**CETOP 1: Power Hydraulics**

**Formål**

På kurset Power Hydraulics - CETOP 1 får kursisten en grundlæggende teoretisk viden og forståelse for hydrauliske systemer og komponenter med henblik på at kunne assistere ved eftersyn og reparation i hydrauliske lav- og højtryksanlæg. Ydermere vil deltageren være i stand til at kunne opbygge hydrauliske anlæg med rørføring og slanger ud fra komplette hydrauliske diagrammer med tilhørende system beskrivelser.

Dette kursus kvalificerede deltageren til certificering på CETOP I niveau.

**Målsætninger**

Efter kurset kender kursisten de grundlæggende fysiske begreber og deres anvendelse. Deltageren kan forstå grundlæggende hydrauliske systemers opbygning, samt læse simple hydrauliske diagrammer og symboler. Endvidere kan kursisten opbygge et simpelt hydraulisk system, samt indregulere dette. Kursisten forstår renhedskrav i forbindelse med det anvendte udstyr, og hvordan renhedskrav tilgodeses ved installation, drift og reparation.

I kurset lægges der derudover vægt på, at vedkommende opnår forståelse for personlig sikkerhed i forbindelse med arbejdet.

**Målgrupper**

Personale som har lidt eller ingen erfaring i arbejdet med hydrauliske systemer.

**Læringsmetoder**

Kurset er en blanding af teori og øvelser, hvor den lærte teori bliver prøvet af i praksis. Gennem de praktiske øvelser får kursisten hands-on forståelse for de hydrauliske principper, samt hvordan de enkelte komponenter fungerer.

**Indhold**

Kurset omfatter følgende emner:

-        Grundlæggende principper for hydraulik

-        Opbygning af simple hydrauliske systemer

-        Simple komponenters funktion og virkemåde

- Design og tildannelse af rør til hydrauliske systemer

-        Hydraulik væskers egenskaber

-        Renhedskrav til hydraulikvæsker

-        First line management

-        Procedurer for vedligehold.

**Kursuslængde**

Kurset har en længde af 3 kursus dage fra 0830 – 1715.

**Eksamen**

Ved gennemført kursus får deltageren et kursusbevis.

**Beklædning**

SIMAC stiller kitler og sikkerhedsbriller til rådighed, men der SKAL medbringes arbejdstøj & sikkerhedssko, da alle øvelser foregår i vores hydraulik-lab.

**Andre bemærkninger**

Dette kursus er adgangsgivende til det videregående kursus: [Industrial Hydraulics - CETOP 2.](http://simac.dk/training%2Bc9-hydraulik%2B36-industrial_hydraulics_-_cetop_2%2C_uge_1)

**CETOP 1: Power Hydraulics**

**Purpose**

On the course Power Hydraulics - CETOP 1, the participant will receive basic theoretical knowledge and understanding of hydraulic systems and components, in order to assist in the maintenance and repair of hydraulic low and high-pressure systems. Furthermore, the participant will be able to construct hydraulic systems with piping and hoses based on complete hydraulic diagrams and connected system descriptions.

This course qualifies the participant for certification to CETOP 1.

 **Objectives**

At the end of the course, the participant should know the basic physical laws and their application. The participant will understand basic hydraulic systems design, and can read simple hydraulic diagrams and symbols. Furthermore, the participant can design simple hydraulic systems, and perform the adjustment of them.

The participant will understand the requirements for cleanliness for the equipment used, and how the requirements are applied in their installation, operation and maintenance.

The emphasis is on what each participant can achieve in terms of understanding of personal safety when working with hydraulics.

 **Target groups**

Staff who have little or no experience working with hydraulic systems.

 **Learning Methods**

The course is a mixture of theory and exercises, in which the theory will be tested in practice. Through practical exercises the participant will receive hands-on experience of the hydraulic systems and how the components work.

 **Contents**

Course includes the following topics:
- Fundamental principles.
- Hydraulic system construction.
- Components - function and operation.

- Design and manufacturing of pipes for hydraulic systems
- Hydraulic fluids.
- Cleanliness control.
- First line management.
- Maintenance procedures.

**Course duration**

The course duration is 3 days from 0830-1715.

**Exam**

When the course is satisfactorily completed, a course certificate is issued.

**Clothing**

SIMAC will provide a coat and goggles, but you will need to bring working clothes and safety shoes, since we are using our hydraulic lab for exercises.

**Additional information**

This course complies with the prerequisite for admission for the advanced course [Industrial Hydraulics – CETOP 2.](http://simac.dk/courses%2Bc9-hydralics%2B36-industrial_hydraulics_-_cetop_2%2C_2_weeks)

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|   | **Day 1** | **Day 2** | **Day 3** |
| **08.30-10.00** | Introduction | Hydraulic system construction and symbolic representation |   |
| Safety brief | Hydraulic fluids |
| Fundamental hydraulic principles  |   |
| **10.15-11.45** |   | Hydraulic system construction and symbolic representation | Contamination control |
| Fundamental hydraulic principles |
|   |
|   |
| **11.45-12.15** | Lunch | Lunch | Lunch |
| **12.15-13.45** | Operation of the major components used to construct a hydraulic system | Laboratory exercises | First line management of hydraulic systems – Inspection and safe isolation |
|   |
| **14.00-15.30** | Laboratory exercises  | Laboratory exercises | Laboratory exercises |
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| **15.45-17.15** | Laboratory exercises  | Laboratory exercises | Evaluation |
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