

II nd Sem Physics (Kinetic theory, Thermodynamics and electric currents)

Sr No	Topic	Link
Unit 1		
1	Ideal Gas - Kinetic theory of Gases	https://www.youtube.com/watch?v=Bbi8rWwIZ0A
2	deduction of Boyle's law	https://www.youtube.com/watch?v=Pr7npXC4jUQ
3	interpretation of temp	https://www.youtube.com/watch?v=GOBxKtM1o6E
4	Estimation of R M S speed of molecule	https://www.youtube.com/watch?v=Q1RUKfn6sd4
5	degrees of freedom	https://www.youtube.com/watch?v=BS6nnSW54GE
6	equipartition of energy	https://www.youtube.com/watch?v=IQw5kuKku0A
7	specific heat of monatomic gas	https://www.youtube.com/watch?v=E2hzYZgkq-4
8	Real Gas- Vander Waals gas equation of state	https://www.youtube.com/watch?v=STV2ahhiSwM
9	Comparison with experimental P-V curves	https://www.youtube.com/watch?v=i9ohZLCr9dY
10	the critical constants	https://www.youtube.com/watch?v=M1YqzkLWH4
11	nature of Vander-Waals forces.	https://www.youtube.com/watch?v=c3g3maYegBk
12	Transport Phenomena in gases	https://www.youtube.com/watch?v=jUrMMg7LmZ4
13	Molecular Collision, mean free path, Brownian motion and collision cr	https://www.youtube.com/watch?v=2GdGioCbKrk
14	Transport of mass	https://www.youtube.com/watch?v=o_PSPeQ6IZg
15	dependence on temperature and pressure.	https://www.youtube.com/watch?v=RSEcRkowKK4
Unit II		
1	The laws of thermodynamics - The zeroth law	https://www.youtube.com/watch?v=S2hsaTO0bO8
2	P-V indicator diagrams	https://www.youtube.com/watch?v=16b858LLaW4
3	work done by and on the system	https://www.youtube.com/watch?v=IBu-SJHNveA
4	First law of thermodynamics	https://www.youtube.com/watch?v=vJPq5c_yHCM
5	internal energy as a state function and other applications	https://www.youtube.com/watch?v=3h36o2r5xDw
6	Reversible and irreversible changes	https://www.youtube.com/watch?v=6V9KWU3i-TA
7	Carnot Cycle and its efficiency for perfect gases	https://www.youtube.com/watch?v=ELR1Hx4qymo
8	The Second law of thermodynamics	https://www.youtube.com/watch?v=hXS8xNTP5pM
9	Carnot theorem	https://www.youtube.com/watch?v=-DFnYn-MASA
10	Entropy	https://www.youtube.com/watch?v=NfB2chtSy-I
11	S-T diagram	https://www.youtube.com/watch?v=K0i9cDHJF8U
12	Principle of increase of Entropy	https://www.youtube.com/watch?v=5o6OM9kz8CA
13	The thermodynamic scale of temperature	https://www.youtube.com/watch?v=G9OG5tzOIUI
14	Principle of increase of Entropy	https://www.youtube.com/watch?v=5o6OM9kz8CA

- 15 its identity with the perfect gas scale https://www.youtube.com/watch?v=Dd_j0ksNBqU
- 16 third law of thermodynamics & Impossibility of attaining the absolute https://www.youtube.com/watch?v=_2RkSFzF-8

Unit III

- 1 Liquefaction of Gases - Joule-Thomson effect, Joule's coefficient, <https://www.youtube.com/watch?v=7gZJgJzGLB4>
- 2 Boyle and inversion temperature https://www.youtube.com/watch?v=uOvcAHZ_fmG
- 3 Principle of regenerative cooling and Cascade Cooling <https://www.youtube.com/watch?v=FqH7HzeyNRI>
- 4 Liquefaction of hydrogen and helium <https://www.youtube.com/watch?v=T5m8gBIUzvc>
- 5 Thermodynamic relationships- Thermodynamic Variables Extensive and https://www.youtube.com/watch?v=VWICU2_Cu48
- 6 Maxwell's general relationship <https://www.youtube.com/watch?v=6LvmtYzK-BA>
<https://www.youtube.com/watch?v=r9UjlnZhom0>
- 7 Application to Joule-Thomson cooling and adiabatic cooling in a general system
- 8 Clausius-clapeyron heat equation https://www.youtube.com/watch?v=_0YplbyAkyQ
- 9 thermodynamic Potentials and equilibrium of Thermodynamical systems https://www.youtube.com/watch?v=w_TOzyLGPz8
- 10 relation with thermodynamical variables <https://www.youtube.com/watch?v=hyLiWSn361k>

Unit IV

- 1 Motion of Charged Particles in Electric and Magnetic fields <https://www.youtube.com/watch?v=L1yJ0HlvcBQ>
- 2 E as an accelerating field https://www.youtube.com/watch?v=Qli2Im_LreM
- 3 electron gun <https://www.youtube.com/watch?v=38jKCdCRwBQ>
- 4 case of discharge tube <https://www.youtube.com/watch?v=4KC8iBINhAA>
- 5 linear accelerator <https://www.youtube.com/watch?v=C79838wtRZo>
- 6 E as a deflecting field <https://www.youtube.com/watch?v=hxc-yu1MjMQ>
- 7 Transverse magnetic field <https://www.youtube.com/watch?v=eQQWnDeFrS4>
- 8 Mass spectrograph <https://www.youtube.com/watch?v=RuwbeA22rew>
- 9 velocity selector <https://www.youtube.com/watch?v=T1ejQ85ab2k>
- 10 Principle of cyclotron. <https://www.youtube.com/watch?v=m2jp0klZHEE>
- 11 Mutually perpendicular E and B fields <https://www.youtube.com/watch?v=y8xDd4Dn0Fc>
- 12 velocity selector, its resolution <https://www.youtube.com/watch?v=l-ZhDV4JZrg>

Unit V

- 1 Network theorem: Thevenin's theorem, <https://www.youtube.com/watch?v=veAFVTIpKyM>
- 2 superposition theorem <https://www.youtube.com/watch?v=ZJ8zD8m-B1Q>
- 3 Maximum power transfer theorem <https://www.youtube.com/watch?v=U85eA3-suiQ>
- 4 Ballistic galvanometer <https://www.youtube.com/watch?v=a0SFhIWmuXE>
- 5 Application of B.G: Determination of capacitance and high resistance by <https://www.youtube.com/watch?v=88WuPdAUw7c>
- 6 Varying Currents: Steady currents <https://www.youtube.com/watch?v=yqp-7U0BxhU>

7	current density J	https://www.youtube.com/watch?v=yKS-ldphcQs
8	non steady current and continuity equation	https://www.youtube.com/watch?v=XB7UPN1r_WM
9	Kirchoff's laws and analysis of multi-loop circuits	https://www.youtube.com/watch?v=x3gxnsQbldk
10	Rise and decay of currents in LR	https://www.youtube.com/watch?v=mgSd_W_Nto
11	Rise and decay & charge in CR circuits	https://www.youtube.com/watch?v=kc-SCAkOcO4
12	resonating frequency	https://www.youtube.com/watch?v=OW-3nAfyb34

Unit VI

1	Alternating Currents : A.C. Currents	https://www.youtube.com/watch?v=fQcPEeoiUwU
2	complex numbers and their applications in solving A.C. circuits using J	https://www.youtube.com/watch?v=MTIGgouf27M
3	pure R, L, C and their combinations	https://www.youtube.com/watch?v=-rDuHhnrhT0
4	series reactance and impedance and parallel resonance	https://www.youtube.com/watch?v=YLGrugmDvc0
5	Q-.factor	https://www.youtube.com/watch?v=AUirtqrm-o0
6	power consumed by A.C.	https://www.youtube.com/watch?v=IG6lQVUvtgl
7	power factor	https://www.youtube.com/watch?v=Tv_7XWf96gg
8	. Self and mutual inductance	https://www.youtube.com/watch?v=hoTlnTKij0o
9	transformer and energy losses in transformer.	https://www.youtube.com/watch?v=GWYeVGMQQ9A