# CETOP 2: Industrial Hydraulics Certification test

## Formål

Dette kursus indeholder KUN en certifikat test, hvorunder kursisten skal demonstrere en grundlæggende teoretisk viden og forståelse for hydrauliske systemer og komponenter med henblik på at kunne varetage eftersyn, fejlfinding og reparation i hydrauliske lav- og højtryksanlæg.

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## Målsætninger

Efter kurset kender deltageren de fysiske begreber og deres anvendelse i hydrauliske systemer. Kursisten kan overskue større hydrauliske systemers opbygning, samt læse avancerede hydrauliske diagrammer og symboler. Endvidere kan kursisten opbygge hydrauliske systemer, samt indregulere disse efter behov.
Deltageren 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 gennemført [Power hydraulics - CETOP 1](http://simac.dk/training%2Bc9-hydraulik%2B35-power_hydraulics_-_cetop_1) , CETOP 2: Industrial Hydraulics Valves & Fluids og CETOP 2: Power Pack & Actuators eller har tilsvarende færdigheder.

## 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.

-        Hydrauliksystemets komponenter.

- Ventiltyper.

- Hydraulik væsker.

- Forurening og filtrering.

- Pumper.

- Tanke og tilhørende udstyr.

- Accumulatorer.

- Actuatorer.

-        Hydrauliske kredsløb og kontrolfunktioner.

**Kursuslængde**

Kurset har en længde af 2 kursus dage fra 0830 – 1715.

**Eksamen**

Kurset afsluttes med en 2 timers skriftlig eksamen, som bestås ved minimum 60 % korrekt besvarelse, samt 2 gange 6 timers praktisk hydraulisk opgave, som vurderes bestået eller ikke bestået.

Ved bestået kursus får deltageren et certifikat for Industrial Hydraulics CETOP 2.

**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 opfylder det generelle adgangskrav til CETOP 3 kurser.

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**Purpose**

This course ONLY holds a certification test, where the participant will have to demonstrate basic theoretical knowledge and understanding of hydraulic systems and components, in order to perform the maintenance, faultfinding and repair of hydraulic low and high-pressure systems.

 **Objectives**

At the end of the course, the participant should know the physical laws and their application. The participant will understand more complex hydraulic systems design, and can read advanced diagrams and symbols. Furthermore, the participant can design hydraulic systems, and perform the adjustment of them when needed. The participant will understand the requirements for cleanliness for the equipment used, and how the requirements are met 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 completed [Power hydraulics - CETOP 1](http://simac.dk/training%2Bc9-hydraulik%2B35-power_hydraulics_-_cetop_1), CETOP 2: Industrial Hydraulics Valves & Fluids and CETOP 2: Power Pack & Actuators or have equivalent skills.

 **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**

The course includes the following topics:
- Fundamental principles.
- Hydraulic system components.

- Valve types.
- Fluids and contamination control.

- Pumps.
- Reservoirs and auxiliary equipment.

- Accumulators.

- Actuators.
- Hydraulic circuits and control functions.

**Course duration**

The course duration is 2 days from 0830-1715.

**Exam**

The course includes a 2 hours written exam, which must be passed with at least 60% correct answers, and 2 times 6 hours practical hydraulic assignment, which is assessed as passed or failed.

When the exam is satisfactorily completed, an Industrial Hydraulics CETOP 2 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 general prerequisite for admission to CETOP 3 courses.

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|   | **Day 1** | **Day 2** |
| **08.30-10.00** | written test - ends 1030 |   |
| Practical test 2  |
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| **10.15-11.45** | Practical test 1 starts at 1045 | Practical test 2  |
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| **11.45-12.15** | Lunch | Lunch |
| **12.15-13.45** | Practical test 1  | Practical test 2  |
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| **14.00-15.30** | Practical test 1  | Practical test 2  |
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| **15.45-17.15** | Practical test 1  |  Evaluation |
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