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Role of Mathematics in Changing World

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Introduction:

One cannot imagine the beauty of the world without Mathematics. It manifests in almost all fields of knowledge of the world. We cannot say the knowledge as concrete, complete and perfect one without indoctrination of Mathematics in it. Mathematics has the analyzing capacity in an accurate manner of the problem and provides a suitable and proper solution for the problem.

Mathematics pervades in different field of the knowledge such as chemistry, biological sciences, social sciences, physical science, fluid dynamics, conceptual fluid dynamics, physical oceanography, economics, Psychology, Archeology, social network, political science, linguistics, actuarial science, Insurance and Finance, Music, Art, Management, Engineering and Technology, Mathematics in Computers. Whatever the human fields and the fields of knowledge yet to be touch must unavoidably use the mathematics in it for its perfect existence.

Objective:

1. The enable the teachers to relate the mathematics to meet the 21st centuries needs and challenges of the present world.

2. To develop the knowledge of the teachers about role of the Mathematics in the world of Computers and various parts of the Computer Fields.

Presently I want to quote the great saying of Jain Saint for the purpose of the explanation of my topic. Achrya Mahaveera of 9th Century wrote that -"**BAHUBHIRVI PRALAPAIH KIM THRAILOKYE SACHARACHARE, YATKIMCHIDHVASTU THATHSARVA GANITHENA BINA NAHI**". The saintly verse of Acharya shows the significance of Mathematics -"What is good of saying much in vain? Whatever there is in all three worlds,

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which are possessed of moving and non-moving being all that indeed cannot exist as apart from Mathematics". In this the great saint has been alleged about the great manifestations of mathematics in the entire world and without which we cannot imagine the perfect existence of it.

Recommendation of various commissions about the mathematics:

National Curriculum Framework 2005 :

There should be a Significant change will be taken in the field of curriculum and assessment of mathematics and teaching of Mathematics focus on child's resources to think and reason, to visualize abstractly and to solve problems. Recommend to provide mathematical kits to the students to generate best abilities in them. The Mathematics will have to be learned in an interested manner and the material will have to prepare with the same lines of their interests only. Teacher will have to develop the standard of individual in mathematical thought.

State Curriculum Framework 2011 :

State Government has given great emphasis for the mathematics that Its development should depends on the logic, aesthetic idea of human mind and concentrated on conceptual understanding, thinking method through mathematics and abstract things will be generated in the students, logical result deduction etc., have been given as the mathematical priorities for the correct development of logical thinking in students.

An important area of applications of mathematics is in the development of formal mathematical theories related to the development of computer science. Now most applications of Mathematics to science and technology today are via computers. The foundation of computer science is based only on mathematics. Here are some main disciplines in which Role of Mathematics is widely accepted as the prime field of knowledge for their existence. It includes, logic, relations, functions, basic set theory, countability and counting arguments, proof techniques, mathematical induction, graph theory, combinatory, discrete probability, recursion, recurrence relations, and number theory, computer-oriented numerical analysis, Operation Research techniques, modern management techniques like Simulation, Monte Carlo program, Evaluation Research Technique, Critical Path Method, Development of new computer languages, study of Artificial Intelligence, Development of automata theory.

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All mathematical processes of use in applications are being rapidly converted into computer package algorithms. There are computer packages for solution of linear and non linear equations, inversions of matrices, solution of ordinary and partial differential equations, for linear, non linear and dynamic programming techniques, for combinatorial problems and for graph enumeration and even for symbolic differentiation and integration.

It is the mathematics behind cryptography that has enabled the e-commerce revolution and information age. Cryptography is the practice and study of hiding information. In modern times cryptography is considered a branch of both mathematics and computer science and is affiliated closely with information theory, computer security and engineering. Cryptography is used in applications present in technologically advanced societies; examples include the security of ATM cards, computer passwords and electronic commerce, which all depend on cryptography. Pattern Recognition is concerned with training computers to recognize pattern in noisy and complex situations. e.g. in recognizing signatures on bank cheques, in remote sensing etc. In Robotics Vision, computers built in the robots are trained to recognize objects coming in their way through the pattern recognition programs built into them. In manufacturing Robotics, the artificial arms and legs and other organs have to be given the same degree of flexibility of rotation and motion as human arms, legs and organs have. This requires special developments in mechanics.

Computerized Tomography uses the important breakthrough in reconstruction of images of brain and objects from the knowledge of the proportions of photons observed along different lines sent through the object. These proportions can be expressed as line integrals of a function. Fractals Geometry enable us to design models of irregular objects like clouds, coast lines, lightening turbulence etc. and this uses a combination of probability theory, mathematics and computers. This shows that mathematics can enable us to handle apparently irregular patterns as much as it can enable us to study regular patterns.

In Computer Graphics we find the virtual landscapes and things within them are three-dimensional mathematical objects, and these objects behave and interact according to the equations for the rules of physics that apply within the game. These rules might cover gravity, speed and force, and even stop your character falling through a solid floor but allow them to sink

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in quicksand. This type of mathematics is used in computer graphics for movies, and mathematics plays an important part in many areas of IT, including programming, designing hardware and project management.

Suggestions

1. Children can best understand what is the Boolean algebra, graph theory, mathematics logic in a better manner and implement for the understanding of other subjects in a thorough manner.
2. Individual can think to develop logic to construct a new knowledge in various fields.
3. We can use the mathematics for the understanding of the various subject for the daily life situation.
4. Syllabus of the secondary school mathematics in the state has not fulfill the challenges of the present competitive world in the various fields.
5. The better part of primary calculus has been included in the syllabus of the tenth class syllabus so as to generate scientific temperament of the student.
6. There should a link between the secondary and higher secondary levels of mathematics so as to have a good comprehension about the mathematics.
7. Computer education subject has to be made compulsory from the secondary level by providing regular practicum.
8. Mathematical lab has to be developed in every high school and some suggested practicals in mathematics should be provided to the students in the able guidance of the Mathematics teacher.
9. Orientation to the mathematics teachers in new trends to the effect of new educational policies has to be provided time to time.
10. New system of evaluation should be incorporated in which theory and real practical marks have to be included.
11. Grading and credit system has to be continued.

Conclusion:

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It is the mathematics which changes the entire scenario of living beings and it is clearly manifested through wide range of faculties of human being. One can understand what are the various fields and specifically the computer fields where the Mathematics has been used to nourish them.

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