



Science subjects offered

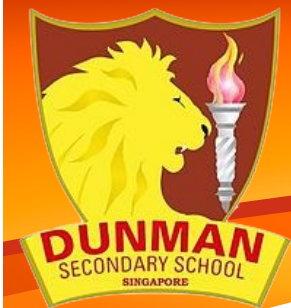
■ Pure Sciences

- Biology
- Chemistry
- Physics

■ Combined Sciences

- Science (Physics/ Chemistry) [Express and NA]
- Science (Chemistry/ Biology) [Express only]

■ Science Syllabus T



Chemistry

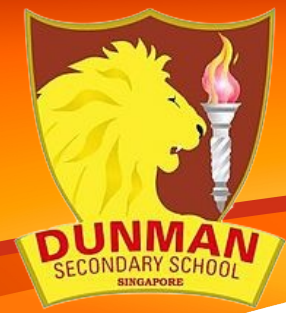
is the science that deals with the composition and properties of substances and various elementary forms of matter.

Syllabus Overview:

- I. EXPERIMENTAL CHEMISTRY***
- II. ATOMIC STRUCTURE AND STOICHIOMETRY***
- III. CHEMISTRY OF REACTIONS***
- IV. PERIODICITY***
- V. ATMOSPHERE***
- VI. ORGANIC CHEMISTRY***



Assessment: Theory Papers and Science Practical

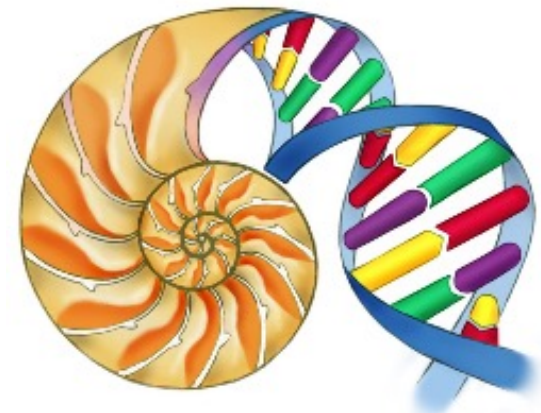


Biology

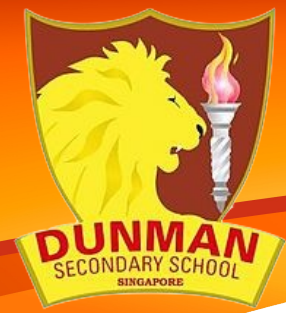
is the science of life or living matter in all its forms and phenomena.

Syllabus Overview:

- I. PRINCIPLES OF BIOLOGY***
- II. MAINTENANCE AND REGULATION OF LIFE PROCESSES***
- III. CONTINUITY OF LIFE***
- IV. MAN AND HIS ENVIRONMENT***



Assessment: Theory Papers and Science Practical

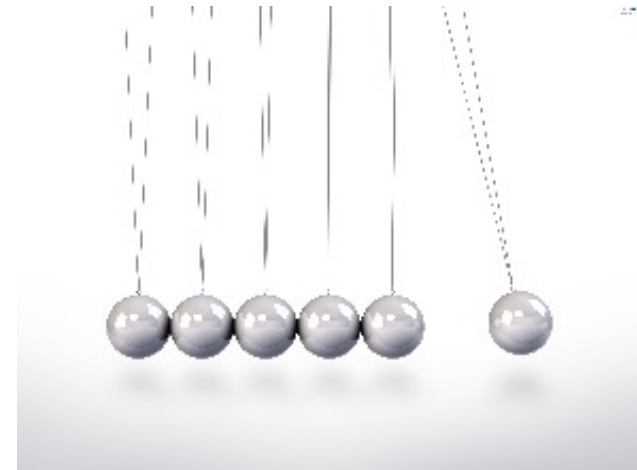


Physics

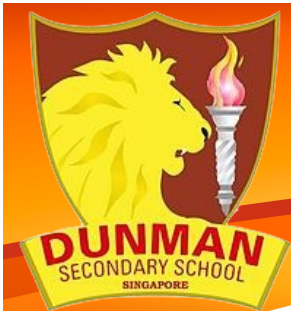
is the science of matter and energy and of interactions between the two.

Syllabus Overview:

- I. Measurement***
- II. Newtonian Mechanics***
- III. Thermal Physics***
- IV. Waves***
- V. Electricity and Magnetism***



Assessment: Theory Papers and Science Practical



Science (Physics/Chemistry)

Science (Chemistry/Biology)

- ***Science (Physics/Chemistry) is a combined subject between Chemistry (50%) and Physics (50%). [Express & NA]***
- ***Science (Chemistry/Biology) is a combined subject between Chemistry (50%) and Biology (50%). [Express only]***

Assessment:

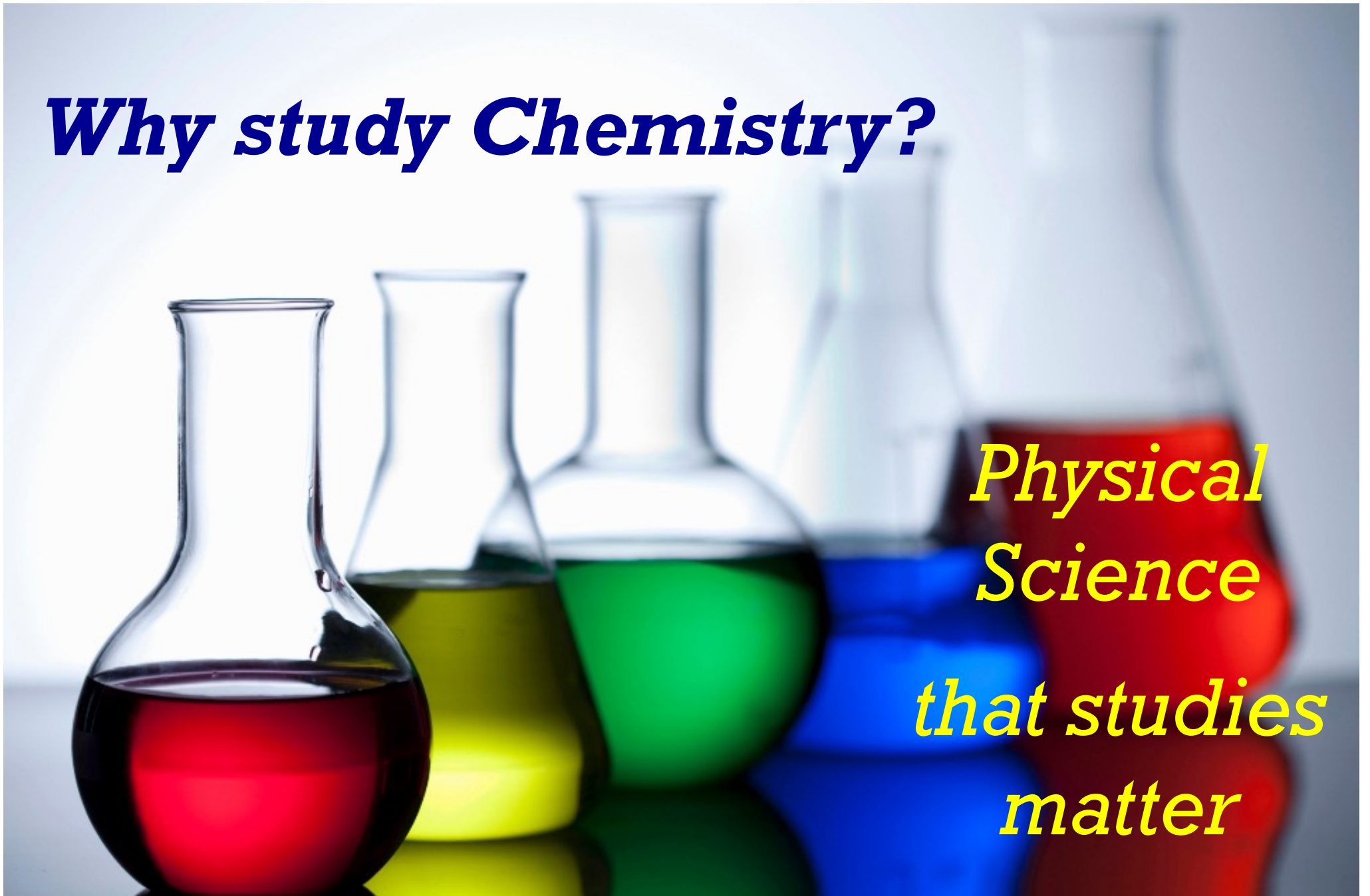
- ***Theory Papers***
- ***Science Practical (only for Express)***

Similarities and Differences

	Pure Sciences	Combined Sciences
Content coverage	Pure Sciences covers a wider scope and more in depth. Typically, Pure Sciences have 3 to 5 chapters more than Combined Sciences	
Assessment rigor	<u>Pure Sciences:</u> 45% on Knowledge & Comprehension; 55% on Application <u>Combined Science:</u> 50% on Knowledge & Comprehension; 50% on application	
Assessment mode	Theory and Practical (deals with different skill sets)	Theory and Practical (focus on Qualitative Analysis) (For express only)

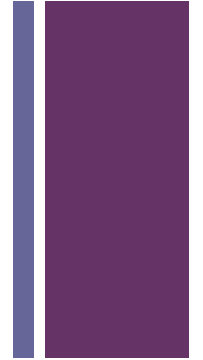
Why study Chemistry?

***Physical
Science
that studies
matter***





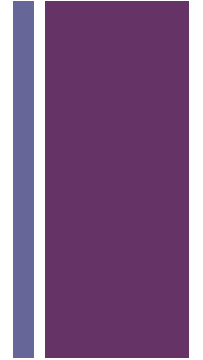
The Screen That You Are Reading



liquid crystal displays (LCDs)

+

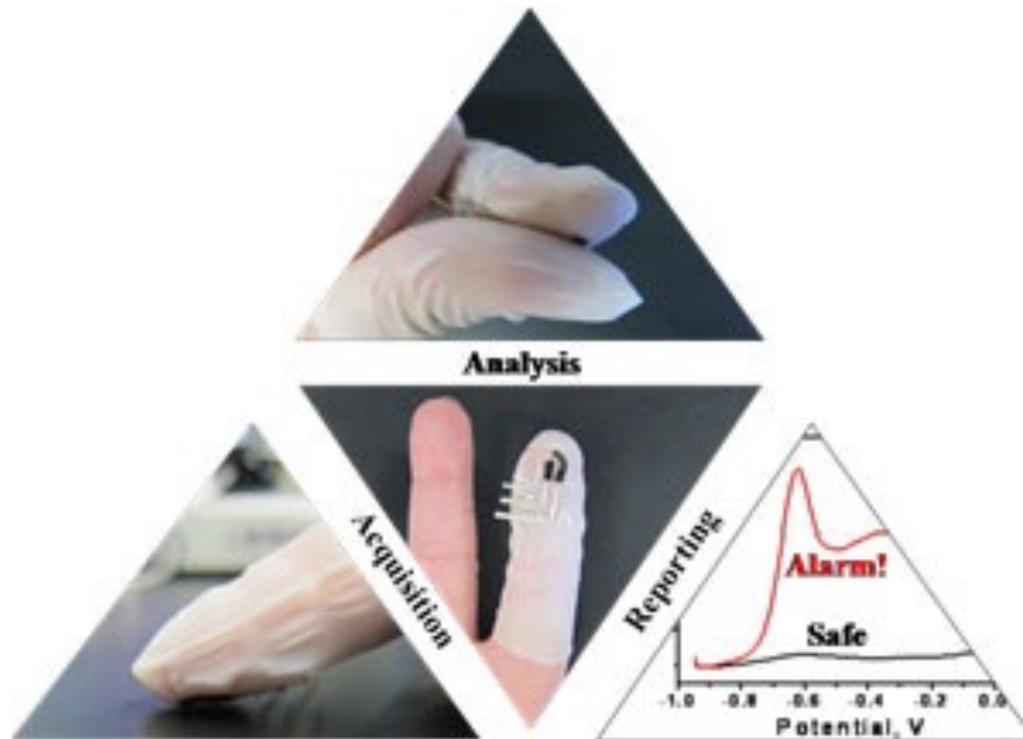
PLASTIC



Polythene



Forensic Fingers!



- new sensor is made up of an **electrode screen-printed** onto a stretchable sheath worn on the index finger and a second sheath, worn on the thumb, coated with a **solid-state ionogel electrolyte**.

- a detection system that investigators can wear on their fingertips to rapidly identify suspected traces of explosives and gunshot residue.

CONTENT STRUCTURE

Section	Topic
I. EXPERIMENTAL CHEMISTRY	1. Experimental Chemistry
II. ATOMIC STRUCTURE AND STOICHIOMETRY	2. The Particulate Nature of Matter 3. Formulae, Stoichiometry and the Mole Concept
III. CHEMISTRY OF REACTIONS	4. Electrolysis 5. Energy from Chemicals 6. Chemical Reactions 7. Acids, Bases and Salts
IV. PERIODICITY	8. The Periodic Table 9. Metals
V. ATMOSPHERE	10. Air
VI. ORGANIC CHEMISTRY	11. Organic Chemistry

+ Interest and Career Prospects

Important pre-requisite for university admission for:

Medicine

Dentistry

Pharmacy

Pharmaceutical industry

Petrochemical Companies

Governmental Agencies e.g. HSA, DSO

Polymer/paint/semiconductor/materials

Food and Beverage Industry

Quality Control labs - (Analytical Chemists)

Research Institutes e.g. A*STAR

And the list goes on.....

+

Why study Biology?

Science of Life

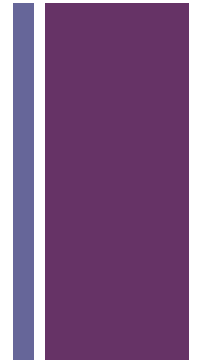
“Life Science”





Do identical twins have identical DNA?

How does paternity test work?



www.bareit.etsy.com



I am
2.47 m

I am
0.74m



Why are we different?
Can the characteristic be changed?

CONTENT STRUCTURE

THEMES	Topics
I. PRINCIPLES OF BIOLOGY	<ul style="list-style-type: none">1. Cell Structure and Organisation2. Movement of Substances3. Biological Molecules
II. MAINTENANCE AND REGULATION OF LIFE PROCESSES	<ul style="list-style-type: none">4. Nutrition in Humans5. Nutrition in Plants6. Transport in Flowering Plants7. Transport in Humans8. Respiration in Humans9. Excretion in Humans10. Homeostasis11. Co-ordination and Response in Humans
III. CONTINUITY OF LIFE	<ul style="list-style-type: none">12. Reproduction13. Cell Division14. Molecular Genetics15. Inheritance
IV. MAN AND HIS ENVIRONMENT	<ul style="list-style-type: none">16. Organisms and their Environment

+ Interest and Career Prospects

Medical

Sports

Pharmaceutical

Environment

Biochemical

Bio-engineering

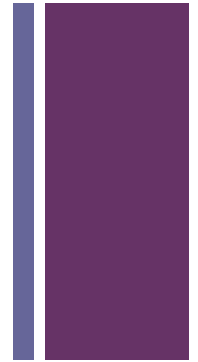
Marine biology

Zoology

Microbiology

Neurobiology

And the list goes on.....



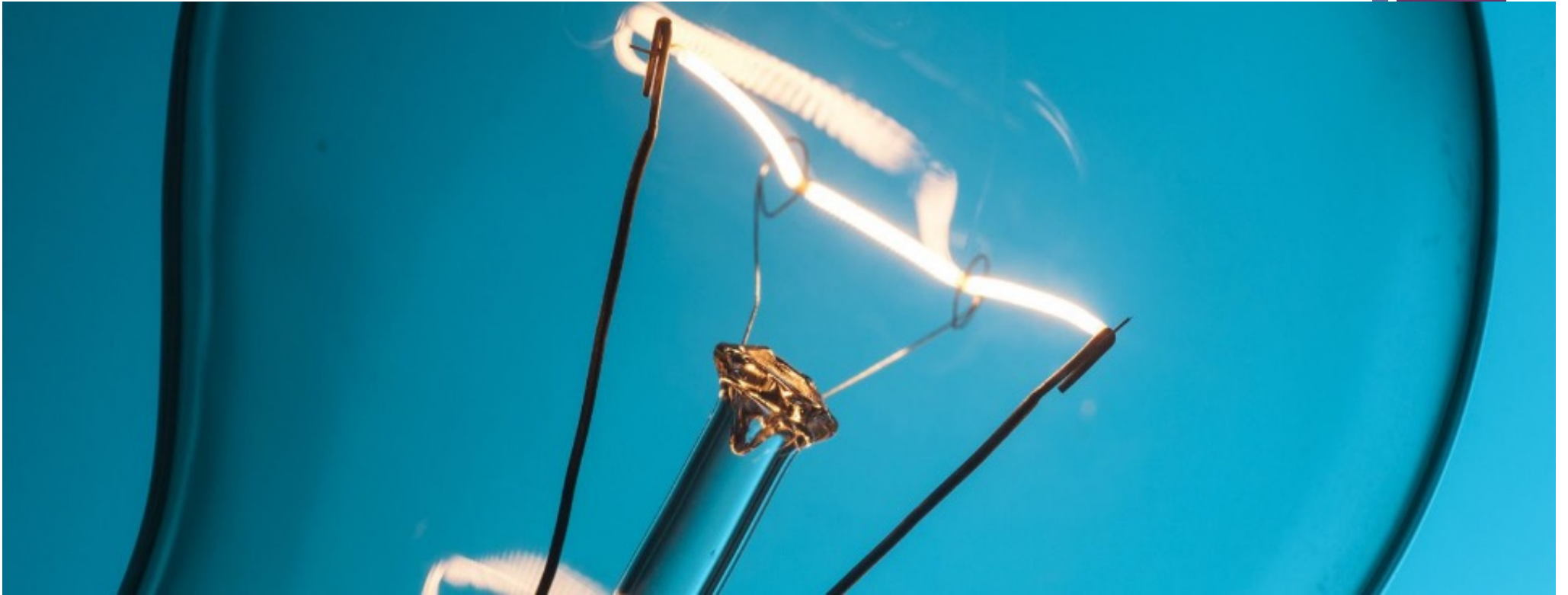


BIOPOLIS – *A*STAR*





Why study Physics?



“Knowledge of Nature”

such as energy and force



Tea Bag that Cleans!

- *This tea bag makes use of nanotechnology to clean drinking water, making it free from contaminants and bacteria.*
- *Ingredients are nanoscale fibers and grains of carbon.*





“Bow”lingual!

- device that helps human understand dog's language
- able to understand six of the dog's basic emotions

**I want a
bone**



+ One of the Greatest Engineering Feat of the 20th Century



CONTENT STRUCTURE

Section	Topics
I. Measurement	1. Physical Quantities, Units and Measurement
II. Newtonian Mechanics	2. Kinematics 3. Dynamics 4. Mass, Weight and Density 5. Turning Effect of Forces 6. Pressure 7. Energy, Work and Power
III. Thermal Physics	8. Kinetic Model of Matter 9. Transfer of Thermal Energy 10. Temperature 11. Thermal Properties of Matter
IV. Waves	12. General Wave Properties 13. Light 14. Electromagnetic Spectrum 15. Sound
V. Electricity and Magnetism	16. Static Electricity 17. Current of Electricity 18. D.C. Circuits 19. Practical Electricity 20. Magnetism 21. Electromagnetism 22. Electromagnetic Induction