# CETOP 2: Industrial Hydraulics Power Pack & Actuators

## Formål

På kurset Industrial Hydraulics Power Pack & Actuators får kursisten 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) 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.

- Pumper.

- Tanke og tilhørende udstyr.

- Accumulatorer.

- Actuatorer.

-        Hydrauliske kredsløb og kontrolfunktioner.

**Kursuslængde**

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

**Eksamen**

Der er ingen eksamen på dette kursus. Ved gennemført kursus får deltageren et kursusbevis for CETOP 2: Industrial Hydraulics Power Pack & Actuators.

**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 CETOP 2: Certification test.

# CETOP 2: Industrial Hydraulics Power Pack & Actuators

**Purpose**

At the course Industrial Hydraulics Power Pack & Actuators, the participant will receive 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) 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.
- Pumps.
- Reservoirs and auxiliary equipment.

- Accumulators.

- Actuators.
- Hydraulic circuits and control functions.

**Course duration**

The course duration is 3 days from 0830-1715.

**Exam**

The course does not includes an exam. When the course is completed, a CETOP 2: Industrial Hydraulics Power Pack & Actuators 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 to CETOP 2: Certification test.

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|   | **Day 1** | **Day 2** | **Day 3** |
| **08.30-10.00** | Introduction | Reservoirs and auxiliary equipment – Tank, coolers etc. |   |
| Safety brief | Accumulators |
| Fundamental hydraulic principles  |   |
| **10.15-11.45** |   | Pumps and associated control systems  | Hydraulic actuators - Motors - Cylinders - semi rotatary |
| Fundamental hydraulic principles |
| Automation studio |
|   |
| **11.45-12.15** | Lunch | Lunch | Lunch |
| **12.15-13.45** | Operation of the major components used to construct a hydraulic system | Pumps and associated control systems  | Circuitry and control features – Counterbalance, load holding - sequence valve |
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| **14.00-15.30** | Electrical symbols and electrical circuits. | Laboratory exercises | Laboratory exercises |
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| **15.45-17.15** | system analysis | Laboratory exercises | Laboratory exercises evaluation |
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