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E-CHEM LEARNING FUTURISTIC SKILL BASE APPROACH FOR CHEMISTRY

Siddhi Pandya[1] & Prof. Neha Soni[2]

Abstract-E-chem-learning provides required help at every stage of an advance, University, and school level chemistry course. It explains basic definition, full explanation, examples to gather with 3D visualization of formulation and formation of chemical equations. It is E-learning website which provide platform for online education for the science student and improve visualization ability. More over this system has interactive process for communication as well as online chat system.
The E-chem-learning system is implementing by using PHP, A jax, HTML additional 3D view is implemented by JAVA script processing language for creating better understanding. This is interactive software creating interface using HTML and PHP. Here using SQL database, SQL syntax or PHP database system to store login & password.
E-chem-Learning has rapidly evolved need of the future to a practical approach towards education. It will continue to be an extremely useful as a classroom teaching tool as well as self-study platform. With the rise of virtual reality technology and augment reality solutions, experimental subjects, skill-based learning, training will depend heavily on E-learning solutions. E-learning is powerful aid to improve skill base learning of practical aspect. It is a Futuristic need of the education system. E-learning simplify and helps grasping of basic of chemistry to achieving mastery in a user friendly style it reveals it secrets of complex subject. As the advanced stage of education technology in future. I phone and face time based online tutorial has also become popular and is being termed as i-learning platform.
Keywords:-E-chem-learning, mole, PHP, HTML, SQL, 3D visualization, formation, interface, interactive, web base and online.

1. INTRODUCTION

General understanding of world development around you will remain incomplete unless one must know the basic concepts of chemistry subject. It is observed that chemistry is subtle and difficult subject. Chemistry can transform one substance in to another. It is a real science.

Science education stands as prominent and critical component for growth and development of country there are challenges and opportunities and technical educations. They includes shift in mind set for revamping the curriculum, learning and teaching methodologies. The digital libraries and virtual universities are at the door steps. One must possess visualization imagination and understanding power.

Scientist discovered, How to make a different class of material that conducts electricity without resistance at temperature not far below room temperature. Most of the scientist who created such materials were chemists. Presently application of chemistry extended over the whole spectrum of human activates from the productions of new materials in the filed of Engineering.

E -learning is a activity engaged in deliberation, dialogues towards the fulfillment of and enhancement of chemistry, in order to resolve the ensuring challenges beyond 2020. The challenge beyond 2020 is to attract the best students as well as best qualified teachers and researcher from across the world. The key factors needed for world class ranking are UN compromising pursuit of excellence. Effective thrust on skill based learning is on globally.

It is found that most of over school / gradates students lacks in skill to meet the industry environment and its expectations. The challenge is to bring out employable gradates, who can meet the expectations of the emerging industrial scenario. Even the gradated of collage fail to meet the professional expectations of the industries.

We need to introspect and bridge the gap between the industries requirement and the contents of our academic curriculums. We have to watch to the global trends and transform the existing teaching and learning methodology for appropriates changes to be backed by innovation and teaching and learning.

We have tried here to avoid old – fashioned explanations and outdated theories and have sought to produce E – Learning that describes chemistry as it is in the late Twentieth century. The student will enjoy, reading which will give them all they need to know about understanding of modern chemistry for various level @ E chemistry learning.

Present work is aimed to present what was needed for E-chemistry learning in the branch of chemistry. We believe that the most important device for making an E-chemistry learning attractive, useful and helpful to the beginners. It is an interesting style of learning in present era.

[1] *Graduates students of BE Computer Engineering, Sardar Vallabhbhai Patel Institute of Technology*
[2] *Seniore Assistant Prof. Sardar Vallabhbhai Patel Institute of Technology, Vasad, Gujarat, India.*

It is an interesting style coupled with a clear understanding of basic concept of chemistry. It is invaluable for students, teachers as well as general readers. E-chemistry learning provides full explanation of important and challenging complex concepts. This also provides practical guidance and examples with field application. E learning is a creative initiative which provides clear concise approach for Learning.

A real grasp of the subject comes only by doing E-chemistry learning. We believe that we have produced on authoritative and enjoyable learning model tools. Teachers and student, users alike will be able to use with confidence and pleasure. We make sure that our ideas of E-Chemistry learning were workable in class room and helps in conducting certificate exam of various levels. It's a Tutorial repronsature.

Every chapter unwinds the chemistry behavior in a unique and wherever possible user friendly style E-learning provides one by one step in sequential manner. E –chem.- learning will remove the fear of analysis from mind. The demons of analysis and ghosts of formulations and chemical equation will vanish forever. It will enhance your understanding power and if you do your extra bit towards self study items. Your interest in the chemistry will always be alive and kicking.

2. PROPOSED ALGORITHM

A. Objective:-

The present project work is carried out as a first step in **"Swayam"** project as a associate members of the team. As unique imitative taken by Human Resource Dept. Govt. of India 2016, to start a online course in chemistry under **"Swayam"** project. As per requirement of Education Dept. Govt. of India @ 1000 centre will offer a course chemistry of various level. The project was awarded to MS University as a part of such initiative. E- Chemistry learning project was adopted for credit for 24 hrs.

Tools & language used was service built using PHP & Database used was Mysql. In these process graphic tools such as open GL, chem.-doodle, Java script, HTML5 were used.

Design methodologies involved in this E-chem learning are

1) Activities 2) Environment 3) Interaction 4) Objects.

Use as of this E-chem. learning are Teachers, students, Researchers and learner while project manager, Graphic Designer, Programmer, Editor and Experts are stockholders.

This E-chem. Learning tools has a feature which scalable, visualization, comfort & content. Implementation strategy system should be provided having some operational constrains. Software can be design using various techniques @ analysis & design. Using interviewing brain storming, making prototype @ research. We have used interviewing and questionnaires teaching in order to bring information about that request of students.

Implementation strategy required staff working with system to find out the specific application domine as well as system operational constraints.

Adopting specific technique based on type of application, the skill and sophistication request of client & team shall have proper coordination. One must be clear @ scale of problem, criticality of the application with its uniqueness.

B. Design Methodology

E –learning which is going to fetch you life time rewards. Needs a devotion of few days of sustain effort. More over a good number of 3D views is adopted to put any doubt to rest. A meaningful interpretation of formula and the derivation is added so that one can solve the practical problems easily without any additional helps.

The chemistry deals with myriads of atoms and molecules with typical samples having more atoms in them than there are starts in the Galaxy.

Moles, molar mass & reactions are very useful & helpful when interpreting chemical equations.

$H_2 + Cl_2 = 2Hcl$

Using the concepts of moles and molar masses a chemical equilibrium can be used to calculate the mass of one reactant that reacts with a specified mass of another. This is an extremely important bridge which can be easily understood by E-chemistry learning.

A key to understanding the chemistry of the elements is the electron configuration and energies of their atoms that is what the period's table summaries. Atomic spectroscopy is used to determine electron configurations experimentally by E-chemistry learning.

The essential feature of atomic spectroscopy is that when an electron changes from one orbital to another of lower energy. This can be distinctly understood by E-chemistry learning.

Chemical bonding is basic requirement of atoms, when atom forms Bonds if may generate, the ionic and covalent bonds. It can be explained in the terms of electrostatic interactions between electrons and nuclear. There are simple rules for predicting the shapes of molecules. It reflexes creation of types of bonds amongst the atoms.

E-chemistry learning provides a clear and destines solutions. This modern technique have brought about a revolution in the kind of evidence. A major contribution was made by Gilbert Newton's, Lewis @ importance of electron pair can be understand easily by E-chemistry learning.

Linus Pauling who won noble prize @ his invention @ bonding theory in terms of quantum mechanics is also covered in E-chemistry learning by different computation techniques. This innovative method can make effective and efficient use of the technique to gain basic knowledge and understanding in the complex process. E-chem. Learning will be simple and easy.
E-chemistry learning help in creating, creativity. As creativity is an essential trail for a good research. This will also help to synthesized. This innovative method helps in generating new combinations of ideas and concept in the more meaningful and useful forms.
We have tried to provide holistic treatment to the subject keeping predominating academic research scholar of engineering science related to the chemistry.
We have witnessed that the economical development of many countries is on account of sustained and sustaining all investment in real research & developments.

3. EXPREMENTAL SYSTEM DESIGN PROGRAMME

A. System Design Programme

E- chemistry learning is a based on web applications, which provides study of chemistry materials online, tutorials and some 3D figures helps to conceptualize & visualize the basic understanding of chemistry. It will be a best tool for student, teachers for arranging interactive session.
A plan of the work is based on waterfall model it is also considered as linear – sequential life cycle model. In this model each phase must be completed before the next phase was initiated. There will not be any overlapping in the phase.
Waterfall model based on SDLC approach that was used for software development. Here linear sequential flow was generated. Without creating any overlapping of phases. Whole process is subdivided into separate phases. Here outcome of one phase acts as the input for the next phase in sequential order is a uniqueness of SDLC approach.

1. Requirement Analysis 2. System Design 3. Implementation
4. Testing 5. Development 6. Maintenance

1st phase	@ required, specification are captured. One has to collect the information regarding the list of diseases its symptoms, its prevention with their home-made remedies.
2nd phase	system design helps in specifying Hardware and System requirements. It also helps in defining over all system. Using all data collected in this phase all collected. All data in required format and appropriate analysis is carried out in this phase. We modeled the data in various types of UML diagrams similar to E-R diagram.
3rd phase	with given inputs from the system design small programs are generated, which are integrated in the next phase. Here each small program tested for its functionality which is considered as a Unit Testing.
4th phase	all the developed units are transferred to implementation phase for integration in to system. After testing of each unit testing. Here Post integration on entire system is tested for faults / failures if any in the system.
5th phase	all functional & nonfunctional testing is carried out before product is displayed to the customer for them as a learning tool named as E-chemistry learning tools.

By this way it allows for departmentalization & control flexibility @ schedule can be set for each phase. This will help in development in concept through design, implementation, testing installation. This model assure @ each phase of development proceeds in strictly in sequential order only.
It has some pitfalls such as it does not reflect any revision in process. It is extremely difficult to go back and make changes are the limitations of suggested E-Chem. Learning tools.

B. Devlopment Of Programme - Strategy

Feasibility study provides basic understanding @ operation technique Economic & social merits of the specific system. This study analysis and evaluates the potential of project based on the investigation & research objective. The feasibility studies covers technical feasibility operational feasibility, financial & Economical feasibility, and schedule feasibility.

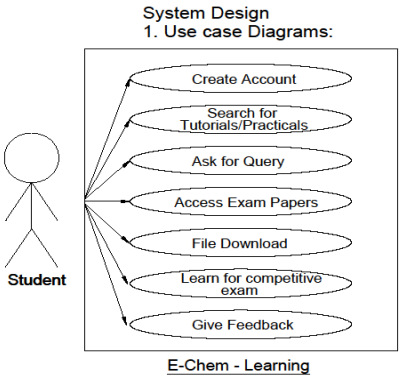


Figure-1 System Design

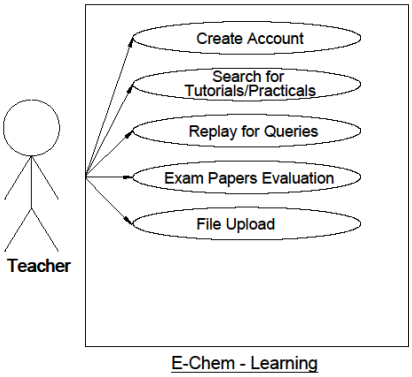


Figure-2 System Design

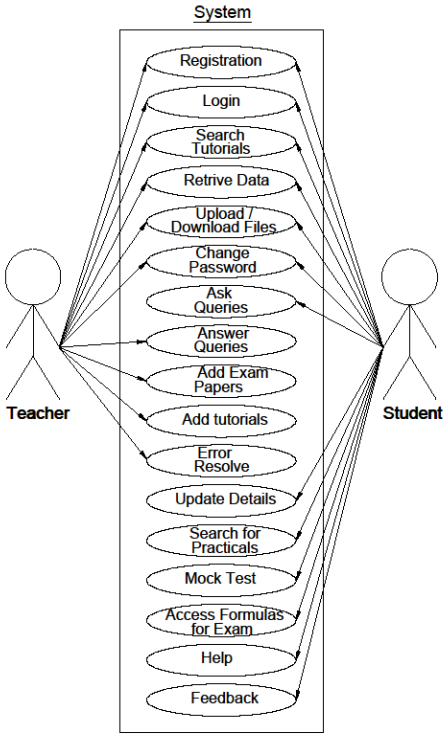


Figure-3 System Design

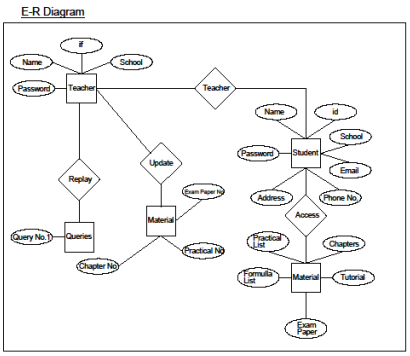


Figure-4 E-R Diagram

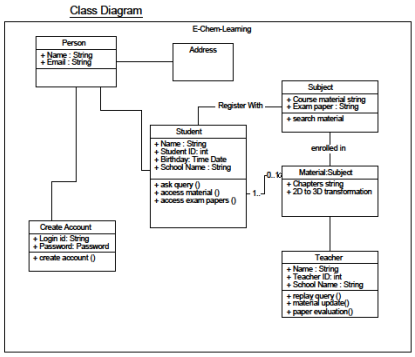
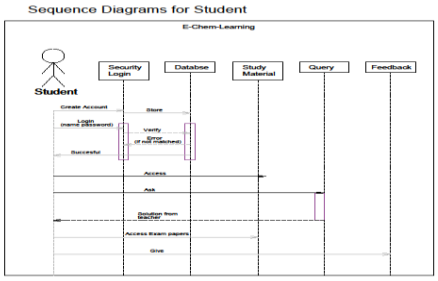


Figure-5 Class Diagram



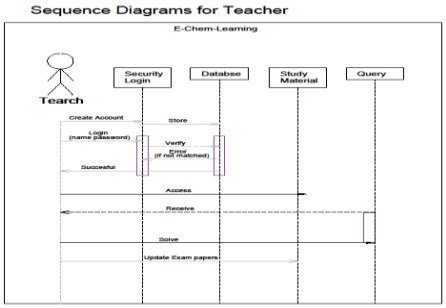


Figure-6 Sequence Diagram for Student

Figure-7 Sequence Diagram for Teacher

C.Programme Results

1. Not able to reach larger groups or audiences

Teachers can address only a limited number of student. If participants are spread over a wide geographical area, they are obliged to travel from one place to another to take training sessions. However, with E-chem-Learning, online course can be created to ensure that while some get to attend the face to face classroom sessions, others are not left behind and have equal opportunities to gain knowledge.

2. Unable to accurately measure the learning outcomes.

When courses are taken online, learning can be tracked at every stage of student. Assessments and tests can be conducted at every stage to ensure that the learning is progressing according to the intended plan. It is easy to provide support and help thorough online methods to students who have difficulties in either accessing or comprehending a section of the course.

3. Time and Money Savings – This one is pretty well known, and a staple of any well – done E-learning program. E-chem-learning reduces time away from the workplace, eliminates the need for travel, and removes the need for classroom-based training.

4. Flexible – Using E-chem-learning, you can give employees and students the freedom to learn at their own convenience, and at a pace that is right for them. Staff can be trained in remote locations and in a consistent fashion as anyone receiving on-site training.

5. Reduction of the Carbon Footprint – By leveraging E-learning for online testing and quizzing, the need for printing out paper-based assessments is reduced, in fact it's practically eliminated altogether.

4. LIMITATION

This system has two limitations.

1. If there is no internet connection then system will not work.
2. If some user has not updated version of the system then some graphics will not run on the screen and error can be occurred.

5. CONCLUSION

The "E-Chem-Learning" provides a platform for online learning procedure for subject chemistry. It can be used by the students of different schools, colleges, universities in the various part of the world. E-chem-learning is boundary barrier independent & also lacks time constraint. Scalable – E learning enables us to quickly create and communicate new policies, training, ideas, and concepts. Capacity and Consistency – Using E learning allows educators to achieve a great degree of coverage for their target audience, and it ensures that the message is communicated in a consistent fashion. This results in all learners receiving the same training. High Learning Retention – Blended learning approaches result in a higher knowledge retention rate. It also helps that coursework can be refreshed and updated whenever needed. Visualization – this system helps student to understand the subject most clearly and better learning platform. The system has visualization technique for some molecule structure, which help for better understanding.

6. REFFERENCES

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