CHAPTER I

Conceptual Basis
## CHAPTER – I
CONCEPTUAL BASIS

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CHAPTER – I

CONCEPTUAL BASIS

1.0. Introduction

Soil, water, air and vegetation are the basic elements of natural resources. The survival of creation depends upon them and nature has provided them as assets to human beings. The management of natural resources to meet people’s requirements has been practiced since the pre-Vedic period. Vedas say that our natural environment consists of five elements Pridhvi, Apas, Thejo, Vayu, Akash, are called Panchabhutas which constitute the living body. Any deficiency or imbalance of these elements results in disease. This is overcome by administration of medicines, nutritive food, taking protective environmental and health measures. The chemistry taught in the regular school curriculum enables the student to grasp the hidden meaning for variations. Chemistry is an exciting experimental science which lets us to understand our world and makes life easier. Chemistry itself is “life existence”, as chemical reactions provide the fundamentals for medicines, food, clothing, structures for shelter and other commercial needs. For example: Imbalance of Agnitatwa, brings about cold, fever to be corrected by medicines. Tejastatwa, sun rays cure the skin diseases. The other changes in nature include hot winds, forest fire, uprooting trees; breach in railway tracks and other communication by floods, earthquakes etc. They adjust themselves with time to the normal situation.

The grain of sand to a mighty star is made up of atoms. Different atoms combine in a way to form molecules and different molecules react to form a new substance. Chemical reactions govern natural process in making chemicals including medicines.
The hidden values of chemistry namely health and hygiene, food and nutritive, medicinal and environmental values, help us in finding new methods of prevention of diseases. By then we have been able to stop epidemics which take away a large number of human lives. Some contagious diseases have been completely eradicated and advanced the average life of ordinary persons. These values stress upon protecting and promoting environment, developing healthy food habits, and ways of using food as medicine.

The rapid growth of educational institutions is unable to inculcate above mentioned values in the curricular subjects. The present system of education gives stress on mechanical learning and rote memorization for examinations. The applications of chemistry as the subject in the daily life are not given much importance in the regular teaching as they are hidden in the curriculum. To inculcate interest in the subject and to make Chemistry more meaningful and useful, these values are to be developed in regular teaching. Many new teaching strategies are coming into existence in the modern technological world which may be employed or new suitable strategies could be developed.

School education is very important to enable the child to understand requirements of adults in personal as well as in social life. The child can easily be molded to develop or learn the beneficial attitude. Chemistry is one of the subjects, dreaded by an youngster. So teaching chemistry is a hard task. No longer, the conventional steps like talk, chalk, black board, are valid. So there is an urgent need to employ new strategies, new technology and new aspects of teaching chemistry, modification of experiments, science clubs, exhibitions, libraries, seminars, Olympiad, use of T.V. and computers.

1.1. Importance of science / chemistry in school Education
Till the end of the 18th century the Universities sadly neglected the teaching of science and it had no place in the curriculum. Chief scientific discoveries were made by amateurs, such as Cavendish, Priestly, James Watt and Hershel. By the middle of 19th century, very few schools imparted science instruction.

One of the many challenges, facing curriculum developers and teachers at all levels, is that science/chemistry is dynamic; our knowledge, in terms of both facts and theory grow rapidly. The curriculum of school education needed changes with time. It is clear to the student that many views can be recognized though not taught in the theory classes. This aspect is explained by the term hidden values—unstudied, unstated information that can be made out by thinking. Carbon dioxide is required for photosynthesis, so gives life but excessive formation by industries leads to global warming and consequent challenges. The noble prize for peace is given for Al Gore and Indian Pichore for their views on climate change.

In the present century since much importance is given for “Science and technology”, it is considered that chemistry is very important subject in school curriculum. The space age and recent inventions have necessitated the teaching of chemistry in schools. Science / chemistry has a simple faith in which transcends utility. The work of “Noble Prize” winners, emphasizing the inter-relationship of chemistry with other science; Campbell described few of the directions in which the chemistry is moving, and explains that chemistry is both an exciting and living subject.

The misuse of chemistry affects the environment and creates disasters, e.g. the alcohol is used for some medicines, as a solvent, and also as a fuel. Misuse of alcohol creates social, economic and health problems
such as liver damage, kidney disorder, peptic ulcer and mental disorder to the drug addicts. Oxygen is not only a supporter of life processes, but also a terrible supporter of fire, destroys homes, forests; and factories. Various pain killers and narcotics save our lives, at the same time they damage the life of people. Fertilizers such as Sodium and Phosphorus are good for crops, but their excessive usage cause water pollution in ponds, rivers and lakes. Leakage of methyl – isocyanate (MIC) from Union Carbide pesticide factory at Bhopal in India occurred on 2\textsuperscript{nd} - 3\textsuperscript{rd} December 1984 killed more than fifty thousand people were affected with sivere disorder problems. Not only disasters but also regular industrial activities deteriorate the environment, e.g. the gases of chlorofluorocarbons (CFCs), halogens, and oxides of nitrogen, sulphur and carbon are depleting the ozone layer. The Montreal Protocol decided to ban the production and consumption of CFCs. The Protocol was signed by 25 nations at Montreal on the 16\textsuperscript{th} September 1987, which is amended at different meetings in London (1990), Copenhagen, (1992), Vienna (1995) and Montreal (1997). The protocol set limits on production of CFCs, halogens, and oxides of nitrogen and sulphur. Kyoto protocol, Japan (1997) decided to reduce the emission of green house gases by the developed countries.

Scientists and educationists felt that there is a need to inculcate the hidden values of chemistry education at school level for creating awareness. Chemistry education being an important component of the science education system, develops desirable understandings, skills, abilities, values and attitudes. The greatest challenge is to humanize science to make it relevant to human needs, identifying the balanced diet, nutritive value of food, health care, hygienic habits, using the medicinal plants and medicinal herbs, protection of the environment, predicting and protecting the natural resources
and aspirations. Various international and national committees and commissions have given great importance to science in secondary school education; besides and on the objectives of teaching science and a very few specified on chemistry. Special emphasis was laid on methods of teaching and development of scientific thinking and problem solving ability.


A constant, continuous study and experimentation with patience, hard work and devotion, provides hidden values of chemistry curriculum. The
guiding principles of curriculum at schools fall in these 3 groups: (1). energy, health, hygiene, disease, nutrition, conservation, pollution etc. (2). use of environmental and local resources and (3). science-based socially useful productive work, hygienic preparations, nutritive food, planting trees in school garden, etc.,

NCERT. (1977), focused on the following main objectives of chemistry teaching in the “Method Masters Training programme”.

- To provide Knowledge, understanding and acquaintance with language of chemistry;
- To develop the skills, scientific attitude, spirit of scientific enquiry; the application of the role of chemistry in everyday life.
- To enable them to realize the importance of chemistry in human welfare,
- To appreciate the role of chemistry in the daily life for its applications in environment and society and to acquire the ability of solving problems.
- To develop the skills of observing enquiry and improvisation, scientific attitude,
laboratory skills in performing experiments in the day to day life.

From the above discussion, it is clear that various international and national commissions emphasized on scientific skills and in its processes. Lastly the NCERT gave stress on utilitarian value of chemistry in daily life, along with the processing skills. So the values of teaching chemistry, such as chemistry in human welfare, chemistry in everyday life, acquiring the ability of solving problems, its applications in environment and society, laboratory skills; observation, enquiry and improvisation, scientific attitude, performing
experiments in their daily life, utilitarian values are given importance to create interest in learning the subject.

1.2. Present status of teaching chemistry

Science/Chemistry teaching today is not as simple as it was in early fifties. Usage of audio-visual aids was observed instead of rote memorization. Now with the loaded curriculum, students cannot escape the drudgery of mugging up text books and learning without tears and fears. Now in the existing conditions of school and class-room, chemistry teaching became a challenge.

Society requires science and technology for its progress. The educational system should be associated and interwoven with science. This requirement sets in a curricular problem, an organizational problem, and teaching method problem.

Recently, a good deal of attention has been focused on the techniques of revitalizing class room teaching in our schools. Secondary Education Commission expressed on the dynamic methods of teaching, discussed the objectives of right techniques to suit different levels of intelligence. Indian Education Commission pointed out that while science is expanding at a terrific pace till, very recently even in the educationally advanced countries; little attention was paid to serious improvement and innovation. In our schools today, instruction still confirms as mechanical routine; continues to be dominated by the old besetting evil of verbalism,
remained as dull and uninspiring as before; inadequate and do not shape the behavior in a desired manner.

Remarkable efforts have been made during the last decade through seminars, workshops, refresher courses, summer institutes and like to introduce the teacher especially at secondary level to new techniques of instruction. Thus there is a felt need for a qualitative improvement of teaching at all levels. The need is very great in teaching science in the modern world of technology, where in the skill for inventions needed to protect and safeguard the environment, better usage of environment, promoting awareness on using the eco-friendly material, use of medicinal plants alternatives to medicines, proper health care, avoiding the food not suitable to health etc., The survival and management of society theoretically and practically require more general education and subject value education in the science and technology for all. Pressure arises for mathematics and sciences to be taught to the entire population to create interest among the curricular subjects.

Need is felt for raising the quality of Science teaching so as to achieve its proper objectives and purposes viz; to promote an ever deepening understanding of principles to develop problem solving and analytical skills and ability to apply them to the problems of the material environment and for better social and healthy living and to promote the spirit of enquiry and experimentation with respect to the processing skills in the day to day life situations.

Teaching chemistry is focused to curriculum, syllabus, textbooks, teaching methods and a bundle of facts, principles, theories, usages, properties and subject matter. But in what way we can protect our environment and natural
resources, health hazards, how to create precautionary measures, minimizing the global warming, how to balance our diet, how to use food as medicine, in place of medicines for simple illness, how to maintain health and hygiene, how to control jaundice by diet intake, how to supply nutrition to our body, using quality food, preventing and storing food products in a healthy manner, planning of diet, diet pattern, variation in dietary measures to various works, work simplification, knowing the chemistry of attaining obesity, controlling diet intake for each and every disease are not given importance while teaching chemistry in the regular class room. But these are hidden in the curriculum. So these values namely food and nutritive, health and hygiene, medicinal and environmental must be given high lightened in the regular class room teaching of chemistry at Secondary school level.

1.3. Curriculum

Education is an orderly and deliberate effort, and some plan is needed to guide this effort. Curriculum is defined as a plan and reflects value judgments regarding the nature of education which influences how curriculum will be planned and utilized.


The curriculum is concerned with what students will do in the learning situation, and it deals with expectations or intentions, and more specifically, with the learning outcomes provided, though what happens and what learners
do. It should encompass subject matter, experience and means and ends, and is the plan for providing sets of learning opportunities for persons to be educated.

In Govt. of India’s “Report on the review committee on the curriculum for ten year school(1977)”, Popham and Baker advocated curriculum as a four–step goal–referenced model. The four steps of the curriculum are (1). Specification of objectives, (2) Pre-assessment, (3) Instruction, (4).Evaluation. Society, learners, and knowledge are the bases of the curriculum and persons to be educated towards goals, objectives and external forces. These bases of curriculum with curriculum design, instructional modes, evaluative processes, and student’s progress are the elements of the curriculum system.

Curricular subjects deal with the values which are important to increase the interest in the subject and usage in their day to day life. Anything and everything that is taught is planned or otherwise learned. Curriculum actually encompasses a combination of null curriculum; Overt, explicit or written curriculum; political curriculum, societal curriculum, phantom curriculum; electronic curriculum and hidden curriculum or covert curriculum. Students learn all the time through exposure. They learn important social and emotional lessons from everyone who are in a school. Basing on the individual, learner experiences the result of schooling.

1.4. Hidden Curriculum

Hidden curriculum can be defined as the unstated and unwritten values that are taught along with normal curricula. The hidden curriculum tends to remain below the surface; it really is not noticeable, unless one thinks about it. It is true that “teachers and administrators” interactions with
students help to shape their attitudes and ideas. The Hidden curriculum refers to the kinds of learning which children derive from the very nature and organizational design of the public school as well as from the behaviors and attitudes of teachers and administrators.

Hidden Curriculum may be operationally defined as the transmission of norms, values and beliefs conveyed in both the formal educational content and the social interactions within the schools. Hidden curriculum is very difficult to define as it depends on learner’s perception rather than the methodology. It can be concluded that hidden curriculum has a great potential in bringing more attitudinal changes because of the redundancy principle associated with it.

The hidden or covert curriculum is that which is implied by the very structure and nature of schools, much of what revolves around daily or established routines. Longstreet and Shane (1993) offer a commonly accepted definition for this term, the “hidden curriculum,” which refers to the kinds of learning, from which children derive by very nature and organizational design of the public school, as well as from the behaviors and attitudes of teachers and administrators… “Examples of the hidden curriculum might include the messages and lessons derived from the mere organization of schools. David P. Gardner is reported to have said: We learn simply by the exposure of living. Much that passes for education is not education at all but ritual. The fact is that we are being educated when we know it least”.

The purposes of education, equality of educational opportunity; lifelong learning, utilization of resources for education and curriculum planning are assumptions that should guide in the development of learning society. “Unofficial curriculum” is an important aspect of the student’s schooling. The
success in school is enhanced considerably when students develop and display certain personal interaction and task-related skills. Discovering and developing these skills become the goal of a student's hidden curriculum. The hidden curriculum, those students develop for themselves, results from both the planned curriculum and from an unstudied curriculum. Structure, social climate of the school and teacher student interaction are the three types of unstudied curriculum, all being part of schooling that pervades any particular school.

Fadiman identified “The hidden curriculum that emerges as individuals learn to cope takes an added significance with the introduction of competency testing”, the increase in the rate of change of morals and values, and the emergence of a competitive educational system.

The hidden curriculum is in many respects likely to be more effective than the manifest curriculum. The lessons it teaches are long remembered because it is so pervasive and consistent over many years in which our students attend school. As these lessons are experienced they are so learned firmly. Students are taught certain attitudes, beliefs, values, behaviors, habits and social roles which form an important part of their socialization in which new member of a group or culture come to acquire the values and norms of the older members.

The hidden curriculum carries the values “hidden” in society through chemistry learning by participating in classroom activities. Most values “hidden” in the school environment are to be explained by the teachers. Everywhere the hidden curriculum of schooling initiates the citizen to the myth, that beaurocracies guided by scientific knowledge are efficient and
benevolent. Very few researches are existing on e-learning and in the hidden curriculum.

Regardless of the multiplicity of meanings of the term, investigation research and writing about the “hidden curriculum “, the study of the concept is inevitably motivated by a unitary goal to convert invisible into explicit and visible. The aim of hidden curriculum research is to reveal and make manifest these undisclosed agendas of formal education. Theorists, reformers and apologists all agree that once revealed, the hidden curriculum becomes negotiable and visible to all participants (teachers, students and society in general) allowing for remediation, change, defence, improvement or at least informed dialogue related to education process and structure. The multiple meanings ascribed to the concept of the hidden curriculum, provide evidence for an understanding of the term as defined by particular circumstances and by the lens of world viewed by the beholder.

Limited degree of work has been conducted on the effect of the hidden curriculum in schools and educational setting. Yet it is apparent to shrewd observers of student values and researches who have studied the hidden curriculum. So there is an urgent need to develop some strategies to inculcate the hidden values of teaching chemistry.

1.4.1. Historical perspective of hidden curriculum

Different perspectives on the hidden curriculum have been put forth over the past 25 years. These perspectives contain internal differences; perspectives do overlap in some respects and are not, in some respect, distinct; perspectives do not necessarily build on one another in time or in quality. Also what one calls a particular perspective is contestable
(Hammersley, 1992) and different names have been identified for the perspectives. (Giroux, 1983; Lynch, 1989).

Functionalist’ perspective (Parsons, 1959; Dreeben, 1968; Jackson, 1968) viewed schools as vehicles through which students learn the social norms, values and skills they require to function and contribute to the existing society. As Giroux 1983, explains that the hidden curriculum is explored primarily through the social norms and moral beliefs tacitly transmitted through the socialization process that structure classroom social relationships. Jackson (1968) is less explicit in his functionalism and appears, at least initially, to be concerned about the school’s role in maintaining social order. He contrasts the hidden curriculum with the ‘Official curriculum’ of schooling and describes how the crowded nature of the classroom requires students to cope with delays and denials of their desires and social distractions.

The purpose of school science is not to create scientists but create citizens who understand science in such a way that they can participate intelligently in critical thinking, problem solving and decision making. Scientific knowledge should be made meaningful to the learner by associating it with the world they encounter. The science curriculum needs to take stock of the holdings of the knowledge of science that time has rationals across cultures. Then what image of science should be conveyed through science curriculum? And how is science related to values? Can an effectively designed science curriculum transmit values?

1.4.2. Hidden Curriculum in Chemistry Education

Every student, based on his or her own experiences brings to the chemistry class set of attitudes, beliefs and assumptions about what sorts of things they will learn, what skills will be required, what they will be expected to
do and what kind of arguments and reasoning they are allowed to use in the various environments in the chemistry class. These concepts and facts are like the bricks and mortar of the building and students construct their knowledge with them. But for a building to grow strong a well mixed concrete mixture is required to bind the brick which is in fact hidden in between the bricks. In the same way hidden between the concepts, facts and principles are values that strengthen the chemistry education for overall personality development. This part very often reaches the student unplanned as the facilitator is unaware of it. Possibly the hidden curriculum approach to chemistry education could contribute by triggering the affective domain of the present generation who are well aware of cognitive aspects of both chemistry and values. No doubt acquiring knowledge is important but more important is the change in the attitude, which is possible only when an individual feels the value close to his or her heart. Only then value judgment will be followed by value inculcation process or internalization of the values. Number of the values such as aesthetic, cultural, disciplinary, environmental, humanistic, medicinal, health and hygienic, food and nutritional, intellectual, moral, ethical, peace, utilitarian, and vocational value and many more values are hidden in chemistry curriculum. Values that are immediate by concerned are valuing the conservation of the environment or the environmental education, valuing other individuals is peace education and valuing oneself is health and hygienic education, valuing medicinal foods as food is valuing medicinal education. These aspects when closely analyzed from the basis of one of the pillars of education learning to be given by UNESCO. These aspects have raised many questions in the mind of the researcher which have been formulated as research questions.

1.5. Need for the Present Study
Now the question arises How to make chemistry effective and interesting, so that the objectives of teaching science as envisaged in National Policy of Education (1986), could be achieved. Does chemistry teaching mean only providing theories, factual information learning few applications like preparation of detergents, medicines and dyes? Is chemistry taught only to impart knowledge? If not, what else can be included beyond the regular curriculum? How to find out the hidden treasure of chemistry? How to pass it on safely to students while teaching chemistry? Can a strategy be developed? At what level and what strategies can be adopted to teach beyond the regular curriculum? Can chemistry be taught differently? Is it possible to bring attitudinal changes among students? How these strategies could help in bringing attitudinal changes?

Keeping in view the above questions, there is a need to make an effort to find out the predictive hidden values of chemistry curriculum to be developed among students of chemistry. In the present study an attempt has been made to impart or develop the hidden values of 'Food and Nutrition, Health and Hygiene, Medicinal, and Environmental', through using the hidden curriculum of Chemistry while teaching chemistry among Secondary school students. The study focus on how far we can develop these hidden values of chemistry among secondary school students.

1.5.1. Significance of the study

What is the purpose of teaching Chemistry at Secondary School level? Is it only imparting the knowledge of symbols, definitions, facts, principles, laws, theories and so on? Or something more? Does Chemistry education help in improving the quality of life of health, hygiene and environmental? Does it help in developing values among Secondary School
Students? Can we develop suitable model or strategies for the development of hidden values of Chemistry education among Secondary School Students? These questions are addressed in this study by properly understanding the mechanism and need of the chemistry in the present curriculum.

1.5.2. Why should we know about Hidden Values of Chemistry?

It is in this context; we strongly believe that maximum awareness about hidden values like Food and Nutritive value, Health and Hygienic value, Medicinal Value, and Environmental value and a certain amount of knowledge about the specific uses of the subject chemistry in everyday life is indispensable. Otherwise we may be extremely affected by the unlimited exploitation of the environment.

The present study is primarily aimed to find out whether the development of values is possible through teaching chemistry among Secondary school students. Can we find out the hidden values of Chemistry? Which class is suitable for this? Which units facilitate the inculcation of the hidden values among the students through chemistry teaching? Is there any strategy for the development of the hidden values among the students? Are perplexing questions that have eluded satisfactory and scientific answers even in the countries where educational research has made significant advance. It is to create citizens who understand the relation between chemistry, science, technology and society. A chemistry teacher should realize that every topic has varied dimensions and it can be perceived with different values. To understand the reaction going on in the atmosphere causes pollution or global warming is one of the greatest question to an individual. Though the built in value in chemistry education is undoubtedly established, how to reach out with these values touching the affective domain
is still a doubt. The significance of the hidden curriculum for ethnicity and gender is acknowledged but recognition of how much expectations, norms and values undetermined the taught curriculum in other aspects of affective learning that has not yet been firmly established. Most researchers dealing with the concept of “hidden curriculum” have assumed that the only educational context is the campus and the classroom. Thus, they have rarely framed their search for the hidden values with any clear alternative to this traditional paradigm of education. As the hidden curriculum is unknown and unplanned, there is plenty of evidence now that students become confused and alienated when they receive conflicting messages about what is acceptable and what is not with respect to values.

Instead of double standards, students need empathy, trust and congruence for effective value education leading to social learning. Thus there is a need to look at the lag in the school curriculum from the point of view of establishing values. The students’ attitude, behavior, and actions are decided by their value preferences and value system. Present education demands higher order value education. Though there has been remarkable enlargement of frontiers of knowledge, the society has moved towards crisis and disorder with respect to values instead of developing higher social order with respect to values. The need is therefore to integrate knowledge and values. Science can play an important role because values when perceived with scientific attitude are more convincing as value judgment and value clarification are better conceived. Considering that chemistry is the area of concern, special attention should be paid to chemistry education. Modern view about the nature of chemistry is to provide Value education through hidden curriculum of chemistry and bring about attitudinal changes among the secondary school students.
1.5.3. Underlying theoretical framework

To make chemistry teaching more effective and interesting, the hidden treasure or the values of Chemistry curriculum may help the present generation in protecting the environment, and in leading a happy and healthy life, without diseases. So the focus of the study is hinged on teacher and student and on new strategy to be developed for teaching by a suitable selection of an experimental design. The new strategies developed will be more useful in the teaching / learning process. Teaching develops some values knowingly and unknowingly among the students. The investigator had selected this problem to find out the values to be developed unknowingly with conscious concrete efforts knowingly in students.

The theories of Piaget, Ausubel, and Gagne would therefore provide theoretical basis for the study as noted in “Education in emerging India (2010)“.

1.6. Statement of the problem

“An Experimental Study of imparting Values through Hidden Curriculum of Chemistry among Secondary School Students.”

Operational Definitions of the Terms used:

**Hidden curriculum:** It can be defined as the unstated and unwritten and values that could be imparted and developed in students along with normal chemistry curricula.

**Secondary School:** The stage of school education from VIII to X class (VIII, IX, X) as per Andhra Pradesh State Government.
**Values:** 1. Usefulness, importance, he learnt the value of regular exercise. Consider to be great worth or importance.

**1.7. Objectives of the Study**

The objectives of the study are

- To identify the values hidden in the chemistry curriculum at secondary school level.
- To develop a suitable Model for Value Development in Chemistry Education (MVDCE) for teaching chemistry to enhance the hidden values among the Secondary School Students.
- To test the impact of MVDCE on the development of values of chemistry among secondary school students.

**1.8. Hypotheses formulated**

The investigator formulated the following hypotheses for the present study.

- There are values hidden in the chemistry curriculum at secondary school level.
- A Suitable Model of chemistry teaching will enhance the values among the secondary school students.
- The developed model of chemistry teaching has greater impact on imparting the values among secondary school students when compared to traditional method of teaching.
1.9. Limitations of the Study

1. The Study is confined to only X class.

2. Due to limitation of time and other constraints, this study is confined to only 4 values of chemistry teaching.

3. This study is primarily concerned with behavior modification of secondary school students, with special reference to awareness and attitudes.

1.10. Summary

Summarizing the discussion on hidden values of chemistry curriculum a fairly clear understanding of what is the relation between values and hidden curriculum was arrived at. Hidden curriculum may be operationally defined as the transmission of norms, values and beliefs conveyed in both the formal educational content and the social interactions within the school. Hidden curriculum is very difficult to define as it depends on the learner’s perception rather than the methodology. But attempt through chemistry education is made so as to make the teaching learning process objective. The different types of curriculum have been discussed and the importance of hidden curriculum has been focused upon. It can be concluded that hidden curriculum has a great potential in bringing attitudinal changes more so because of the redundancy principle associated with it. Further this type of presentation of chemistry concepts is not associated with an element of indoctrination. No doubt that there is an urgent need to structure our chemistry curriculum and methods of teaching in such a manner as to effectively build in the value system without compromising on conceptual understanding of chemistry. It is in this context that the problem has been identified and review of related literature in chemistry curriculum and hidden
curriculum has been taken up. With recent advances chemistry is no longer simple organic, physical and inorganic. But it includes as immune, human, nutrition, health and hygiene, environmental, medicinal chemistry and biochemistry. Importance of chemistry is hidden in all the branches of science.

1.11. Organization of the study

CHAPTER- I -- Conceptual basis // deals with Conceptual basis of the present research study. It discusses introduction, need and importance of the study, Underlying theoretical frame work, Statement of the problem, Operational definitions of key terms involved, Objectives, Hypotheses, Scope and limitations of the study.

CHAPTER -II -- Contextual reference // Studies on Teaching learning of chemistry, Food and Nutritive Value; Health and Hygienic Value; Medicinal Value; Environmental Value and studies on Hidden Curriculum.

CHAPTER - III --Methodology // Research Design; Research Procedure; Sampling, tools; Pre–Testing; Experimental Treatment; Procedures, Post–Testing; and statistical analysis.

CHAPTER - IV -- Analysis and Interpretation // and results obtained.

CHAPTER - V -- Summary and Conclusions //Findings and Suggestions.