhaan and he breaks the fast according to the end of the lunar month. If he prays anywhere, he is obliged to know the direction of the Ka`bah. This means that he should know his location, and be aware of the four directions: North, South, East and West.

Week VIII: Contributions of Muslims to the study of Medicine

The golden era of Muslims' achievement in the field of scientific and philosophical research, began in 900 A. D. and lasted for two centuries. The physicians and scientists of the Islamic world having stood on the firm foundation of Greek science began to rely upon their own resources and to develop from within.

Week IX: Biography of Ibn Sina (Avicenna)

Abū ʿAlī al-Ḥusayn ibn ʿAbd Allāh ibn Sīnā (born c. 980, in Afshana near Bukhara, died 1037, in Hamadan). He is commonly known as **Ibn Sīnā** or by his Latinized name **Avicenna** and was a Persian physician and philosopher.

Ibn Sīnā studied medicine under a physician named Koushyar. He wrote almost 450 treatises on a wide range of subjects, of which around 240 have survived. In particular, 150 of his surviving treatises concentrate on philosophy and 40 of them concentrate on medicine.

Week X: Biography of Al Razi

Muhammad ibn Zakariyā Rāzī , known as **Rhazes** or **Rasis** in Latin was born on August 26, 865, in Rey and died in 925, in Rey. He was a Persian physician, alchemist and chemist, philosopher, and scholar. He is recognised as a polymath, and biographies of Razi, based on his writings, describe him as "perhaps the greatest clinician of all times."

Rhazes was born in Rey. His name *Razi* in Persian means "from the city of Rey", an ancient town called Ragha in old Persian and Ragâ in Avestan. It is located on the southern slopes of the Alborz Range situated near Tehran, Iran. In this city (like Ibn Sina) he accomplished most of his work.

Week XI: State of Islamic civilization in History

During the Middle Ages, the Islamic world was a global center of trade, culture, and learning. Arab Muslim traders dominated the rich trade in spices, silk, porcelain, and jewels that flowed between China, the area that is now Indonesia, India and points west. Muslim scholars had preserved and translated the great works of science and medicine from classical Greece and Rome, combined that with insights from the ancient thinkers of India and China, and went on to invent or improve subjects like algebra and astronomy, and medical innovations such as the hypodermic needle.

Week XII: Effect of Crusades on Islamic Institutions

Between 1095 and 1291, Christians from western Europe launched a series of eight major invasions against the Middle East. These attacks, called the Crusades, were aimed at "liberating" the Holy Land and Jerusalem from Muslim rule.

The Crusades were sparked by religious fervor in Europe, by exhortations from various Popes, and by the need to rid Europe of excess warriors left over from regional wars. What effect did these attacks, which came from out of the blue from the perspective of Muslims and Jews in the Holy Land, have on the Middle East?

Week XIII: Revision

GNS 105 INTRODUCTION TO LOGIC AND PHILOSOPHY

COURSE DESCRIPTION

The major aim of this course is to help the students understand and acquire knowledge about what Philosophy and Logical thinking is all about. By so doing, it will develop their verbal, analytical and critical skills. These are specific objectives of this course:

- To prepare professionally competent and versatile graduates with critical and deep understanding of the world.
- To prepare the students with critical and analytical tools for understanding and dealing with issues in the society
- To develop the verbal, analytical and critical thinking skills of the students.
- To help students to cultivate the ability to isolate and examine the principles and issues involved both in complex theoretical situations and in concrete, actual problems.
- To widen the students' intellectual perspectives within the context of a humanistic educational experience.
- To enhance their knowledge of the nature of reality, the meaning of life, social structure and development, knowledge and values, and the governing principles of the universe

COURSE OUTLINE

UNIT 1: DEFINITION AND SCOPE OF PHILOSOPHY

- Unit Objectives
- Meaning of Philosophy
- Different conceptions of Philosophy
- Academic conceptions of Philosophy
- Philosophy as love for wisdom
- Practice questions/Assignment
- Reading list

UNIT 2: HISTORICAL BACKGROUND OF PHILOSOPHY

- Unit Objectives
- The beginning
- The gestation period
- The era of delivery and settlement
- Practice questions/Assignment
- Reading list

UNIT 3: PHILOSOPHY AND OTHER DISCIPLINES

- Unit Objectives
- Philosophy and Science
- The nature of Scientific Knowledge
- Convergence and divergence between philosophy and science
- Philosophy and religion
- Practice questions/Assignment
- Reading list

UNIT 4: EPISTEMOLOGY

- Unit Objectives
- Meaning of epistemology
- Sources of knowledge
- Scope of knowledge
- Justification of knowledge
- Types of knowledge
- Theories of truth
- Practice questions/Assignment
- Reading list

UNIT 5: METAPHYSICS

- Metaphysics defined
- Idealism and materialism
- Universals and particulars
- Substances and Qualities

UNIT 6: ETHICS

- Unit Objectives
- Meaning of ethics
- Branches of ethics
- Morality
- Theories of Morality
- Practice questions/Assignment
- Reading list

UNIT 7: LOGIC I

- Unit Objectives
- Meaning of logic
- The need for studying logic
- Logic and other disciplines
- Types of logic
- Formal logic
- Subdivisions of formal logic
- Practice questions/Assignment