CHAPTER 8: ANALYSIS OF THE SYLLABUS OF SEMESTER V

8.1. INTODUCTION

This course paper contains three major disciplinary courses named as DC-X, DC-XI and DSE-I and the rest of the four papers belong to the educational part- CP IV, CP V, AE &VAC VII, and SE-I.

Sl. No.	Subject code	Paper code	Credits	Max. Marks	Internal Marks	Practical marks	Theory/ External Marks
1.	DC(Major)	DC-X	4	100	15	25	60
		DC-XI	4	100	15	25	60
		DSE-I	4	100	15	25	60
Total			12	300	45	75	180

Table-15: CREDIT AND MARKS DISTRIBUTION OF MAJOR DISCIPLINARY COURSE PAPERS OF SEMESTER –V

Sl. No.	Subject Name	Paper code	Credits	Max. Marks	Internal Marks	Theory/ External Marks
1.	Content-cum-pedagogy: Physical Science -II	CP-IV	2	50	20	30
2.	Content-cum-pedagogy: Mathematics-II/ Biological Science- II	CP- V	2	50	20	30
3.	ICT in Education	AE & VAC-VII	2	50	20	30
4.	Pre-Internship Practice	SE- I	2	50	50	-
Total			8	200	110	90

Table-16: CREDITS AND MARKS DISTRIBUTION OF CP-IV, CP-V, AE AND VAC-VII AND SE-I OF SEMESTER –V

Though some of the papers do not contain any aspects of IKS in them, however the papers of the education part can somewhat be compared to the ancient systems of Indian education and technology.

8.2. CP-IV AND CP-V: CONTENT CUM PEDAGOGY COURSES: PHYSICAL SCIENCE- II, MATHEMATICS-II, BIOLOGICAL SCIENCE-II

In pedagogy the success of teaching a subject effectively depends upon various components like, teaching learning resources, skills, proper planning and execution through various ICT tools. All the three papers have same units' yet different instructional content for each of the different papers.

The first unit contains aspects of teaching and learning resources- their types, uses and importance. The second unit contains content analysis and planning for teaching Physical Sciences, Mathematics and Biological Sciences, respectively through annual plans, lesson plans and unit plans. The third unit lays focus strongly upon ICT, its uses and integration in physical science, biological sciences and Mathematics. There is a suggestive practicum for each subject as well.

8.3 AE & VAC- VII: INFORMATION AND COMMUNICATION TECNOLOGY (ICT) IN EDUCATION

The course focuses on helping students and teachers interpret and adapt ICTs in alignment with its educational implications. It is divided into three instructional units namely, Educational technology, Instructional design and communication and introduction to ICT in Education respectively. All these three units highlight the concept, meaning, nature, interrelationship, historical development, instructional designs, and modes of communication, instructional analysis and role of ICT in education, of educational technology.

8.4. SE-I: PRE- INTERNSHIP PRACTICE

Pre- internship is a pre-requisite for the the main Internship program of the students in various schools. This course paper aims at helping learners practice and experience classroom teaching in an simulated and guided environment to learn pedagogic and classroom management skills. Though it does not contain any units. It includes various activities regarding pedagogy skills , ability enhancement and value added courses, foundational courses, content knowledge, lesson planning, use of ICT tools, schooling systems in India, development of teaching learning materials, classroom management skills and assessment techniques.

8.5. ANALYSIS OF THE WHOLE 5th SEMESTER SYLLABUS FROM IKS PERSPECTIVE:

Resources in education are of much importance in education since ages. Evidences can be found at various archeological sites of ancient universities like, the *Nalanda University* (5th Century AD) which is said to have had a large library known as *Dharmaganja* consisting of three multi-storied large buildings: *Ratnasagara, Ratnaranjak, and Ratnodadhi* containing about nine million hand written and palm leaf manuscripts.Other resources used for writing and activities purposes in ancient educational system includes woods, birch barks, mud, stones, rocks,metals, clothes, leather, parchment and eventually evolved into paper. Paper as a learning resource was first introduced in India in the 13th century by the Arabs.

The concept of technology is also as old as various ancient civilization in India. One cannot delve much deeper into the earlier aspects of Epics of *Mahabharat or Ramayana*, otherwise the concepts of *Sudarshan Chakra, Dwarka, Pushpak Viman* and many other things would also come under the category of ancient technologies.

Without technology, life seems to be impossible today.Technology applies numerous scientific principles and concepts to disseminate information. The process of communicating information by the use of technology is known as Information and Communication Technology (ICT). Today it has become an industrial and digital art but, its evolution can be traced back to centuries ago.

Historical development of the use of technology in India is important to mention ancient Univerities like *Takshashila(*700 BC) , *Nalanda*(5th century AD) and others for contributing to the world of knowledge and resource development in the form of *Vedas*, manuscripts, infrastructure,etc that helped in the evolution of technology. Early evidences of communication can be found in early writing scriptures like *Brahm*i and *Kharosthi*. Chants and verses on copper plates, barks, leaves and eventually on paper served as a mode of written communication using early technology. Other means of communication included cave paintings,sculptures, architectures, dance forms, deities poses, etc.

ICT is also about contributions of ancient scientists like *Aryabhatta* and others to the field of basis of computational knowledge.

Aryabhatta's invention of zero (*Shunya*) and number system were also invented in India. *Bhaskaracharya*(in the 5th century) calculated the time taken by the Earth to orbit the sun. *Baudhayana* in the 6th century calculate the value of pi and pythagoras theorem. These ancient knowledge served as the backbone of computational knowledge and programming languages. These were the precursors of algorithms used in creating devices and operational programmes.

Apart from these the '*Yantra systems*'were also invented in the ancient period. These are mechanical devices used for calculations and measurements.*Yantra* came from the word '*yam'* which means to control.

WATER PULLEY	*Ghati Yantra*
OIL PRESSER	*Taila Yantra*
LABORATORY EQUIPMENTS	*Rasayanas*
SURGICAL INSTRUMENTS	*Pakayantras*
CAN PRESSER	*Ikshu Yantras*

Table-18: YANTRA SYSTEMS IN ANCIENT INDIA

All these things and knowledge directly did not develop the computers and devices, rather, they inspired and shaped the digital world today and laid the foundations as conceptual blocks.

Thus, the first unit of AE & VAC-VII seems to be relevant from IKS perspective and stands in compliance with NEP 2020.