**Course Description**

**The Department of Science Level of Students: M. 2**

**Subject Code: SC20203 Subject: Universal Science 2**

**Number of Credit: 1.0 Time: 40 Periods**

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**Learning Outcomes**

1. Explain the term cell, tissue, organ and organ systems
2. Compare a cell to an organism
3. Name the organs and explain the structures , functions and operations of digestive system, respiratory system, excretory system, circulatory system, reproductive systems of human including human nervous system.
4. Explain relationship between various human systems and apply the knowledge to use.
5. Explain what a mixture is
6. Explain the terms solute , solvent , solution and suspension
7. Explain the meaning and compare properties of solutions and suspension
8. Describe factors that affect the formation of a solution
9. Differentiate between solutions and suspensions
10. Describe different methods of separation of mixtures , such as evaporation ,crystallization ,refining and chromatography
11. Pose questions that specify the important point or variable for investigation, or study topics of interest inclusively and reliably.
12. Set hypothesis that can be tested and plan different methods for examination.
13. Choose both quantitative and qualitative techniques for examinations providing

reliable results and security using proper materials and equipment.

1. Collect data and create both quantitative and qualitative information.
2. Analyze and evaluate the correspondence of evidences and conclusion both

supporting and contrasting hypothesis and errors of data from the examination.

1. Create the models or patterns explaining or showing the results of the examination.
2. Create questions leading to the examination of related issues and apply the

knowledge to the new situations or explain the understandable concept, process, and result of the projects to other people.

1. Record and explain the results from observation, exploration, and investigation. Examine and search for more information from various sources for reliable information and accept the change from ideas discovered if there is new data or arguments against the existing ideas.
2. Exhibit works, write reports, and/or explain the understandable concept, process,

and results of the projects to other people.

**Learning Content**

Study foundation science on the topics of the human body, structures and operations of various human, relationships of various human systems body systems separation of mixture , the terms solute , solvent , solution, suspension and mixture, properties of solutions and suspension, factors that affect the formation of a solution, methods of separation of mixtures

Use the process of establishing knowledge and understanding, scientific process, and skills which are observation, data investigation, and discussion to create knowledge, ideas, understanding, ability to communicate the knowledge, decision-making ability, and problem-solving ability, and get students involved in learning process by participating in various activities suitable for their learning levels, and apply the knowledge to real-life situations with responsibility, honesty, disciplines, creativity, efforts, and scientific mind , scientific attitude, public mind, love of being Thai, and propervalues.

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