CHAPTER 7: ANALYSIS OF THE SYLLABUS OF SEMESTER IV

7.1. INTRODUCTION

The prescribed syllabus for semester fourth contains eight papers in total. The major course is divided into four papers while the minor course contains only one paper.

Sl. No.	Subject code	Paper code	Credits	Max. marks	Internal marks	Practical marks	Theory/ External marks
1.	DC (Major)	DC-VIII	4	100	15	25	60
		DC-IX	4	100	15	25	60
		SEC-III	2	50	10	-	40
		SEC-IV	2	50	10	-	40
2.	DCM (Minor)	DCM-III	4	100	15	25	60
Total			16	400	65	75	260

Table-10: CREDITS AND MARKS DISTRIBUTION OF MAJOR AND MINOR COURSE PAPERS OF SEMESTER –IV

The other three papers are of the Education part namely: FE-III, CP-II and CP-III.

Sl. No.	Subject name	Paper code	Credits	Max. Marks	Internal marks	Theory/ External marks
1.	Philosophical and Sociological Perspectives of Education-I	FE-III	4	100	40	60
2,	Content-cum-pedagogy: Physical Science-I	CP-II	2	50	20	30
3.	Content-cum-pedagogy: Mathematics-I / Biological Science-I	CP-III	2	50	20	30
Total			8	200	80	120

Table-11: CREDITS AND MARKS DISTRIBUTION OF FE-III, CP-II AND CP-III OF SEMESTER –IV

7.2.FE-III- PHILOSOPHICAL AND SOCIOLOGICAL PERSPECTIVES OF EDUCATION-I

This paper aims at letting students explore the sociological and philosophical perspectives education, their interconnection and implications in the field of education. Through the modules and lessons, the paper emphasizes on attaining the goals of developing insights of the students for appreciating the relevance of ancient philosophical thinkings to modern day educational practices. Along with the philosophical perspectives, the course paper also intends to introduce the students to the sociological aspects of education and reflect upon their own socio-cultural experiences in Indian educational context.

The course paper is divided into six modules and a practicum. It also contains suggestive mode of transaction, assessment and reading materials.

The first unit is all about the nature, objectives and branches of philosophy (Epistemology, Metaphysics and axiology) and their connection with education.The second unit delves deeper into the philosophical perspectives in education through *Pramana-Shastra, Bramhacharya* and *Vidyarambha*. It also focuses upon the Vedic and *Vedantic, Buddhist, Jain,Sikh* and *Islamic* perspectives on education and *Guru,Shishya Parampara* in Education.The third unit outlines the western schools of philosophy while the fourth unit outlines a number of *Bharatiya* (Indian) educational thinkers and their deliberations on aims, processes and educational institutions.The fifth unit entails the sociological bases of education and their implications while, the last unit focuses maily on critical understanding of the role of school in socialization.The suggestive practicum includes institutional visits and individual/group tasks as well.

7.3. CP II and III: CONTENT-CUM-PEDAGOGY COURSES (SECONDARY): PHYSICAL SCIENCE, MATHEMATICS AND BIOLOGICAL SCIENCES

Under the same unit headings and bullet points, each of these three pedagogical papers on school subjects contains three units and a practicum in total. The content knowledge for each of these papers is obviously different as the subjects are different. The first unit outlines the historical perspectives contributions of Indian scientists and recommendations of various committies, commissions and policies with reference to teaching in Physical Sciences, Mathematics, and Biological Sciences respectively.The second unit outlines the aims, objectives, values and interconnectedness of the school subjects.The third unit emphasizes on the application of various pedagogical methods and approaches of these subjects.

7.4. ANALYSIS OF THE WHOLE 4th SEMESTER SYLLABUS FROM IKS PERSPECTIVE:

Our country is a home to deep and extensive practices in a variety of disciplines and and fields including sociology and philosophy.(NCF-2023)

The primary branches of philosophy includes metaphysics(*Tatva Mimansha*), Epistemology(*Jnana Mimansha*) and Axiology (*Mulya Mimansha*).Indian philosophy often incorporates and connects these branches , with discussions on metaphysics often influencing epistemological views and ethical considerations which in turn helps students improve their metacognitive abilities.

BRANCH OF PHILOSOPHY	FIELD OF STUDY
1) Metaphysics	Study of reality and nature of existence
2) Epistemology	Study of Knowledge and truth.
3) Axiology	Study of values

Table-12: Branches of philosophy

According to NCF 2023, " The theory of knowledge, or *pramana-sashtra*, is one of the richest areas classical Indian philosophy, spanning several centuries and with the liveliest of debates.Indeed, claims about 'how we come to know' is often the principal criterions that distinguishes different schools of Indian philosophy." The different kinds of sources of knowledge in *pramana shashtra* are:

TYPES OF PRAMANAS	SOURCES OF KNOWLEDGE
1)*Pratyaksha* (Perception)	Connection between sense organs and objects
2)*Anumana* (Inference)	Inferring based on existing knowledge and observation
3)*Upamana* (Comparison)	Knowing through comparison and analysis
4)*Arthapatti* (Postulation)	Drawing conclusions from circumstances
5)*Anupalabdhi*(Non-apprehension)	Perception from non-existence
6)*Shabda* (Verbal Testimony)	Relying on scriptures and expert's testimony

Table-13: SIX TYPES OF PRAMANAS

Students should clearly understand the meanings of the terms '*darshanas*', '*moksha*', '*Nirvana*', and '*dharma*' through different schools of philosophy of ancient India in order to apply them in their lives and gain peace and liberation in life.

Bramhacharya and *vidyarambha* concepts should be taught to the students to give them an insight into ancient education system about how entry into monastic-education took place and how the pupils gained mastery. Focus should be given on *Vedic, Vedantic, Buddhist, Jain, Sikh, and Islamic* perspectives on holistic and integrated aim of education to apply in contemporary education system.

Many *Bharatiya* thinkers drew their thoughts from different philosophical school of thoughts and their philosophy shows the path to attain goals of education till today. For eg,

"By education, I mean an all-round drawing of the best in child and man-body, mind and spirit."

(M.Gandhi)

"The highest education is that which does not merely give us information but that makes our life in harmony with all existence**."** **(R.N. Tagore)**

Incorporating all these aspects in FE-III paper is a very appropriate step from IKS perspective.

To comprehend, evaluate and understand a present situation in a better way, one needs to understand the history of the situation first. So, is the case with a subject of study. In order to comprehend and evaluate a subject in a better way, we need to understand its history. The significance of historical development of any subject is underrated.

The history of physics began approximately 2500 years ago by *Rishi Kanad*, the originator of *Vaishesika* School of philosophy, who gave the atomic theory. He is also known as the father of *Atomicism*. He has also contributed to the laws of motion, types of motion, etc in 600 BCE his *Vaishesika Sutra* much before Sir Newton.

Six Predicables or Padarthas in Vaishesika sutra	**Classification**
SUBSTANCE	Earth, Water, Fire, Air, Ether, time, space or direction,etc.
QUALITY	Colour, taste, smell, touch, number, magnitude, fluidity, viscocity, sound,etc.
ACTION	Upward, downward, contraction, expansion, motion
GENERALITY	Superior inferior
UNIQUENESS	-
INHERENCE	-

Table-14: Six Predicables or Padarthas in Vaishesika sutra (Basis of Physics)

The concept of Electricity has been described in *Rig Veda*. The *Great Sage Agasthya* mentioned the process of making battery in his composition Agastya Smhita (around 8000 BCE).Upanishads states about mater and its states. Other ancient Indian scientists like Bhaskaracharya(1114 AD), C.V Raman (1888), Satyendra Bose (1894) have also contributed to the history of physical science.

The history of chemical science began around 1000 BC from *Indus Valley Civilization*, through pottery, moulding, mixing, medicine making from plant extraction, alchemy, perfume making, beeer making,etc. Evidences can be found in *Harrapan* and *Mohenjodaro* civilization archeological sites and ancient texts of *Nagarjuna(10 century)* like *Rasaratnakara* in which he described about extraction of gold, copper and silver metals..

The ancient history of Mathematics can be found in the works of *Narayan Bandita's Ganita Kaumudi* on algebra, *Baudhayan's Sulva Sutra* on Pythagoras theorem and value of pi, *Aryabhatta's Aryabhattiya* on Algebra, number theory, trigonometry and geometry, *Brahmagupta's Brahm Sputa Siddantika* on methods of multiplications, negative numbers and operations on zero (7^{th} Century),etc would still serve as interesting facts for the students to know and enhance their inclination towards mathematics.

Before 19^{th} and 20^{th} century biology was all aboult health education and medicines in higher education. However scientific knowledge in biology in ancient India was in a highly advanced stage. For eg. *Ayurveda*. It served as the oldest medical system of our planet for the healthy as

well as sick. Other than this, ancient works of notabe scientists like *Susruta* in his work '*Susruta Samhita*' on surgery, preservation of dead bodies, Rhinoplasty and Opthalmic surgery; *Charak* in his work on '*Charak Samhita*'on medicines,diseases, treatments, digestion ,immunity and metabolism,etc.and *Patanjali* in his work '*yoga sutras'* on Yoga , meditation, physical and mental health,

All these ancient knowledge system play a huge role in evolving into modern day science. Hence students should be aware of all these things.

Thus, the syllabus for FE III and CP thus contains some aspects that stands in compliance with some of the prescribed model curiculla of UGC norms 2023 and NEP 2020.