



Green City English Medium School

CAREER LANDING : TECHNOLOGY, ECONOMICS & MANAGEMENT

BY

Dr. E S Rao

Ph.D IIT-Bombay, PGDBA- Pondicherry Central University, M.Tech IIT-Kharagpur, C.Engg, MIE, B.E-Andhra University

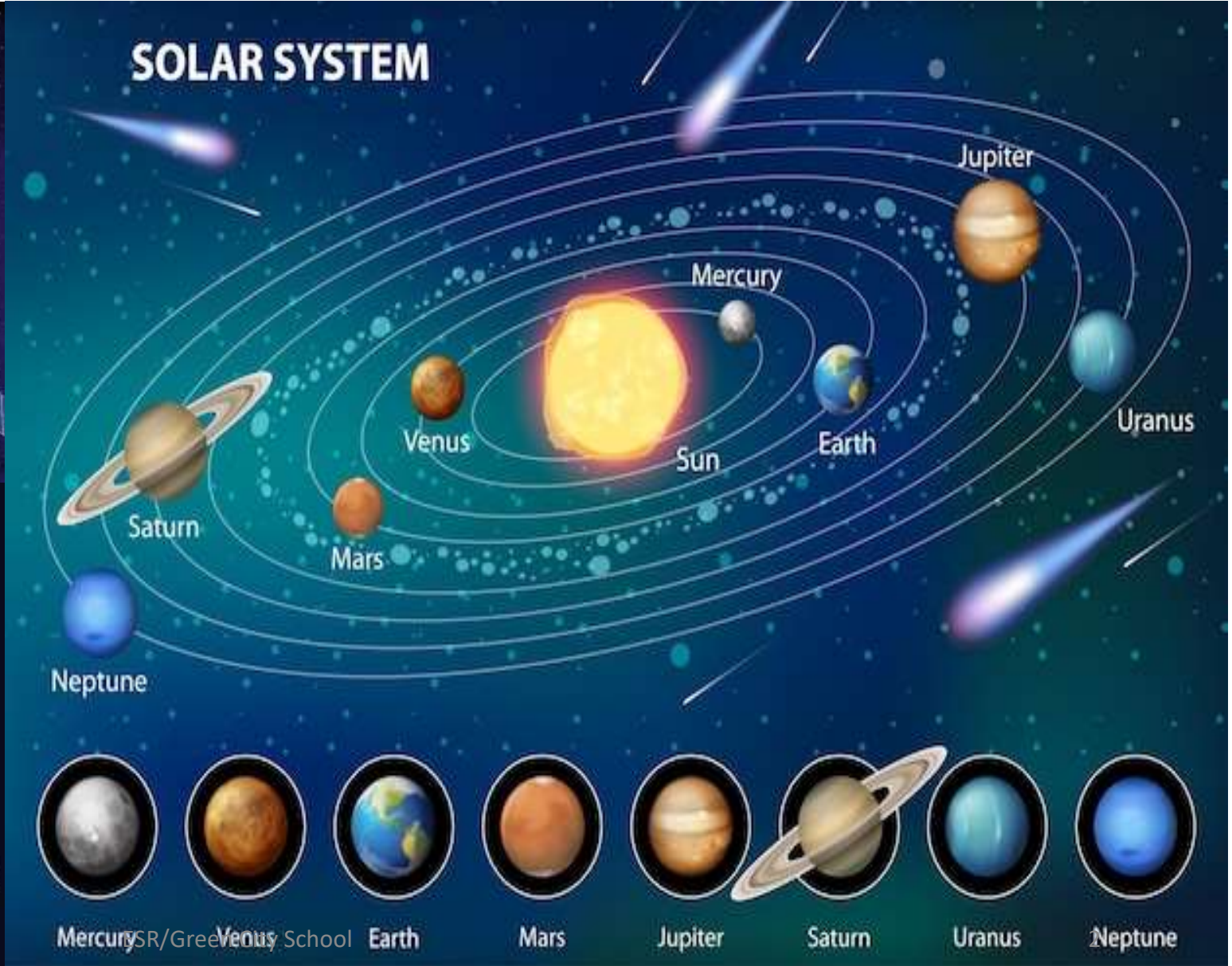
Chairman, Vizag Profiles Pvt Ltd & Prof. AU School of International Business

Former Chairman Board of Governors – MDI Gurgaon & Mushidabad and ILD Jaipur

Former MD & CEO IFCI Limited Group & Chairman Stock Holding Corporation of India, Min. of Finance, New Delhi

Independent Director : Delhi International Airport Ltd, GMR Airports Ltd, GMR Power Ltd, Visakha Pharma City Ltd, Coastal Corp Ltd, Patel Engg Ltd

TECHNOLOGY & SCIENCE



Technology And Science

❖ Welcome to our presentation on the fascinating world of **Space Technology and Science**

❖ How various **Components** play a crucial role in **Rockets and Satellite** manufacturing and exploring the **Space & Planets**

- **Materials**
- **Chemicals**
- **Electronics**
- **Solar & Electricity**
- **Telecommunications**
- **Software & AI**
- **Fuels**
- **Astronomy**
- **Project Management**
- **Economics**
- **Conclusion**

Materials in Technology

- **Overview:** Space-grade materials are essential for withstanding **extreme conditions**.
- **Examples:** Aluminium alloys, titanium, carbon fiber composites, and heat-resistant ceramics.
- **Importance:** Lightweight, durable, and capable of withstanding high temperatures and pressures.

PERIODIC TABLE OF THE ELEMENTS

1 H HYDROGEN 1.0079																	2 He HELIUM 4.0026
3 Li LITHIUM 6.941	4 Be BERYLLIUM 9.0122											5 B BORON 10.811	6 C CARBON 12.011	7 N NITROGEN 14.007	8 O OXYGEN 15.999	9 F FLUORINE 18.998	10 Ne NEON 20.179
11 Na SODIUM 22.989	12 Mg MAGNESIUM 24.305											13 Al ALUMINIUM 26.98	14 Si SILICON 28.085	15 P PHOSPHORUS 30.974	16 S SULFUR 32.06	17 Cl CHLORINE 35.453	18 Ar ARGON 39.948
19 K POTASSIUM 39.098	20 Ca CALCIUM 40.078	21 Sc SCANDIUM 44.955	22 Ti TITANIUM 47.867	23 V VANADIUM 50.9415	24 Cr CHROMIUM 51.9961	25 Mn MANGANESE 54.938	26 Fe IRON 55.845	27 Co COBALT 58.933	28 Ni NICKEL 58.6934	29 Cu COPPER 63.546	30 Zn ZINC 65.38	31 Ga GALLIUM 69.723	32 Ge GERMANIUM 72.63	33 As ARSENIC 74.921	34 Se SELENIUM 78.971	35 Br BROMINE 79.904	36 Kr KRYPTON 83.796
37 Rb RUBIDIUM 85.467	38 Sr STRONTIUM 87.62	39 Y YTRITIUM 88.9058	40 Zr ZIRCONIUM 91.224	41 Nb NIOBIUM 92.9063	42 Mo MOLYBDENUM 95.95	43 Tc TECHNETIUM (98)	44 Ru RUTHENIUM 101.07	45 Rh RHODIUM 102.90	46 Pd PALLADIUM 106.42	47 Ag SILVER 107.8682	48 Cd CADMIUM 112.414	49 In INDIUM 114.818	50 Sn TIN 118.710	51 Sb ANTIMONY 121.760	52 Te TELLURIUM 127.60	53 I IODINE 126.90	54 Xe XENON 131.29
55 Cs CAESIUM 132.905	56 Ba BARIUM 137.327	57-71* Lanthanide series	72 Hf HAFNIUM 178.49	73 Ta TANTALUM 180.94	74 W TUNGSTEN 183.84	75 Re RHENIUM 186.207	76 Os OSMIUM 190.23	77 Ir IRIDIUM 192.217	78 Pt PLATINUM 195.084	79 Au GOLD 196.96	80 Hg MERCURY 200.59	81 Tl THALLIUM 204.38	82 Pb LEAD 207.2	83 Bi BISMUTH 208.98	84 Po POLONIUM (209)	85 At ASTATINE (210)	86 Rn RADON (222)
87 Fr FRANCIUM (223)	88 Ra RADIUM (226)	89-103** Actinide series	104 Rf RUTHERFORDIUM (261)	105 Db DUBNIUM (268)	106 Sg SEABORGIUM (271)	107 Bh BOHRIUM (272)	108 Hs HASSIUM (270)	109 Mt MEITNERIUM (276)	110 Ds DARMSTADIUM (281)	111 Rg ROENTGENIUM (288)	112 Cn COPECNIUM (285)	113 Uut UNUNTRIUM (284)	114 Fl FLEROVIUM (289)	115 Uup UNUNPENTIUM (288)	116 Lv LIVERMORIUM (293)	117 Ts TENNESSE (UNKNOWNS)	118 Og OGANESSON (UNKNOWNS)

LANTHANIDE SERIES

57 La LANTHANUM 138.90	58 Ce CERIUM 140.116	59 Pr PRASEODYMIUM 140.90	60 Nd NEODYMIUM 144.242	61 Pm PROMETHIUM (145)	62 Sm SAMARIUM 150.36	63 Eu EUROPIUM 151.964	64 Gd GADOLINIUM 157.25	65 Tb TERBIUM 158.92	66 Dy DYSPROSIUM 162.50	67 Ho HOLMIUM 164.93	68 Er ERBIUM 167.259	69 Tm THULIUM 168.93	70 Yb YTTERIUM 173.054	71 Lu LUTETIUM 174.968
---------------------------------	-------------------------------	------------------------------------	----------------------------------	---------------------------------	--------------------------------	---------------------------------	----------------------------------	-------------------------------	----------------------------------	-------------------------------	-------------------------------	-------------------------------	---------------------------------	---------------------------------

ACTINIDE SERIES

89 Ac ACTINIUM (227)	90 Th THORIUM 232.0377	91 Pa PROTACTINIUM 231.03	92 U URANIUM 238.02	93 Np NEPTUNIUM (237)	94 Pu PLUTONIUM (244)	95 Am AMERICIUM (243)	96 Cm CURIUM (247)	97 Bk BERKELIUM (247)	98 Cf CALIFORNIUM (251)	99 Es EINSTEINIUM (252)	100 Fm FERMIUM (257)	101 Md MENDELEVIUM (258)	102 No NOBELIUM (259)	103 Lr LAWRENCIUM (262)
-------------------------------	---------------------------------	------------------------------------	------------------------------	--------------------------------	--------------------------------	--------------------------------	-----------------------------	--------------------------------	----------------------------------	----------------------------------	-------------------------------	-----------------------------------	--------------------------------	----------------------------------

Chemicals in Technology

- **Overview :** Chemicals Are used in rocket propellants, coolants, and various manufacturing processes.
- **Examples:** Liquid oxygen, liquid hydrogen, hydrazine, and nitrogen tetroxide.
- **Importance:** Efficiently generate thrust, control rocket maneuvers, and provide cooling.

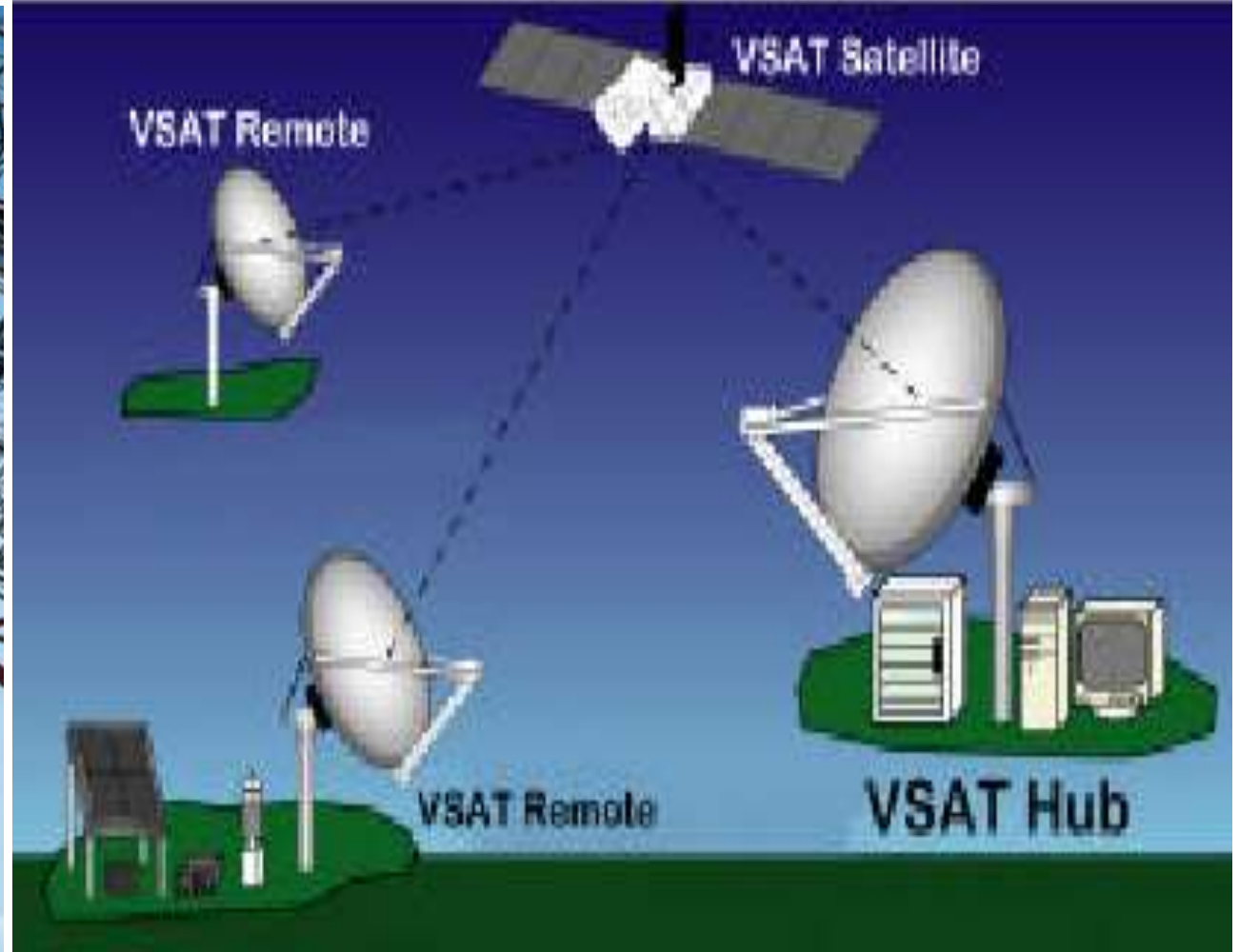


Electronics in Technology

- **Overview:** Advanced electronics enable communication, navigation, and control systems.
- **Examples:** Microprocessors, sensors, and integrated circuits.
- **Importance:** Ensure precise control, data acquisition, and reliable operation in extreme conditions.



Telecommunications in Technology



- **Overview:** Communication systems are crucial for relaying data to and from satellites.
- **Examples:** Antennas, transmitters, receivers, and satellites.
- **Importance:** Enable long-distance communication, data transmission, and remote sensing.

Software in Technology

- **Overview:** Software plays a vital role in controlling and operating space systems.
- **Examples:** Flight control software, navigation algorithms, data analysis and AI/ML tools.
- **Importance:** Enables precise trajectory calculations, system monitoring, and data processing.



Fuels in Technology

- **Overview:** Rocket fuels provide the necessary energy for space missions.
- **Examples:** Liquid and solid propellants, including kerosene, liquid oxygen, and ammonium perchlorate.
- **Importance:** Efficiently generate thrust to overcome Earth's gravity and propel spacecraft.

Fossil Fuel Examples



Coal



Oil



Natural Gas



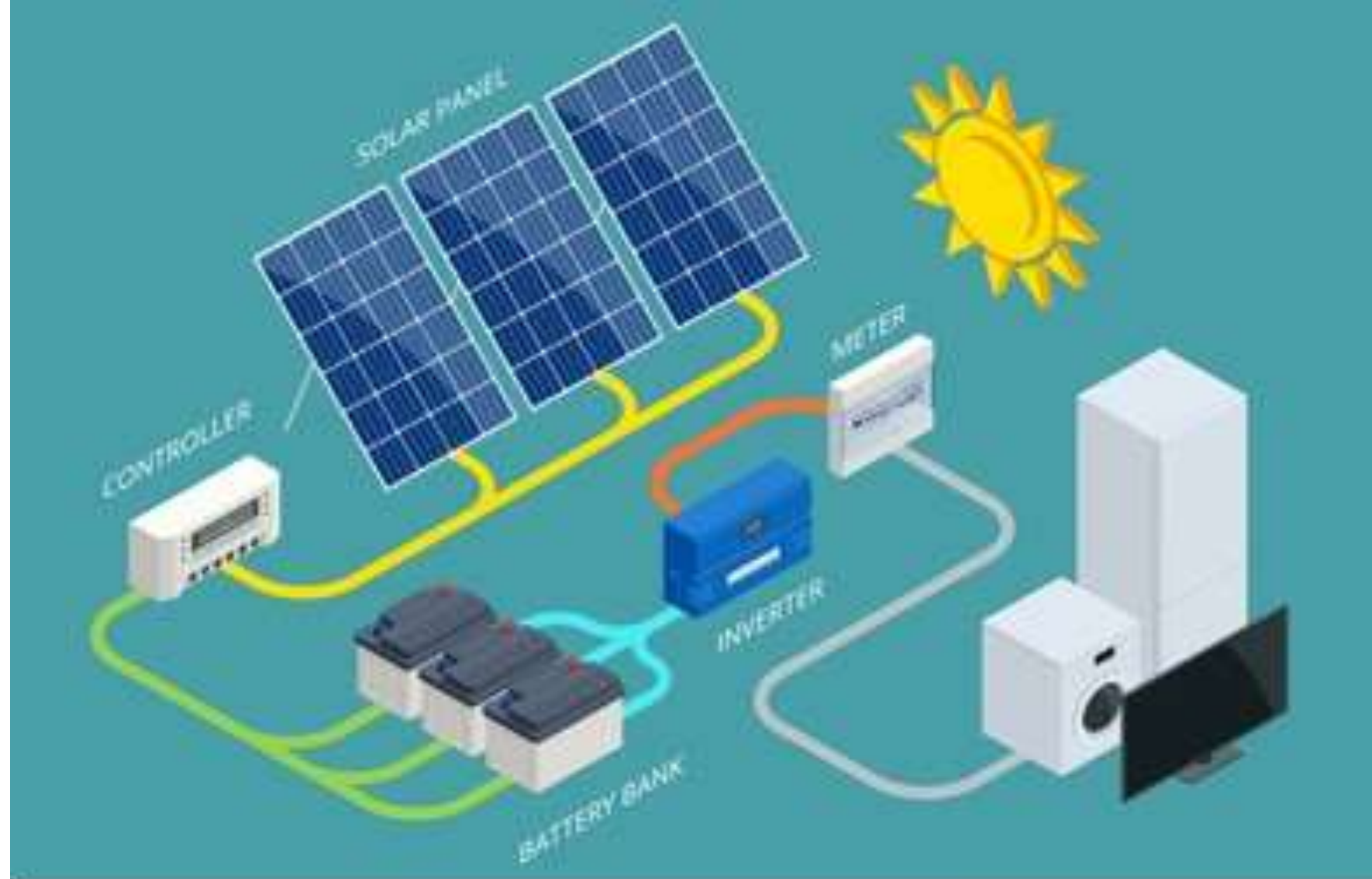
Kerosene



Propane

Solar Power in Technology

- **Overview :**
Solar power provides electricity to the space craft
- **Examples:** Solar Cells and panels
- **Importance:**
Electricity is important for the life of the space craft



Project Management

Project Management is the Process of :

1. Supervising the work of a team
2. To achieve all project goals
3. Within the given constraints

Constraints are :

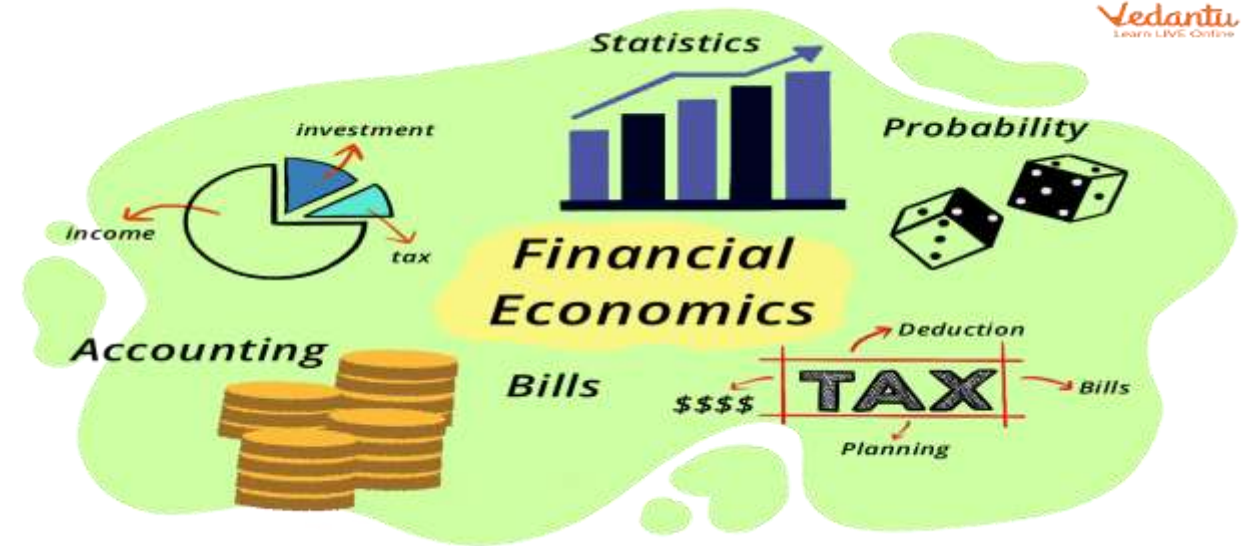
1. Scope
2. Time
3. Budget.



Economics & Finance

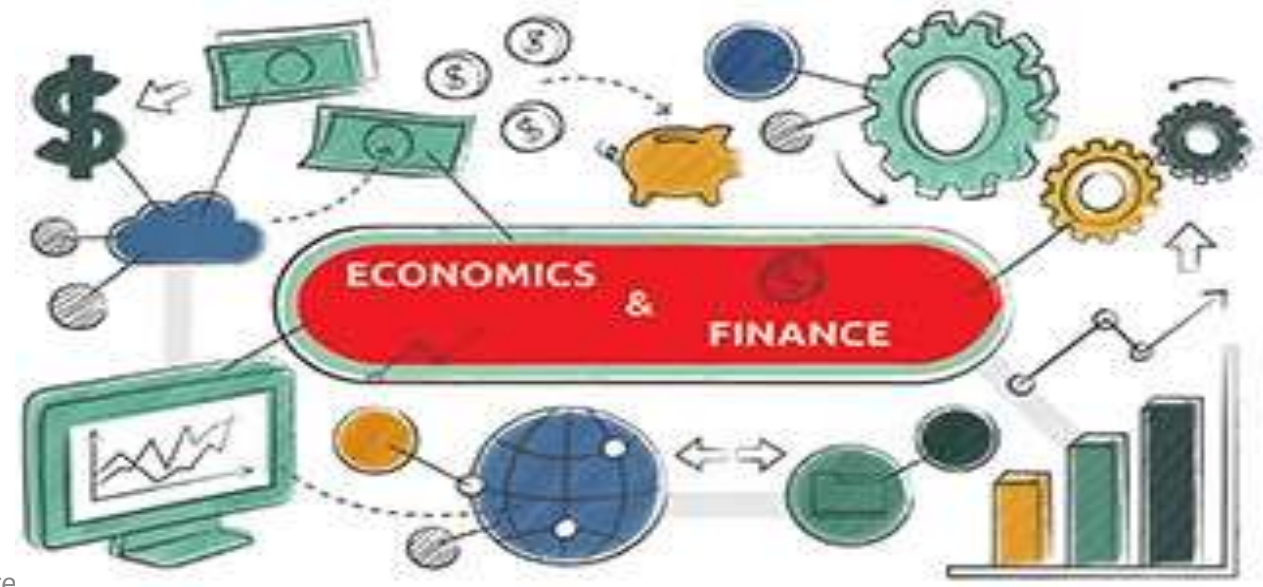
Economics :

- Studies the production of Agri, Manufacturing and Services
- Scarcity of wealth and resources, including the government's approach to money and spending.



Finance Management:

- Focuses on the management of money, including how individuals and companies manage their money
- Finance includes areas such as personal finance, corporate finance, public finance, Project finance, Financial systems and global finance



Astronomy and Space Exploration



- ❖ **Astronomy is the science for exploring the planets and space**
- ❖ **Space Technology helps to explore the other planets and galaxy**
- ❖ **Rockets, Satellites and Telescopes helps to explore the Space**
- ❖ **Mathematics, Science and Engineering**

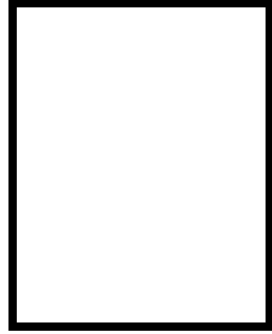
Conclusion

- **Recap:** We explored the role of materials, chemicals, electronics, telecommunications, software, and fuels in technology.
- **Importance:** Each component contributes to the success of manufacturing and services for Economic Growth.
- **Inspire:** Encourage students and teachers to explore careers and research opportunities in technology & economics



Q&A

I Encourage the Students and Teachers to ask questions and engage in a discussion.



**THANK YOU FOR YOUR
LISTENING & LEARNING**

Dr. ESR

www.sankararao.com