**Course Description**

**The Department of Science Level of Students: M. 3**

**Subject Code: SC20205 Subject: Universal Science 5**

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

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**Learning Outcomes**

Students will be able to:

1. Differentiate between series circuits and parallel circuits
2. Explain the relationship between potential differences, resistance and current
3. Distinguish between ammeter, voltmeter, galvanometer and ohmmeter
4. Explain electric power and how this is connected to the electricity bill
5. State, for each appliance , which form of energy electricity is converted into
6. Explain how to use appliances with maximum efficiency
7. Describe electronics
8. Distinguish between resisters, capacitors and transistors
9. Explain what electromagnetic waves and electromagnetic induction are
10. Explain about static electricity, current electricity, potential, resistance, Ohm’s Law, components of electrical circuit, and electromagnets, and apply the knowledge to daily life situations.
11. Explain the relationship between genes, DNA and chromosome
12. Describe how to traits are inherited by domination of alleles
13. Explain the relationship between genotype and phenotype
14. Distinguish between mitosis and meiosis
15. Explain the relationship between mutations and hereditary diseases
16. Explain the importance of a pre- wedding check-up
17. Explain the uses of genetically modified organism
18. Discuss the effects of using genetically modified organism on humans and the environment
19. Explain the interactions that organisms have with their environment
20. Distinguish the types of interactions among organisms
21. Explain the movement of energy/nutrients through communities
22. Explain the accumulation of toxins in food webs
23. Relate biodiversity of different ecosystems
24. Explain the importance of conservation
25. Pose questions that specify the important point or variable for investigation, or study topics of interest inclusively and reliably.
26. Set hypothesis that can be tested and plan different methods for examination.
27. 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 electromagnetism, static electricity, current electricity, potential difference, resistance, Ohm’s law, components of electricity circuit, electromagnets ,genetics ,characteristics of chromosome or genes in nucleus, importance of Deoxyribonucleic acid (DNA) and genetic process, hereditary diseases resulted from genetic or chromosome disorders and apply knowledge to daily life situations ,ecology biodiversity in the local area that enables living creatures to live in balance, effects of biodiversity on human, animals, plants, and environment, effects of biotechnology on human life and environment, various ecosystems in local areas and relationships of compositions of ecosystems, the relationship between a food chain and a food web, methods of preserving ecological balance, sustainable use of natural resources, according to theory of self-sufficiency economy, suggestion of the solutions of the problems,

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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.