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Economic Engine

The driving force behind Industrial 2.0

Electric Engine (Internal Combustible Engine/ Electromechanical Engine)

Input	Output
Fuel (Energy) – that powered mass production line.	Mechanical Power – in the form of cars, telephones, radio, lights and more

Industrial 2.0 was the starting point modern world where there was a major shift from rural living to urban living with people migrating to urban cities for better career prospects.

Industries 2.0		
Automobile	Construction	Administration
Judiciary	Banking	

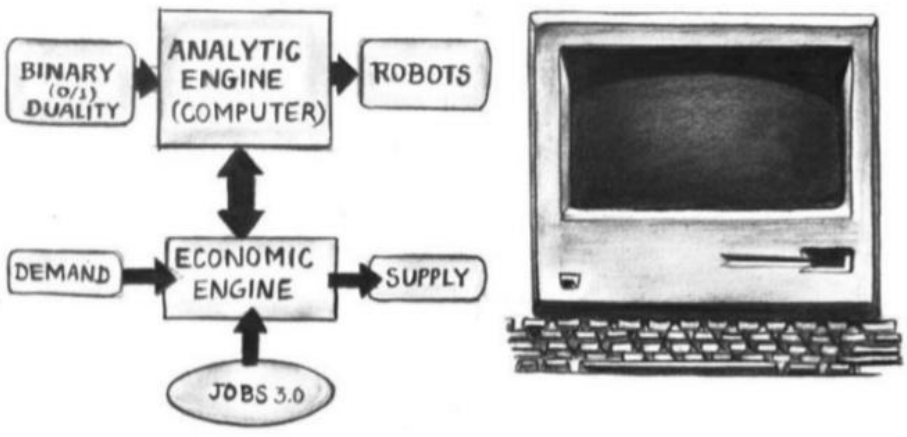
⇩

Jobs/Careers 2.0		
Bookkeepers (Accountants)		Merchants
Lawyers	Physicians	Scribes

Industrial Revolution 3.0

Period: *Information Age*

Timeline*: 1950 - 2010*

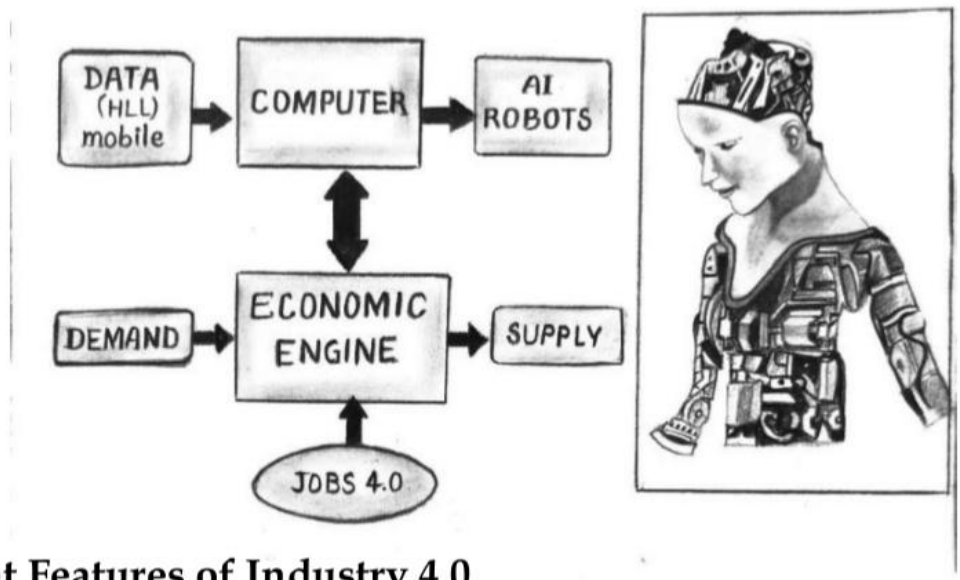


Industries 3.0			
Information Technology	Banking	Insurance	Politics
Entertainm-ent	Media	Education	Pharmac-euticals

Jobs/Careers 3.0			
Engineer	Doctor	Lawyer	
Entrepreneur	Manager	Solicitor	Teacher
Pharmacist	Actor	Law enforcement	

Industrial Revolution 4.0

Period: *Advanced Information Age*
Timeline: *2010- present*



Salient Features of Industry 4.0

1. Booming internet and telecommunication industry for information exchange.
2. Merging of the physical and virtual world.
3. Intelligent communication of machines.
4. Introduction of cyber-physical systems.

Classification Map

1. Career Options : Electrical and Electronics, Mechanical and Automobile, Civil, Chemical and Petroleum, Environmental, Aerospace, Ceramic, Silk , Biomedical and Biotechnology, Agricultural Engineering, Mining, Sound and Power Engineering.

2. Eligibility: Candidates must have passed their 10+2 or equivalent examination from a recognized state or central board. The students must achieve at least 55% (relaxation is available for reserved categories) of the marks with science subjects (Physics, Chemistry, and Mathematics) as the primary subjects of study.

3. Intelligence type: Logical, Linguistic, Spatial Intelligence

4. Quotient type: Intelligence and Adversity Quotient

5. College fees: ₹ 5-18 lakh (entire course)

6. Workplace : Office, Laboratories, or On-site location

7. Movie/Web Series suggestions:

- Super 30
- 3 idiots
- Iron Man- I II III)

8. Books:

- The Perfectionists - Simon Winchester
- "Surely You're Joking Mr Feynman!"- Richard Feynman
- Build - Tony Fadell

9. Pay Wage: ₹1000 per hour
(Economics : Civil Engineer or equivalent pay scale: ₹ 20 lakh package, 2000 hours of work per year having three years experience with 10% growth)

Chapter 6 A

Engineering and Advance Science Professionals

Introduction

Engineering means to gradually improve the design system, component and process to make life easier. You can relate engineering to a new technology around you.

A plane takes off, a video is shot, a new mobile app is developed, a cloud kitchen is designed or an electronic voting machine is made, the credit goes to an Engineer. They use their knowledge of the physical world and fundamentals of math to solve complex problems of economic justification.

According to research by McKinsey Digital, 60% of occupations have at least a third of their activities automated by now. As automation becomes more prevalent, there will be a rise in the need for engineers who understand working with complex systems and software developers who can help build them.

10. **Curricular Skills** : Math, Physics, Chemistry, English, Computer Science, Social Science.

11. **Co- Curricular Skills :** Critical Reading, Drawing, Spacial thinking, Team work, Quantitative Analysis, Organization, Persistence and Attention to detail.

12. **What will you study :** Calculus, Mechanics, Trigonometry, Electrical circuits, Acoustics, Thermodynamics, Computer aided design, Graphics and Thermodynamics.

13. ***Industrial Growth***: India is ranked 46th in the Global Innovation Index for 2021. In the Bloomberg Innovation Index, 2021, India ranked 50th in innovations. India has the most significant number of engineers and the highest number of engineering education institutes and infrastructure in the world. India's engineering R&D and product development market is forecasted to post a CAGR of 12%* to reach Rs 5 lac crore by 2025 (*ibef.org)

14. Subject : J. C. Bose

Roadmap: School of Engineering and Technology:

Electrical and Electronics		
Pathway	**Entrance Exam**	**College**
Class XII (Science) + B.Tech in Electrical and Electronics Engineering/ Electronics and Telecommunication (4 years) or B.Tech+ M.Tech (Dual Degree - 5 years)	1. JEE Mains/Advanced 2. BITSAT 3. ENAT 4. VITEEE 5. COMEDK 6. ISAT 7. CWAT	1. IITs 2. NITs 3. Shoolini University 4. Amrita University 5. PSG College of Technology 6. Jadavpur University

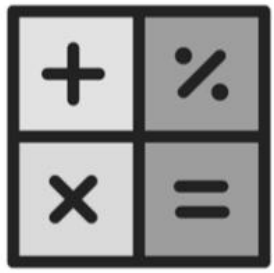
Mechanical and Automobile		
Pathway	**Entrance Exam**	**College**
Class XII (Science) + B.Tech in Electrical and Electronics Engineering/ Electronics and Telecommunication (4 years) or B.Tech+ M.Tech (Dual Degree - 5 years)	1. JEE Mains/Advanced 2. BITSAT 3. ENAT 4. VITEEE 5. COMEDK 6. ISAT 7. CWAT	1. IITs 2. NITs 3. PDPU Gandhinagar 4. PSG College of Technology 5. Jadavpur University 6. Shoolini University

Civil Engineering		
Pathway	**Entrance Exam**	**College**
Class XII (Science) + B.Tech in Electrical and Electronics Engineering/ Electronics and Telecommunication (4 years) or B.Tech+ M.Tech (Dual Degree - 5 years)	1. JEE Mains/Advanced 2. BITSAT 3. ENAT 4. VITEEE 5. COMEDK 6. ISAT 7. CWAT	1. IITs 2. NITs 3. PDPU Gandhinagar 4. PSG College of Technology 5. Jadavpur University 6. Shoolini University

Chemical and Petroleum		
Pathway	**Entrance Exam**	**College**
Class XII (Science) + B.Tech in Chemical and Petroleum engineering (4 years) **or** B.Tech+ M.Tech (Dual Degree - 5 years)	1. JEE Mains/Advanced 2. UPES 3. ENAT 4. VITEEE 5. COMEDK 6. ISAT 7. CWAT	1. IITs 2. NITs 3. Shoolini University 4. Rajiv Gandhi University Petroleum Technology 5. PEC University of Technology 6. Jadavpur University

Subject Description and Specialization

I. Maths



Mathematics is the science and study of quality, structure, space, and change. It deals with the logic of shape, quantity, and arrangement. Math is all around us in everything we do. It is the building block of our daily lives, including mobile devices, computers, software, architecture (ancient and modern), art, money, engineering, and sports. The reasoning is associated with the acts of thinking and cognition and involves using one's intellect. Maths is applied by everyone in their daily life be it a cook, farmer, carpenter or painter.

Specializations in Maths

1. Algebra
2. Calculus
3. Data Analysis
4. Discrete Mathematics
5. Engineering
6. Geometry
7. Linear Algebra
8. Linguistic
9. Logic
10. Mathematical modelling
11. Matrix Math
12. Statistics

II. Science

Science consists of observing the world by watching, listening, monitoring, and recording. Science is curiosity in thoughtful action about the world and how it behaves. Science is also the pursuit of knowledge of many diverse activities and topics. Science is a useful, exciting, ongoing and global human endeavour.

Chapter 8

Your Challenge!

After passing out my grade 12th, I was asked a question which gave a meaning to my life. It led me to write this book.

The question was "What do you want to become in life when you grow up?"

I thought a few seconds and said "I will help students to answer the question you asked and help them find their dream career by becoming a Career Counselor,

Saying this was easy but this question drove me day and night to write this book.

"A successful career is the one which quenches the desire of your Soul".

Each child takes birth with this "Special Gift" to give something back to the society to which he/she belongs.