**Course Description**

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

**Subject Code: SC20204 Subject: Universal Science 4**

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

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**Learning Outcomes**

1. Understand and explain quantity in physics
2. Name the different physical quantities
3. Understand SI measurement system and describe the units of measurement for length, time, area, volume, mass and weight
4. Name the instrument for methods of measurement for these physical quantities
5. Explain mass, weight, and density of objects.
6. Explain the difference between mass and weight
7. Calculating weight and density of objects and apply knowledge learned.
8. Explain about types of force and describe effects of force on the motion of an object
9. Distinguish between static friction and kinetic friction, understand their benefits and apply the knowledge to use
10. Explain gravitational attraction and its effects on weight
11. Explain electric changes electric force
12. Describe magnetic force and magnetic field
13. Explain hydrostatic pressure , buoyancy ,floating and sinking
14. Explain buoyant forces acting on objects
15. Explain and calculate pressure and apply knowledge learned
16. Explain torque and rotation
17. Explain about equilibrium and restoring force , apply the knowledge gained for useful purposes.
18. Explain waves and sound , formation of sound, motion or vibration of sound, human’s hearing, its use, and noise pollution
19. Understand and classify types of simple machines, apply the knowledge gained for useful purposes.
20. Describe the internal structure of the Earth
21. Explain how erosion takes place on the Earth’s surface
22. Distinguish between the different types of soil
23. Describe how petroleum is formed
24. Describe the cycle of water in the surroundings
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.

1. 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 measurement of substances , quantity in physics, measurement unit (SI), measurement of length, time, area, and volume forces , types of force , effects of force , moment of a force , static friction and kinetic friction , mass, weight, density of objects, hydrostatic pressure , buoyancy ,floating and sinking, torque and rotation , equilibrium and restoring force , types of simple mechanicals ,geology, structure of the Earth, erosion , types of soil , petroleum, the cycle of water

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.