Stromingsleer – reader voor het boek *Fluid Mechanics* van Frank M. White

Lectures	Book	Versie 4	Versie 5	Versie 6	
01	Chapter 1	1.1	1.1	1.1-1.3	perliminary remarks
		1.2	1.2	1,4	the concept of a fluid
		1.3	1.3	1,5	the fluid as a continuum
		1.4	1.4	1,6	dimensions and units
		1.5	1.5	1.7 & 1.11	properties of the velocity field
		1.6	1.6	1,8	thermodynamic properties of a fluid
		1.7	1.7	1,9	viscosity and other secondary properties
02		1.8	1.8		basic flow analysis techniques
		1.9	1.9		flow patterns: streamlines, streaklines, and pathlines
		1.11	1.11		uncertainty of experimental data
		1.13	1.13		problem-solving techniques
	Chapter 2	2.1	2.1	2.1	pressure and pressure gradient
		2.3	2.3	2.3	hydrostatic pressure distributions
		2.4	2.4	2.4	application to manometry
		2.8	2.8	2.8	buoyancy and stability
03		2.9	2.9	2.9	pressure distribution in rigid-body motion
		2.10	2.10	2.10	pressure measurement
	Chapter 3	3.1	3.1	3.1	basic physical laws of fluid mechanics
		3.2	3.2	3.2	the Reynolds transport theorem
		3.3	3.3	3.3	conservation of mass
04		3.4	3.4	3.4	the linear momentum equation
05		3.6	3.6	3.6	the energy equation
		3.7	3.7	3.7	frictionless flow: the Bernoulli equation
06	Chapter 4	4.2	4.2	4.2	the differential equation of mass conservation
		4.3	4.3	4.3	the differential equation of linear momentum
		4.6	4.6	4.6	boundary conditions for the basic equations
		4.11	4.11	4.11	some illustrative incompressible viscous flows
07	Chapter 5	5.1	5.1	5.1	introduction
		5.2	5.2	5.2	the principle of dimensional homogeneity
		5.3	5.3	5.3	the Pi theorem
		5.4	5.4	5.4	nondimensionalization of the basic equations
		5.5	5.5	5.5	modeling and its pitfals
08	Chapter 6	6.1	6.1	6.1	Reynolds number regimes
		6.2	6.2	6.2	internal versus external viscous flows
		6.4	6.3, 6.4, 6.7	6.3, 6.4, 6.7	flow in a circular pipe
09		6.6	6,8	6,8	flow in noncircular ducts
		6.7	6,9	6,9	minor losses in pipe systems
		6.9	6,11	6,11	experimental duct flows: diffuser performance
		6.10	6,12	6,12	fluid meters
10	Chapter 7	7.1	7.1	7.1	Reynolds-number and geometry effects
		7.2	7.2	7.2	momentum-integral estimates
		7.4	7.4	7.4	the flat-plate boundary layer
		7.5	7.5	7.5	boundary layers with pressure gradient
11		7.6	7.6	7.6	experimental external flows
12	Chapter 9	9.1	9.1	9.1	introduction
		9.2	9.2	9.2	the speed of sound
		9.3	9.3	9.3	adiabatic and isentropic steady flow
		9.4	9.4	9.4	isentropic flow with area changes
		9.5	9.5	9.5	the normal shock wave
		9.6	9.6	9.6	operation of converging and diverging nozzles

13	Chapter 10	10.1	10.1	10.1	introduction
		10.2	10.2	10.2	uniform flow; the Chezy formula
		10.3	10.3	10.3	efficient uniform-flow channels
		10.4	10.4	10.4	specific energy; critical depth
		10.5	10.5	10.5	the hydraulic jump
14	Chapter 11	11.1	11.1	11.1	introduction and classification
		11.2	11.2	11.2	the centrifugal pump
		11.3	11.3	11.3	pump performance curves and similarity rules
		11.4	11.4	11.4	mixed- and axial-flow pumps; the specific speed
		11.5	11.5	11.5	matching pumps to system characteristics
		11.6	11.6	11.6	turbines