



# PUMP

*fundamental, selection,  
application, operation,  
trouble shooting*

## COURSE OBJECTIVE

- Memahami fungsi dari berbagai jenis pompa
- Mampu membaca dan menggunakan performance curves dari Pompa.
- Memahami cara memilih pompa.
- Memahami batas operasi pompa.
- Mempelajari lebih lanjut tentang cavitation pada pompa & metode untuk menghindari masalah kavitasi tersebut.
- Kemampuan untuk melakukan maintenance dan troubleshooting pompa.

## COURSE CONTENT

### PUMPS BASIC/FUNDAMENTAL

- Types of pump and how it works
- System curves
- Centrifugal pumps performance characteristic
- Implications of running off the Best Efficiency Point
- Affinity laws
- Specific speed and suction specific speed.
- NPSH and cavitation

### CENTRIFUGAL PUMP CONSTRUCTION

- Impellers, casings, shafts, etc.
- Mechanical seals
- Couplings
- Bearings
- Baseplates

### PUMPS SELECTION AND APPLICATION

- Pumps standards (API, ANSI/ ASME, ISO, HI, NFPA)
- The different between API 610 vs ANSI/ ASME pump
- Pump Classification & designation according to API 610 11th Ed. and Hydraulic Institute
- Material selection
- Typical application of centrifugal pumps
- Pump selection

### PUMPS OPERATION

- Pump operation
- Parallel operation
- Series operation
- Controlling pump capacity

### PUMP MAINTENANCE

- Preventive maintenance
- Bearing lubrication
- Pump inspections to improve mechanical seal life
- Overhaul

### PUMP TROUBLESHOOTING

- Faults, causes, remedies

### PUMP SAFETY TIPS

## WHO SHOULD ATTEND?

- Facilities engineers, Maintenance engineers,
- Production and manufacturing engineers,

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Total Session  
**2 hari x 8 Jam**



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