

COURSE EVALUATION FORM Department of Geoscience and Petroleum

Course code: TPG4230	Course title: (add the learning objectives of the course as an attachment) Field Development and Operations. The course is teaching the methodology and the petroleum engineering skills needed to plan the life cycle of gas and oil fields from the discovery, through the assessment phase, the project and development phases, the field operations period and the abandonment phase.						
Semester: Spr 17	Lecturer/course coordinator: Milan Stanko						
	Censor (Quality assurance of exam assignments): Curtis Hays Whitson						
Number of students:	Number of fails:	Average grade (points out of 100):					
28 (26 exams delivered)	0	82.57					
The course is a part of the following study programme(s): Ingeniørvitenskap og IKT - masterstudium (5-årig) Natural Gas Technology (Master's Programme) Petroleum Engineering (Master's Programme) Petroleumsfag - masterstudium (2-årig) Petroleumsfag - masterstudium (5-årig) Undervannsteknologi - masterstudium (2-årig)							
Basic data for course evaluation:							
Involved academic personnel (Name and percentage of course taught):	Number of hours (approx.)						
	Teaching /Compendium	Create exercises	Stud. guidance	Exam	Evaluate exerc.	Admin	Total approx
Coordinator: Milan Stanko(100%)	63+145	75	10	32	100	10	435
Lecturers:							
Scientific assistants.:							
Student assistants:			130		60	6	196
Sum, number of hours:	208	75	140	32	160	16	631
Summary of course contents and results: (can be retrieved from www.ntnu.no/karstat/makeReport.do)							
Grade	A	B	C	D	E	F	
Number of students	10	12	4	0	0	0	
Percentage	38.4	46.2	15.4	0	0	0	
Comments on course contents and results:							
Measures taken based on the course feedback from last year:							
<ul style="list-style-type: none"> • Work in groups of 3 for all homework assignments to reduce the load. • A compendium was prepared that consisted on a collection of papers, self-written material, presentations and short extracts of books. 							
Other comments							
<ul style="list-style-type: none"> • Two student assistants held weekly sessions of 3 hrs to help the students with the exercises. They were also available via email for further consultations. Students seemed to be satisfied with the support. • The grades display a distribution similar to previous years. In general, the group showed good performance, were interested on the topics and eager to learn. • All class recordings were posted on youtube. • A course questionnaire was given at the end of the course. The results are attached to this report. 							

Reference group (members, number of meetings, comments on feedback from the reference groups, have the comments from the ref. groups been taken into account when teaching the course?)

Members: Oras Joseph Mkinga (PhD program), Erik Kjorslevik (5 years program), Erca Wilfred (2 years program)

2 meetings: 20170216, 20170330. I was communicating often with the member of the reference group so there was no need for a third meeting.

The reference group seemed quite satisfied with the course and there were no major comments to take into account in the teaching.

Course coordinator's evaluation of the quality of the course:

The course addresses topics as reserve and recovery estimation, reservoir depletion, production scheduling, number of wells and well placement, planning of production gathering and testing systems, designing well construction, well and production system performance, field processing facilities and export product control.

Plan of action: (Measures taken, responsibility for implementing measures, deadline for completion – other measures that could be taken to improve the quality of the course)

- Work on expanding the compendium for next year (V2018). – Milan Stanko

Guidance to the course evaluation form

«The course is a part of the following study programmes»:

Courses can be part of several study programmes, each with different requirements. To gain an overview of these, and to secure that all programme coordinators will base their programme evaluations of these reports, these study programmes should be filled in here.

«Learning objectives of the course»:

The learning objectives of the course in their entirety should be added as an attachment to the report.

«Basic data for course evaluation»:

Specify which basic data the evaluation is based on.

- Previous course reports
- Minutes from reference group meetings
- Basic data collected from each student in the course, at a minimum of every third year

«Reference group report on the quality of the course»:

Added in its entirety as an attachment, or as part of the data forming the basis of the course coordinator's evaluation.

«Course coordinator's evaluation of the quality of the course»:

The course coordinator's evaluation of the quality of the course, based on the basic data specified above.

«Plan of action»:

Specific measures taken to improve the quality of the course, who has the responsibility for carrying out these measures, and a deadline for completion.

The course coordinator must send the course report to the head of the department giving the course, programme coordinators of all programmes the course is a part of, as well as to all students presently taking the course. The course report must also be made available for future students.

Reference Group Report

Date: 16 February 2017

Course code and title: TPG4230 – Field Development and Operations

Academic year (fall/spring): Spring

Students who have participated in the reference group. Name and study programme:

1. Oras Joseph Mkinga – Reservoir Engineering
2. Erik Kjørsløvik – Reservoir Engineering
3. Erca Wilfred - Production Engineering

The reference group's report on the quality of the learning activities:

We discussed about topics covered in class in term of its relevance to course objectives; speed of lecturing; number of problems (questions) in exercise and delivery time; and class works. All these looks fine so far.

Measures that may enhance the learning outcomes, as proposed by the reference group:

We will collect opinions from class members for the next meeting

Report writing tutorial: <https://innsida.ntnu.no/wiki/-/wiki/Norsk/Referansegruppe+-for+studenter> (Norwegian only)

Erik C.K. Kjørsløvik
Erca Wilfred - ~~Erca~~
Oras Joseph Mkinga Mkinga

Reference Group Report

Date: 30 March 2017

Course code and title: TPG4230 – Field Development and Operations

Academic year (fall/spring): Spring

Students who have participated in the reference group. Name and study programme:

1. Oras Joseph Mkinga – Reservoir Engineering
2. Erik Kjørsløvik – Reservoir Engineering
3. Erca Wilfred - Production Engineering

The reference group's report on the quality of the learning activities:

We conducted the meeting, which discussed on topic covered, videos mode of delivery in class, introducing students to some potential software, having compendium updated with new notes, and feedback about exercise grades. All them they look satisfactory.

Measures that may enhance the learning outcomes, as proposed by the reference group:

We will collect opinions from class members for the next meeting

Report writing tutorial: <https://innsida.ntnu.no/wiki/-/wiki/Norsk/Referansegruppe+-for+studenter> (Norwegian only)

Erik C.K. Kjørsløvik

Erca Wilfred - ~~the~~!

Oras Joseph Mkinga 

TPG4230 - Field Development and Operations

Autumn 2016/Spring 2017 ▼

About

Timetable

Examination

Examination arrangement

Examination arrangement: Written examination and Work

Grade: Letters

Evaluation form	Weighting	Duration	Examination aids
Work	40/100		
Written examination	60/100	4 hours	C

Course content

The course is teaching the methodology and the petroleum engineering skills needed to plan the life cycle of gas and oil fields from the discovery, through the assessment phase, the project and development phases, the field operations period and the abandonment phase. It addresses topics as reserve and recovery estimation, reservoir depletion, production scheduling, number of wells and well placement, planning of production gathering and testing systems, designing well construction, well and production system performance, field processing facilities and export product control. The course introduces the concept of Integrated Field Management, including performance and optimization of field production from the reservoir to the export point.

Learning outcome

Ingress:

The students should understand the petroleum engineering aspects of planning, developing and operating oil and gas fields.

Knowledge:

The students should understand the process of planning and developing of offshore oil and gas fields and the petroleum engineering aspects governing the operation of offshore fields. They should know the principle of material balance and reservoir management, inflow from the reservoir to the wells, temperature management in production systems, flow in wells and production systems, flow equilibrium, production planning and production control, and the basic of field processing of oil and gas. They should understand the risks, uncertainties, and economical factors involved in field development and operations. They should understand the decision variables, the optimization objectives and the constraints involved in optimalization of field production.

Skills:

The students will develop skills in executing engineering working processes involved in planning and operating offshore oil and gas fields. They should have the capability to use computer programs to execute the engineering tasks (Prosper, Gap, Hysys) and should be able to develop Excel based sheets, to perform production engineering calculations.

General competence:

The students should know the mathematical methods used in: estimating uncertainties, in solving sets of non-linear equations and in performing optimization tasks. They should know how these methods are used in the executing engineering tasks.

Learning methods and activities

Lectures and exercises, including one small individual project. The exercises and the project account for 40% of the final grade of the course. The course is taught in English and the examination papers will be given in English only. Students are free to choose Norwegian or English for written assessments. The lectures and exercises will relate to an offshore field in Norway (North Sea, Norwegian Sea or Barents Sea) and will use this field as the focus of the learning. If there is a re-sit examination, the examination may be changed from written to oral.

Compulsory assignments

Exercises

Specific conditions

Exam registration requires that class registration is approved in the same semester. Compulsory activities from previous semester may be approved by the department.

Recommended previous knowledge

TPG4145 Reservoir Fluids and Flow or equivalent petroleum engineering knowledge. Engineering courses in flow and process technology. Previous courses (2nd and 3rd year in the programme Petroleum Geosciences and Engineering, MTPETR) within reservoir engineering, drilling engineering, petroleum production and petrophysics.

Course materials

Given at semester start.

Credit reductions

Course code	Reduction	From	To
SIG4087	7.5	2006-08-01	

More on the course

No

Facts

Version: 2

Credits: 7.5 SP

Study level: Second degree level

Coursework

Term no.: 1

Teaching semester: SPRING 2017

No.of lecture hours: 3

Lab hours: 2

No.of specialization hours: 7

Language of instruction: English

Location: Trondheim

Subject area(s)

Petroleum Engineering - Production Engineering

Technological subjects

Contact information

Course coordinator:

Milan Edvard Stanko Wolf

Department with academic responsibility

Department of Geoscience and Petroleum

S.P. Andersens vei 15 A

Phone: 73 59 49 25

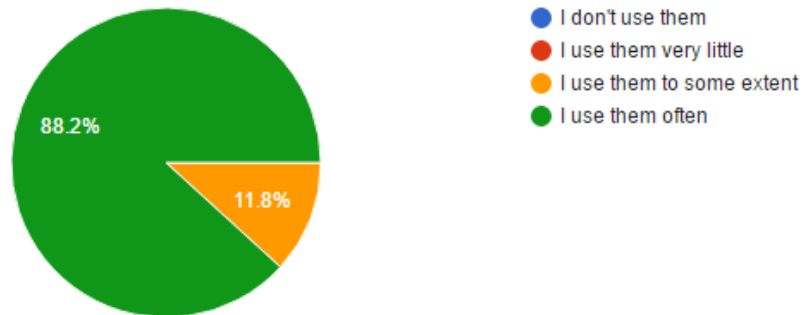
Course feedback questionnaire in google forms.

Information gathered in period: 03.05.2017-15.05.2017

Participants: 17

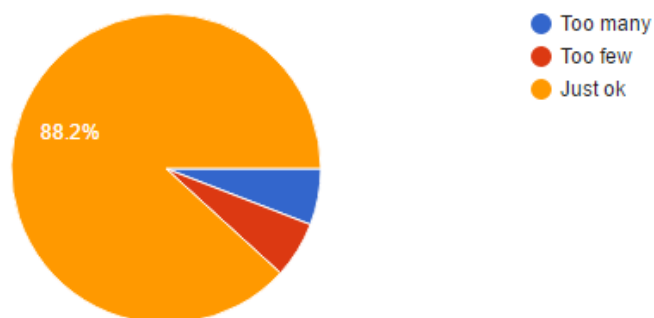
In what degree do you use/will you use (e.g. for the exam) the electronic material in the course (Youtube channel, video lectures, pdf notes)

17 responses



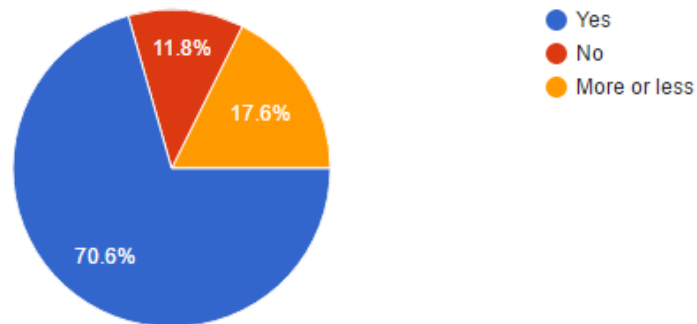
Taking into account that the exercises account for 40% of the grade, do you consider that the exercises were:

17 responses



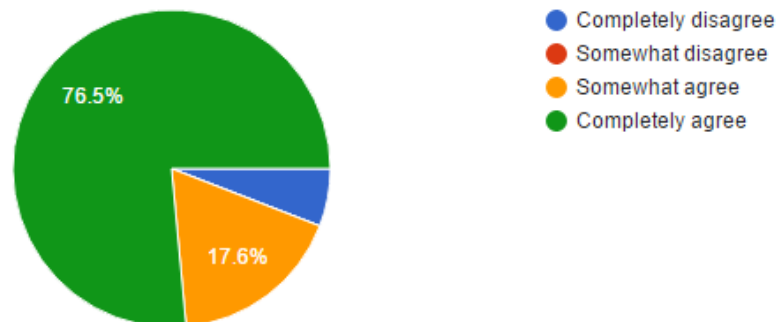
Are you satisfied with the overall support provided by the student assistants (availability, domain of the topics, etc.)?

17 responses



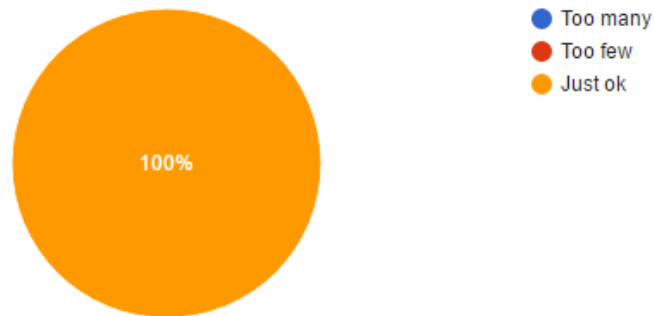
How strongly do you agree with the following statement: " the home assignments help me to practice, learn and develop further the topics discussed in class and help me to develop my problem solving skills"

17 responses



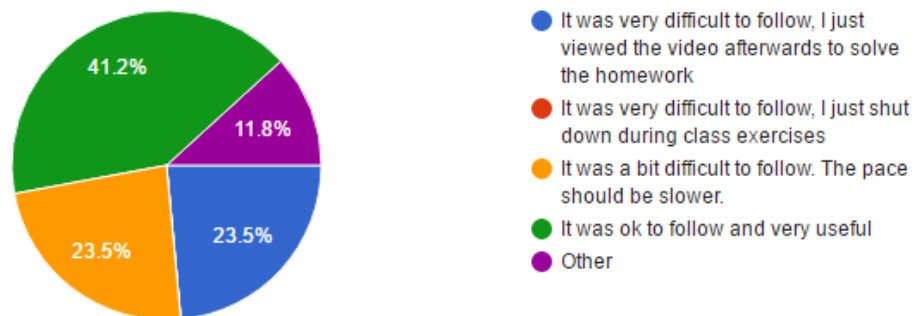
The amount of exercises solved in class were:

17 responses



When solving exercises during class, what statement describes best your situation:

17 responses



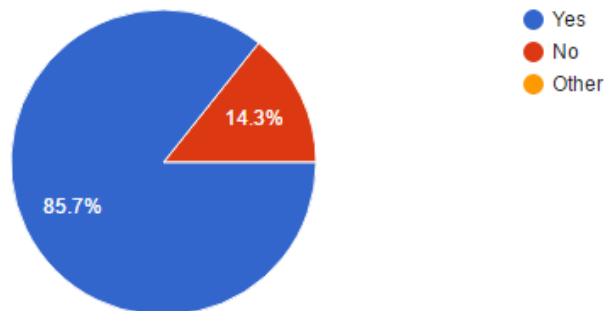
Other:

It was fine, but would need to be slower IF you stopped filming

It was somehow difficult to follow mostly when practicing some softwares such as GAP,HYSYS otherwise it was ok to follow

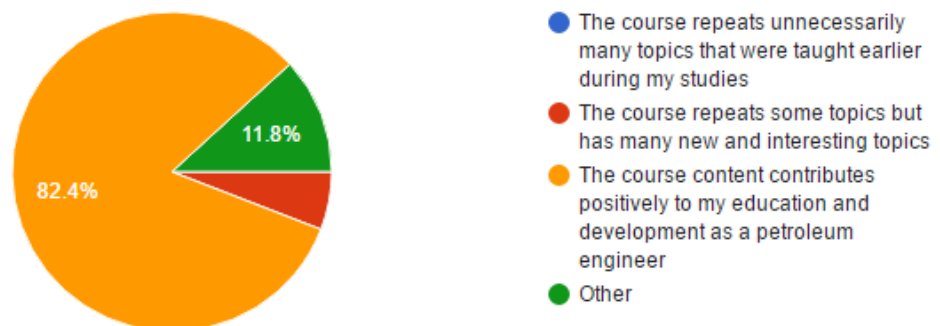
Only for students taking the course from abroad: Would you recommend to future students that are planning to take an exchange year abroad to take this course?

7 responses



Please choose the statement that reflects best your opinion about the content of the course:

17 responses



Other:

All the topics are new to me so my opinion does not count

It was great in the fact that it tied many topics covered by other courses together, giving a more "real life experience" and understanding of how all topics learned previous are meshed together in working life

Flipped classroom is a particular method of teaching that consists on: Short video lectures are viewed by students at home before the class session, while in-class time is devoted to exercises, projects, or discussions. What statements describes best your opinion about implementing this kind of teaching in our course?

17 responses



What can be improved in future courses

17 responses

More Kahoot games would do no harm - they are really good to understand the basics

lol

nothing in particular comes to mind right now.

I think the student assistants need to get a solution to the exercises to improve their ability to help us

Highlights of Field development and operations concepts out of NCS may be kept up to impart broader awareness

Highlights of Field development and operations concepts out of NCS may be kept up for broader awareness

Maybe the reports don't need to be so specific, but just a presentation of results. Especially the last exercise was a bit long, the report took much time while having deadlines in other courses and it is close to the exams. That being said, the report writing is very useful for future reports, specialization project and master's thesis.

more reference books / paper should be provided

More student assistants (for example 3 at least). Less home work.

The student assistants can get access to solutions, them being wrong directly cost my group 2 points. But no biggie. Thanks for a good semester :)

Exercise hours should be added, Instead of once per week it can be twice a week.

There are many topics to cover I understand that, but I think it may be the best to explain a little bit slower. there were some times that the pace really faster compared to other days

""""- I felt its difficult to take notes in class. Initially I started to take notes religiously, but after the cutting and pasting to make way for more items, especially when more stuff is added to the

flowcharts and scribbling, I give up. This can be challenge when I do revision for the exams because, I don't have my set of notes so I need to review lectures again. In an ideal world, students rewatch the

videos and recompile their notes. But with almost 5 hours of lectures a week, it is time consuming to watch lectures again. I can suggest that some tables and flow sheets (eg comparisons and hierarchies) be prepared as template, to minimize the scribbling. But I think the notes written is already quite good considering so much material is presented.

- Upload answers to homework that is done.

- Write a textbook that follow this course and sell it to students. Students will buy because they can read and follow the lectures more easily. There are one or two chapters written by you. So you just have to add the material like the flow assurance notes you written this year to your collection. But please do a cost analysis because if cost outweighs benefits then its not worth it.

- PROSPER and GAP demos are good. I enjoyed it a lot.

"

The applications of useful software such as GAP, PROSPER, MBL and HYSYS in the course should be given priority since some exercises needs the use of software also in industry I hope we need the knowledge of software to do many operations.

1

Teaching more about softwares as well

After a good practices to excel in this course, Students should also be taught and given exercises to practice some commercial softwares that are used in petroleum engineering

Please provide any relevant general comments

10 responses

GREAT course! Probably on my top 3 from NTNU ;)

Really useful course, learned a lot about many new topics regarding petroleum engineering!

this course is very interesting, THE BEST COURSE EVER.

In general the course is fantastic.

I enjoyed to take this course and it is among of the course which I never missed the lectures due excellent and clear teaching methodology.

I really like how this course works, I didn't expect the system earlier, but I enjoyed it very much. I also like the way the lecturer gave the kahoot games in the middle of the day, it really woke everyone up from a very rough morning.

""""- I felt Exercise 2 was the most difficult exercise. It is difficult because for me, it involved too many concepts from topics that are not so related to each other so it was a struggle for me to complete it in the given 2 or 3 weeks.

- The effort and time invested in the exercises gives me a sense of achievement. Especially when I was successful getting those production profile curves in Ex 2 and 3. Those exercises made me understand what is taught in class.

- The VBA skill upgrade was the bonus factor in this course for me."

In general the course covers everything required for the students to learn, and it helps to develop their career as Petroleum Engineer. All the materials provided including video lectures, reference materials and lecture notes were very useful for the course.

Prof.Stanko is one of the best i have ever met, may God bless you

The overall presentation of the course was excellent and i was happy with the kindness of prof. Milan Stanko during the course