TPG 4135 - Production technology - field processing and systems

https://www.ntnu.edu/studies/courses/TPG4135#tab=omEmnet

class notes, files, homeworks, videos
http://www.ipt.ntnu.no/~stanko/files/Courses/TPG4135/2019/

Milan Stanko
Associate Professor

Department of Geoscience and Petroleum
milan.stanko@ntnu.no
+47 73594944
Petroleumsteknisk senter, L230, Valgrinda, S. P. Andersens veg 15

Harald Arne Asheim
Professor

Department of Geoscience and Petroleum
harald.arne.asheim@ntnu.no
+47 73594959
Petroleumsteknisk senter, L216, Valgrinda, S. P. Andersens veg 15AA

http://www.ipt.ntnu.no/~asheim/

Mariana J.C. Diaz
Postdoctoral Fellow

Department of Geoscience and Petroleum
mariana.j.diaz@ntnu.no
+47 73593759
Petroleumsteknisk senter, Valgrinda

blackboard

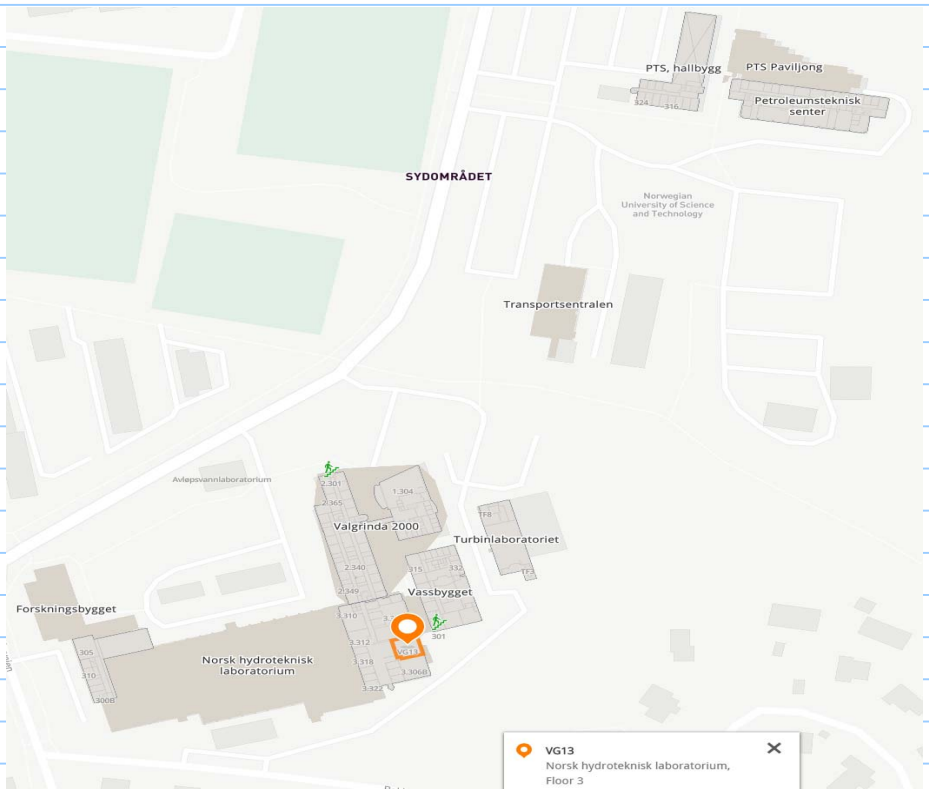
student assistant:

Markus Hays Nielsen

markushnielsen@gmail.com

2019 VÅR

Day	Time	Weeks	Type	Planned for	Room
Monday	12:15 - 14:00	2-15	Forelesning	MIUVT, MTING, MTPETR	P12 PTS Paviljong
Tuesday	14:15 - 16:00	2-15	Forelesning	MIUVT, MTING, MTPETR	VG13 NHL Hall utvidelse
Tuesday	16:15 - 18:00	2-15	Øving	MIUVT, MTING, MTPETR	VG13 NHL Hall utvidelse



- Guest lectures from industry Mondays 14:15 - 15:00 P13

start 21.01.2019 stop 15.04.2019

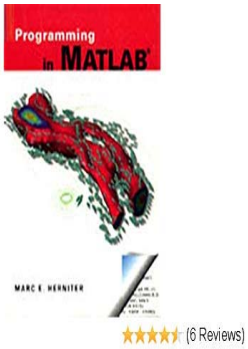
Evaluation:

Term	Statuskode	Evaluation form	Weighting	Examination aids	Date	Time	Room *
Spring	ORD	Written examination	100/100	D	2019-05-29	15:00	

Mandatory exercises to get access to exam

Software: Excel VBA Visual Basic for applications

Matlab



Marc Herniter

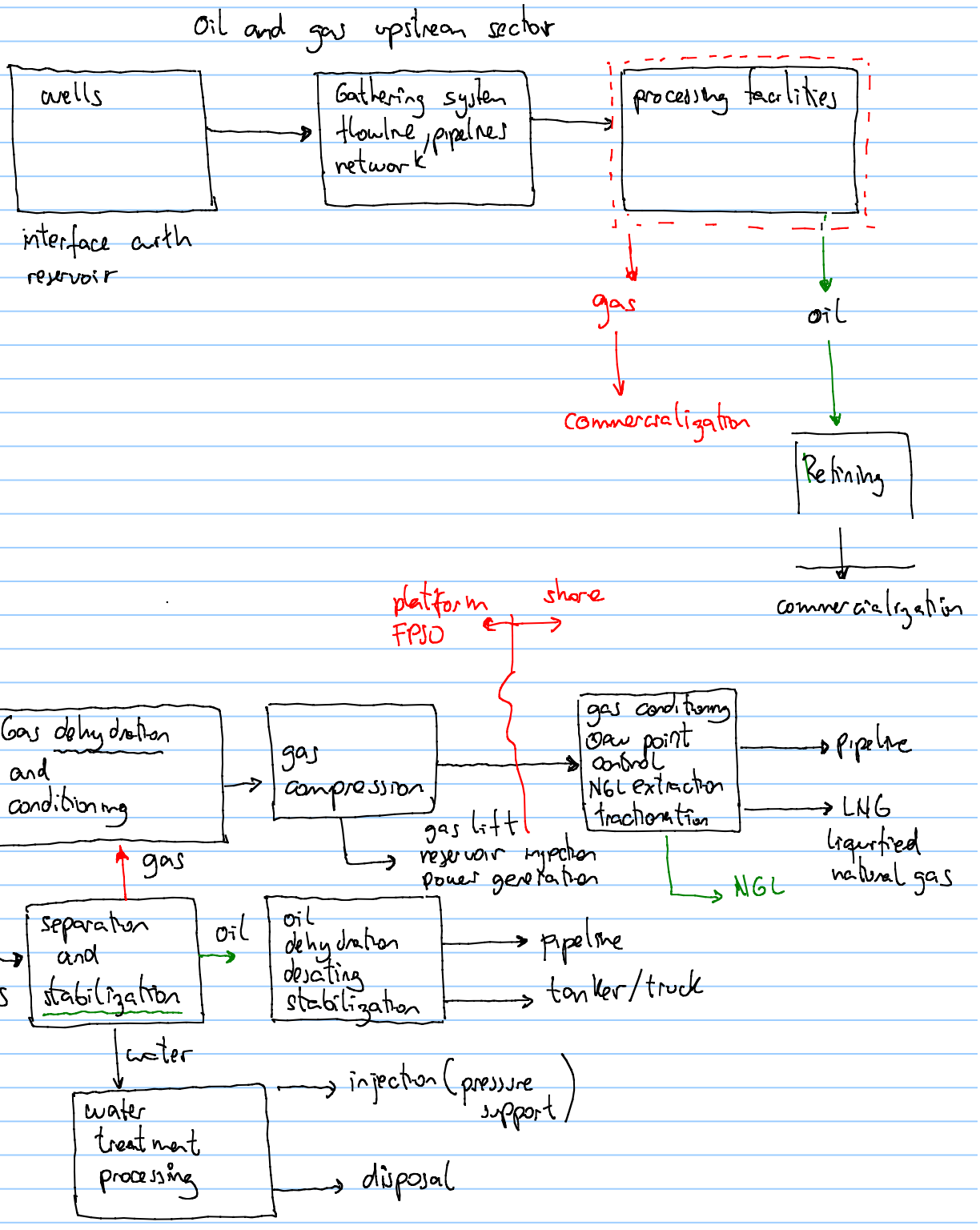
- Hysys Process simulator farm.ntnu.no

DWSim " " http://dwsim.inforside.com.br/wiki/index.php?

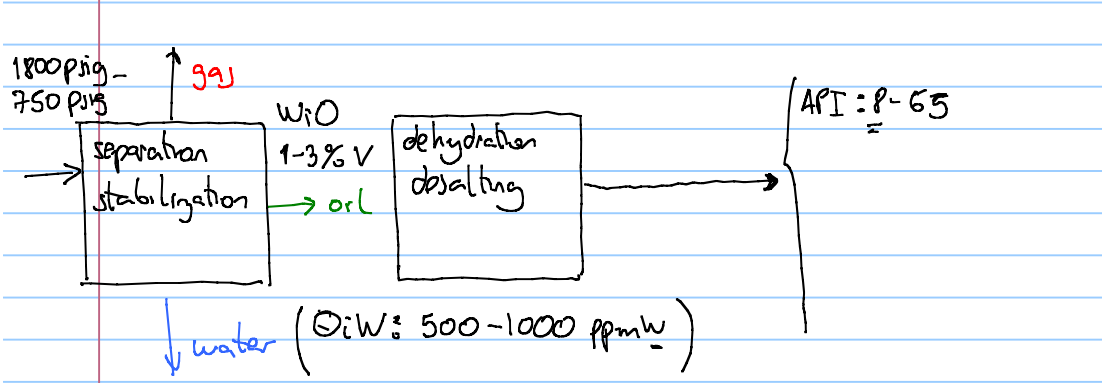
Reference group.

https://innsida.ntnu.no/wiki/-/wiki/English/Reference+groups+-+quality+assurance+of+educatio

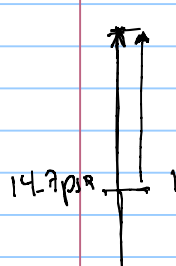
- Processing of oil and gas



gas destinations : • sell to power generation, heating, cement plant
: • Reinject for pressure support
EOR enhanced oil recovery
• power generation for field : gas turbine
• artificial lift (gas-lift)
• Remove "heavy" components → LPG Liquified petroleum gas
NGL Natural gas liquids



$\frac{V_o}{V_T} = 0.01 - 0.03$



psig? ppm = parts per million

$1\,ppm = \frac{1\,mg}{1\,kg} = \frac{1E{-}3\,g}{1E3\,g} = 1E{-}6$

$API = \frac{141.5}{\gamma_o} - 131.5$

$\gamma_{\bar{o}} = \frac{\rho_{\bar{o}}}{\rho_{\bar{w}}}$ ← 700-900 kg/m³ → 1000 kg/m³

specific gravity of oil

$\bar{o}$ @ standard conditions ↳ 1.01325 bar ↳ 15.56 °C

API

for an API = 10, what is γ_o ?

$$10 + 131.5 = \frac{141.5}{\gamma_o}$$

$$\gamma_o = 1$$