

VOLK VIDEO PUMP COURSE OUTLINE
PUMP TRAINING FOR ENGINEERS - EIGHT SESSIONS, TOTALING 18 HOURS
PUMP TRAINING FOR TECHNICIANS - SIX SESSIONS, TOTALING 13.5 HOURS
PRESENTED BY MICHAEL VOLK, P.E. (Ret.)

Optional accompanying Text: PUMP CHARACTERISTICS and APPLICATIONS, 3rd Edition

SESSION 1

<u>SLIDE #</u>	<u>PAGE #</u>	<u>TOPICS</u>
1-4	1-6	INTRODUCTION
5-10	7-11	HOW CENTRIFUGAL PUMPS WORK
11-15	193-233	MAJOR TYPES AND COMPONENTS OF CENTRIFUGAL PUMPS
16-39	12-37	POSITIVE DISPLACEMENT PUMPS

SESSION 2

<u>SLIDE #</u>	<u>PAGE #</u>	<u>TOPICS</u>
40-62	39-60	PUMP CAPACITY AND TOTAL HEAD, PUMP SIZING
63-80	60-76	CENTRIFUGAL PUMP CURVES (H-Q, BHP, EFFICIENCY), MOTOR SIZING

SESSION 3

<u>SLIDE #</u>	<u>PAGE #</u>	<u>TOPICS</u>
81-96	76-97	NPSH AND CAVITATION
HANDOUTS		PUMP APPLICATION AND SELECTION EXERCISES

SESSION 4 (Included Only in Pump Training for Engineers)

<u>SLIDE #</u>	<u>PAGE #</u>	<u>TOPICS</u>
97-112	97-107	SPECIFIC SPEED, SUCTION SPECIFIC SPEED, PUMP AFFINITY LAWS
115-122	107-116	SYSTEM HEAD CURVES

SESSION 5 (Included Only in Pump Training for Engineers)

<u>SLIDE #</u>	<u>PAGE #</u>	<u>TOPICS</u>
123-131	116-126	PARALLEL AND SERIES PUMPING
132-137	126-134	OVERSIZING PUMPS, OPTIMIZING PUMP SELECTION, EFFICIENCY
138-139	302-307	CHOOSING THE MOST EFFICIENT PUMP
140-147	379-384	MINIMUM FLOW, ALLOWABLE & PREFERRED OPER. REGIONS, RECIRCULATION

SESSION 6

<u>SLIDE #</u>	<u>PAGE #</u>	<u>TOPICS</u>
148-159	135-150	VISCOSITY
160-170	176-190	IMPELLER TYPES AND FEATURES, AXIAL THRUST
171-201	190-234	CENTRIFUGAL PUMP TYPES, CONSTRUCTION DETAILS, AND APPLICATIONS

SESSION 7

<u>SLIDE #</u>	<u>PAGE #</u>	<u>TOPICS</u>
202-210	234-239	COUPLINGS
211-218	240-266	MOTORS
219-244	267-300	O-RINGS, PACKING, MECHANICAL SEALS, AND SEALLESS PUMPS
245-256	308-325	VARIABLE SPEED PUMPING AND VARIABLE FREQUENCY DRIVES

SESSION 8

<u>SLIDE #</u>	<u>PAGE #</u>	<u>TOPICS</u>
162-166	349-362	CORROSION AND MATERIALS FOR PUMPS
262-267	366-378	PUMP INSTALLATION, ALIGNMENT, PIPING, AND STARTUP
268-273	159-165	AIR ENTRAINMENT
274-280	166-173	PUMP PERFORMANCE TESTING
281-284	393-405	PUMP MONITORING, TROUBLE-SHOOTING, MAINTENANCE, AND REPAIR