Notes in physics for September:

s is your student number.

k = s mod 10000. T = s mod 100.

m35 = s mod 35. m25 = s mod 25. m20 = s mod 20.

m10 = s mod 10. m9 = s mod 9. m8 = s mod 8. m7 = s mod 7. m6 = s mod 6.

m5 = s mod 5. m4 = s mod 4. m3 = s mod 3. m2 = s mod 2.

1. What do you want from this course?

2. What is physics?

Introduction to physics:

Physics is the most fundamental science which is everywhere: in chemistry, biology, computing, even in economics, psychology, sociology and politics because there no better scientific methods than physics methods.

If you an information technology student then you can help the world by programming for nuclear fusion, quantum computing, quantum cryptography, quantum teleportation, etc.

If you take cryptography class then you will need physics for generating chaos for passwords and keys so that hackers cannot crack your password.

en.wikipedia.org/wiki/Physics

3. Why do we need physics?

Why physics?

I need physics to do my physical work well, to do my research (my PhD thesis was in physics), to create better energy sources, to use it in economics, business, finance (econophysics) to make lots of money, etc.

Unfortunately, all science is physics, even in sociology, this must be changed, we must go beyond physics, this is your job as young scientists, computer people.

You may need physics for something else. What is it? It must be your own original essay.

3. Do what you like in physics.

4. What are the base units?

5. Explain units of physics.

Units of physics:

Physic is different from calculus, discrete math and other mathematics by units, in physics we must always give physical units to all physical quantities.

7 base units of physics:

7 base units of physics express all other physical units. You must know these 7 units.

https://en.wikipedia.org/wiki/SI\_base\_unit

Algebra of physical units:

We can do algebra of physical units. For example, we can show that at is measured in m/s.

6. Explain measures.

Measures:

You cannot measure things perfectly. There will always be some error.

If the errors are small then we can use formulas similar to differentiation to calculate compound errors but in physics we always plus errors, we never subtract errors in physics.

The error can be systematic (inaccuracy) and random (imprecision).

Your results are accurate id their average is the same as the correct value.

Precision is linked to kurtosis and standard deviation.

https://en.wikipedia.org/wiki/Kurtosis

https://en.wikipedia.org/wiki/Standard\_deviation

If i make mistakes in my scores then I am imprecise, it is about equally likely for every score to be wrong.

If I like girls more than boys and I give girls higher scores then this error is NOT random, it is systematic (inaccurate).

7. Explain significant figures.

Significant figures:

All non-zero figures and zeroes between non-zero figures are significant.

Zeroes are NOT significant sometimes.

09 = 9 one significant figure.

40000 one significant figure (Atlantic rule).

0.000047 two significant figures (Pacific rule).

0.00000500 three significant figures (Pacific rule).

5. Calculate the compound error.

https://physics16.weebly.com/uploads/5/9/8/5/59854633/compound\_errors.txt

6. How can we reduce the pollution and its impact on people and nature?

6. Air purifier purifies 5 cubic meters of air. How many such air purifiers are needed for a room 5×5×10meters?

7. A dust particle with mass of 0.00001kg and speed of 5 m/s is subjected to a force of 00001N of the filter. How much time will it take to stop the particle?

6. Will moving or static egg crack? Explain dynamic coefficient and attack vs. defence.

7. Explain efficiency of truck and trolley.

8. Do big or small wheals give more power.

10. Is black or white clothes warmer? Why?

9. Why does cat sit on its curved legs?

10. Why do cats stretch?

11. What is fractal?

https://en.wikipedia.org/wiki/Fractal

12. Explain Magnus effect.

https://en.wikipedia.org/wiki/Magnus\_effect

13. Study

https://physics15.weebly.com/

https://physics16.weebly.com/

https://physics18.weebly.com/

14. What is least constraint principle?

https://en.wikipedia.org/wiki/Gauss%27s\_principle\_of\_least\_constraint

15. Study general concepts of mechanics, oscillation, fluid mechanics, thermodynamics, optics, electromagnetism, quantum physics and cosmology.

https://en.wikipedia.org/wiki/Mechanics

https://en.wikipedia.org/wiki/Oscillation

https://en.wikipedia.org/wiki/Fluid\_mechanics

https://en.wikipedia.org/wiki/Thermodynamics

https://en.wikipedia.org/wiki/Optics

https://en.wikipedia.org/wiki/Electromagnetism

https://en.wikipedia.org/wiki/Quantum\_mechanics

https://en.wikipedia.org/wiki/Cosmology

16. How is physics used in computer science?

17. Analyse physics news.

18. Study actions of operator or drone.

19. How can we help Indonesia using physics?

21. Use Chat GPT and/or other such methods.

15. Study Zimmermann contests.

azspcs.com

16. Analyse wars in Ukraine, Frica, Yemen, etc.

20. Do your project.