



MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)



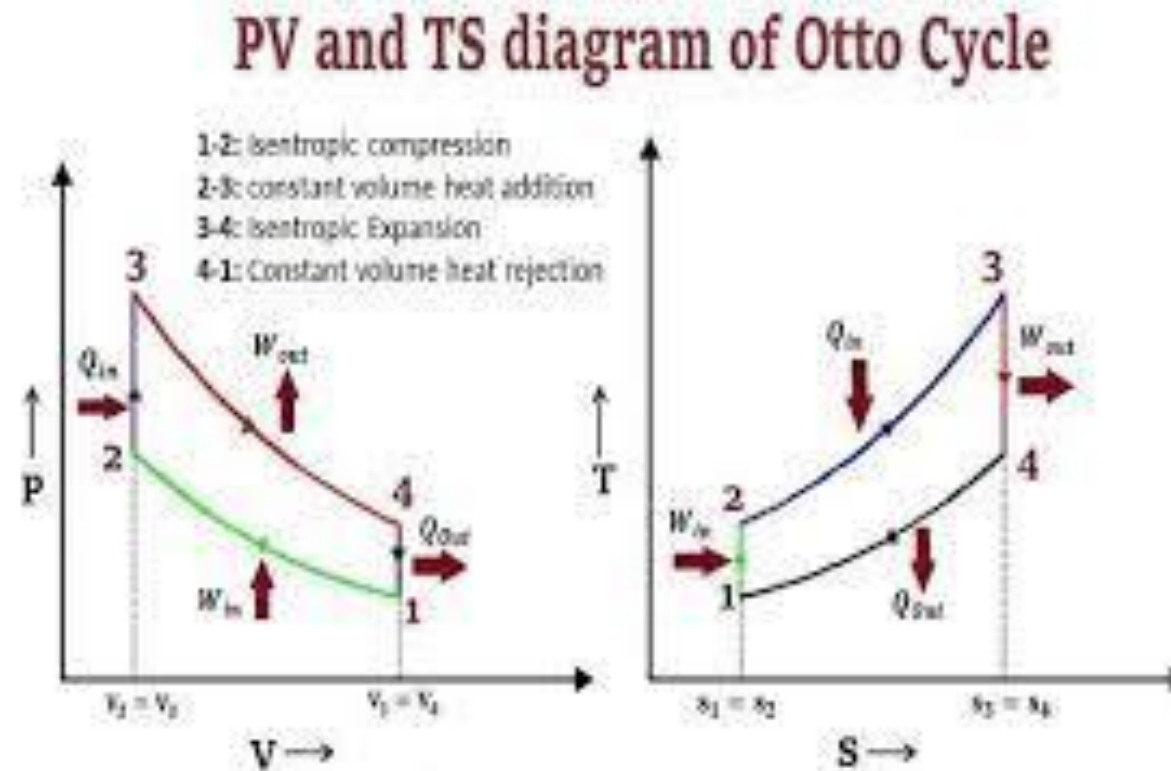
Thermal Engineering – I

Vigneshwaran V, M.Tech, (PhD)

Assistant Professor,

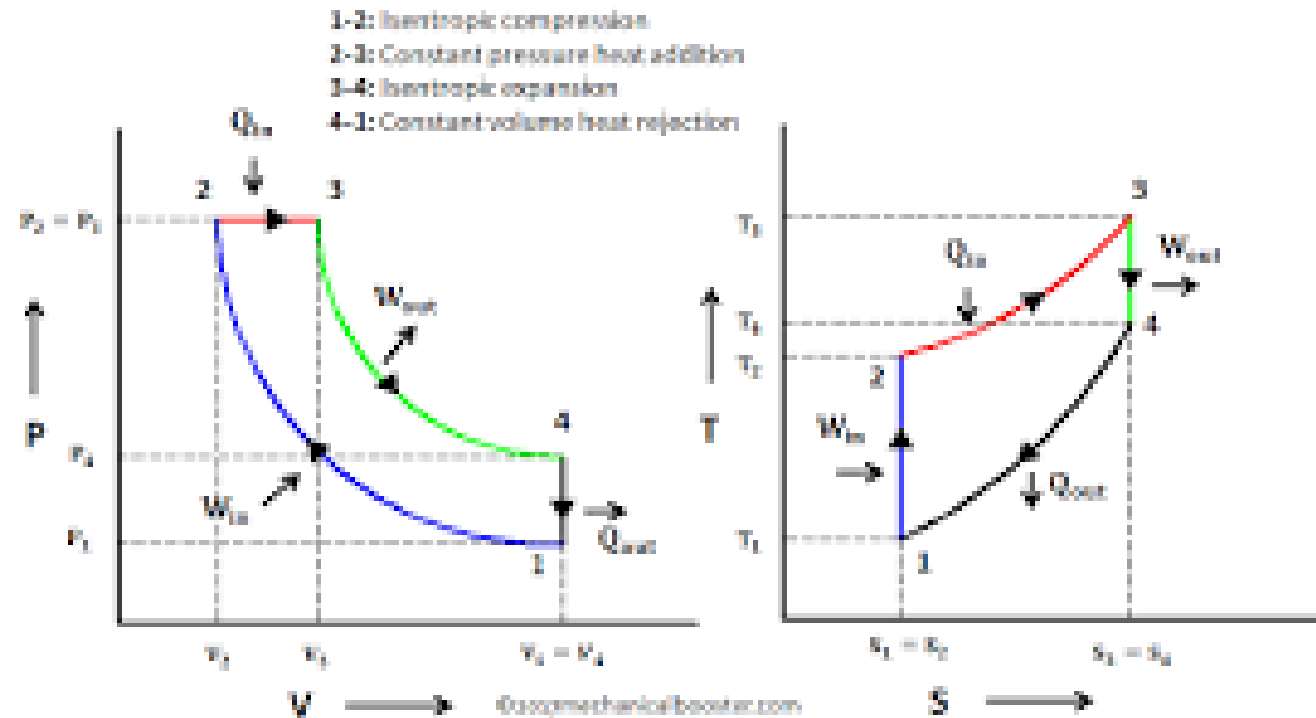
Department of Mechanical Engineering

Otto Cycle



Nptel Video Link: <https://www.youtube.com/watch?v=WxWgdcPsXwU>

Diesel Cycle

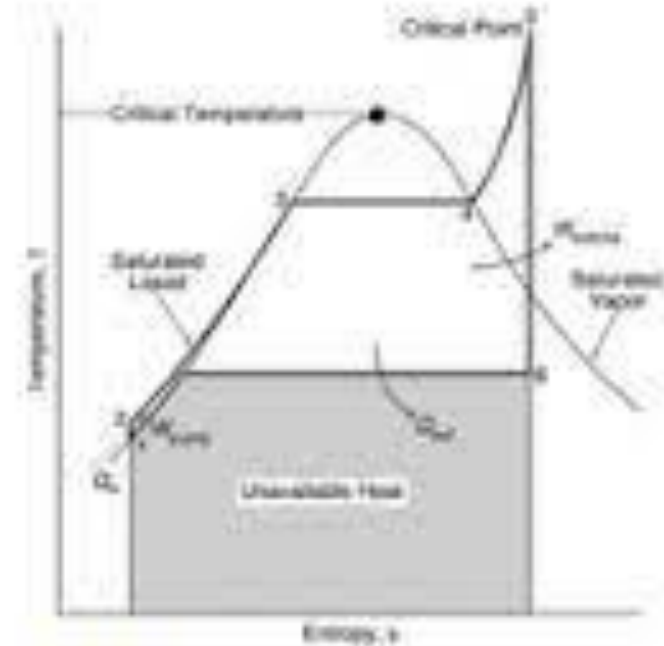
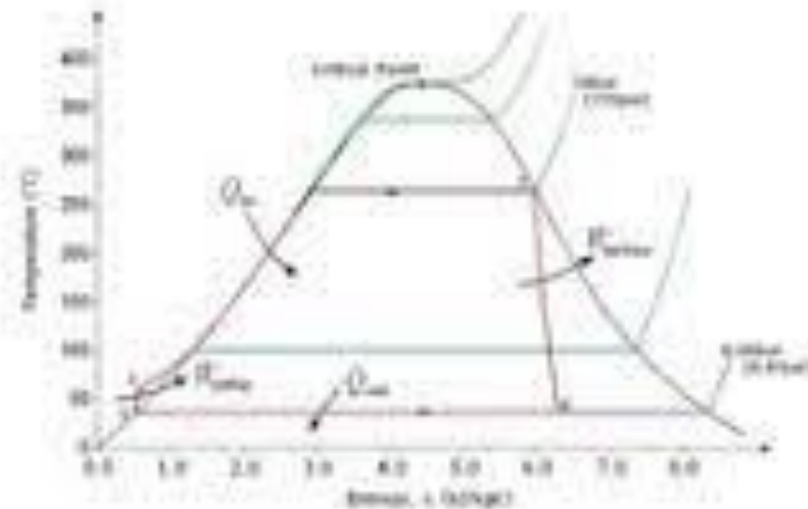


P-V and T-S Diagram of Diesel Cycle

Nptel Video Link: <https://www.youtube.com/watch?v=WxWgdcPsXwU>

Rankine Cycle

What is Rankine Cycle?



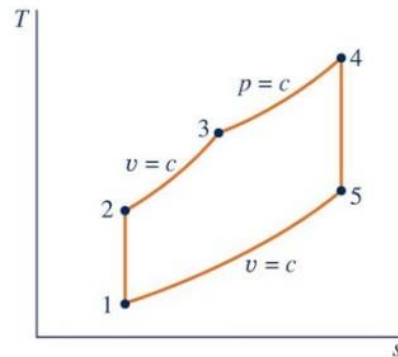
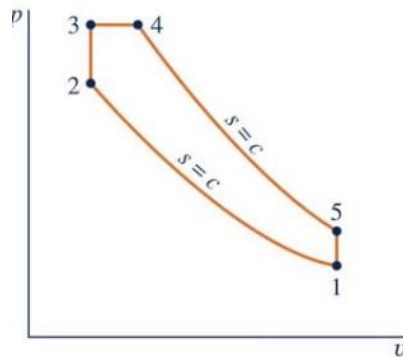
Electrical 4 U

Nptel Video Link: <https://archive.nptel.ac.in/courses/112/103/112103277/>

Dual Cycle

Dual Cycle

- Heat addition occurs in two steps
 - Process 1-2: isentropic compression
 - Process 2-3: constant-volume heat addition
 - Process 3-4: constant-pressure heat addition
 - Process 4-5: isentropic expansion
 - Process 5-1: constant-volume heat rejection



- Air-standard analysis

$$W_{12} = m(u_2 - u_1)$$

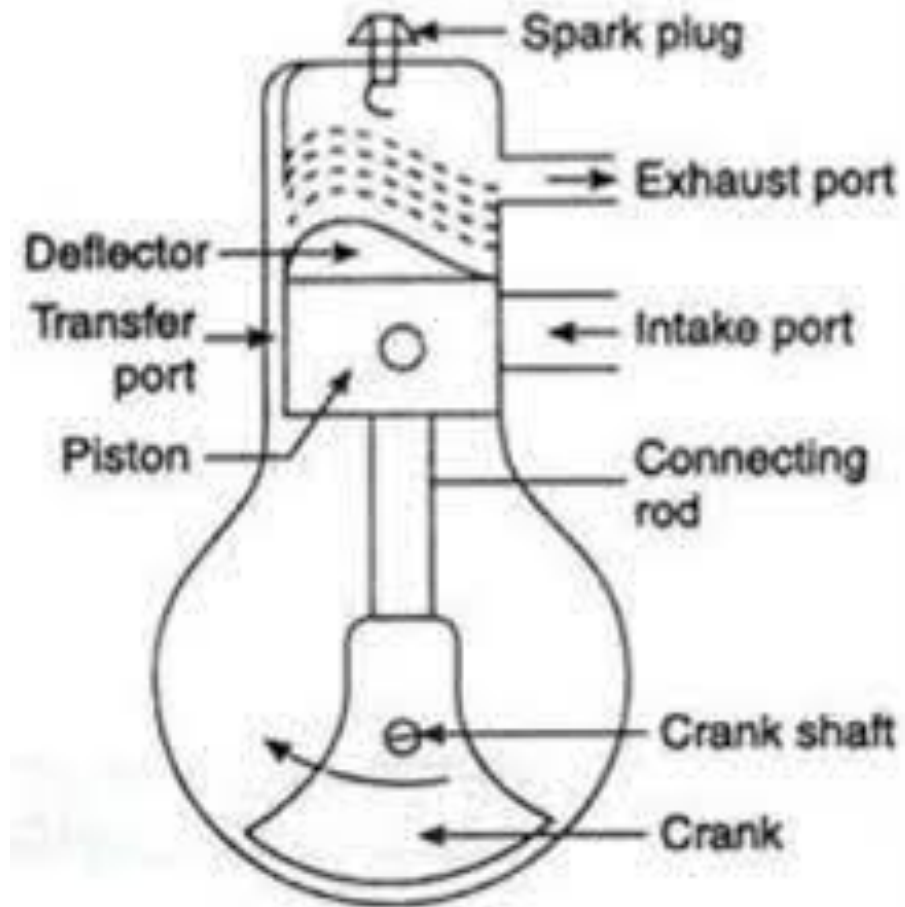
$$Q_{23} = m(u_3 - u_2)$$

$$W_{34} = mp_3(v_4 - v_3) \quad Q_{34} = m(h_4 - h_3)$$

$$W_{45} = m(u_4 - u_5)$$

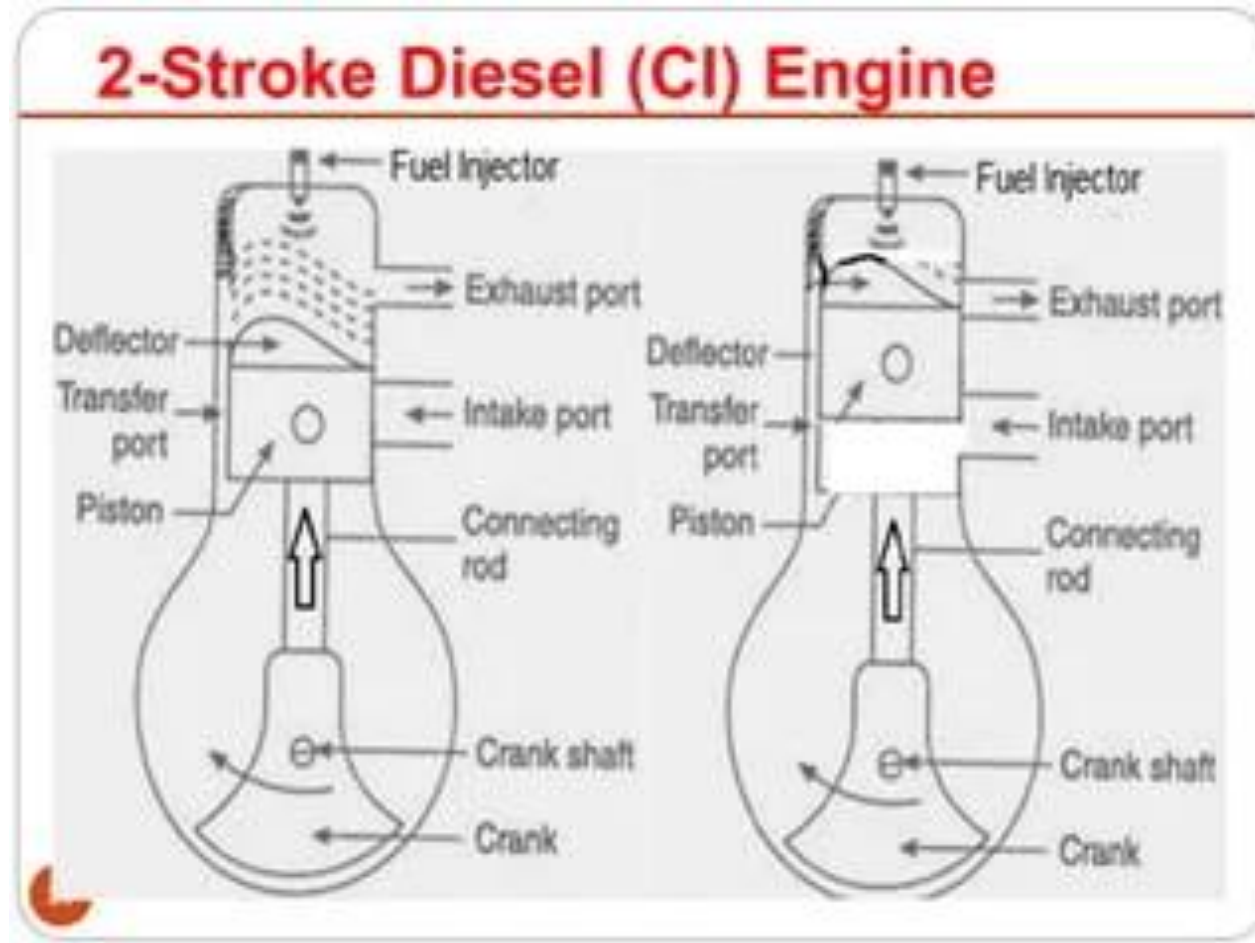
$$Q_{51} = m(u_5 - u_1)$$

2 Stroke – SI Engine



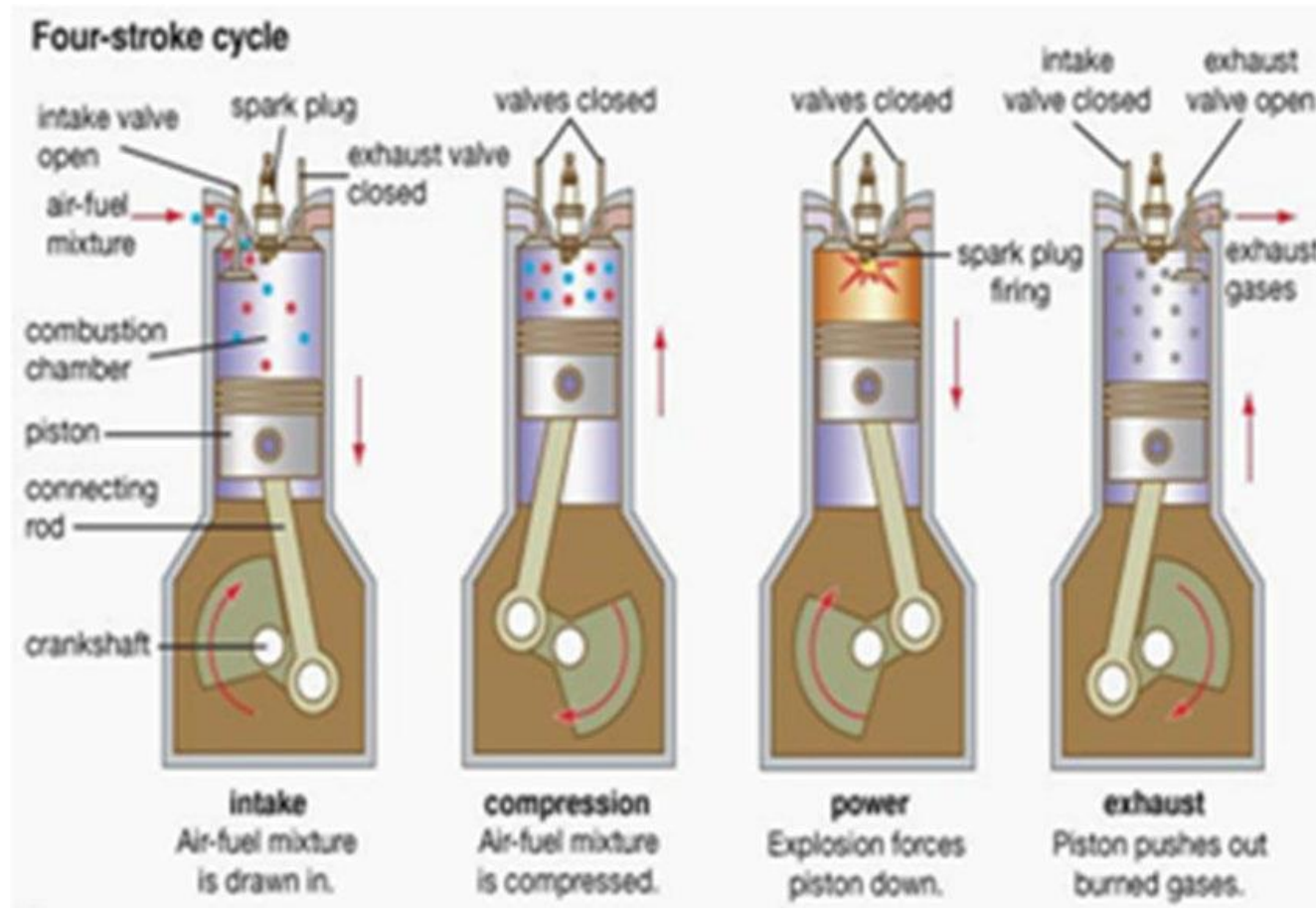
Nptel Video: <https://www.youtube.com/watch?v=FVywAS4Cpgo>

2 Stroke – CI Engine



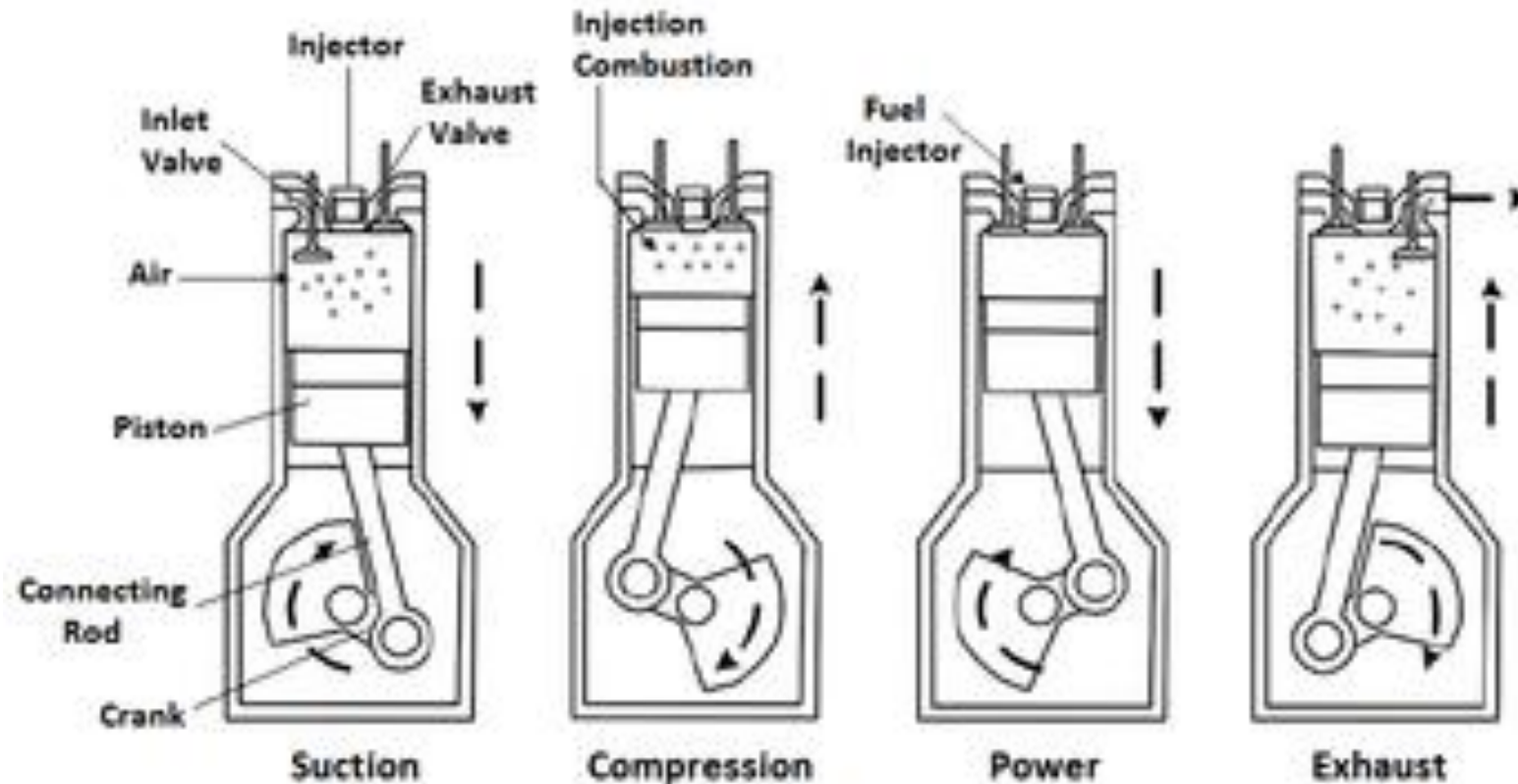
Nptel Video: <https://www.youtube.com/watch?v=FVywAS4Cpgo>

4 Stroke Engine – SI Engine



Nptel Video: <https://www.youtube.com/watch?v=8qakw7NaFn4>

4 Stroke – CI Engine



Four-Stroke Diesel Cycle, Compression Ignition Engine