I. Introduction

As el. Eng. we deal with el. and magn. properties of materials. Both phenomena are actually known for more than 2000 years

"ELECTRIC" → greek name of amber (fossilized resin); can be charged by rubbing it with a silk towel

"MAGNETIC" → refers to a permanent magnetic rock found in Magnesia, Asia Minor

Up to the 17th century, electricity was in the era of statics, and it was not before the early 19th century that the link between electricity and magnetism was discovered. From then on, however, things changed quickly

Some important milestones

1796 Volta invented the battery

1820 Oersted discovered link between electricity and magnetism (a permanent magnet is deflected by a nearby flowing current)
Ampère proposed the electro magnet

1827 Ohm's law

1832 Electromagnetic induction (Henry, Faraday)
(enabled to build motors, generators and trafos)

~1880 Edison developed light bulb

1895 Lorentz postulated discrete charges → electrons

1898 Thompson experimentally verified the existence of electrons

1904 Fleming invented vacuum diode

1906 De Forest invented triode → first electronic amplifying device

1948 Point contact transistor (Bardeen, Brattain Shockley) → Junction transistor (Shockley)

~1960 Integrated Circuit (Kilby, Noyce)

1965 MOS integrated Circuit

~1970 μP → "Computer on a Chip"

~1980 VLSI (up to 1Mio dev. on a single chip)