KURSPLAN
# Formmaterial i gjuteriteknik, 3 högskolepoäng

*Moulding Materials in Foundry Technology, 3 credits*

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| **Kurskod:** | TFGS22 | **Utbildningsnivå:** | Avancerad nivå |
| **Fastställd av:** | VD 2021-03-01 | **Utbildningsområde:** | Tekniska området |
| **Reviderad av:** | Utbildningschef 2022-01-20 | **Ämnesgrupp:** | MA2 |
| **Gäller fr.o.m.:** | 2022-08-01 | **Fördjupning:** | A1N |
| **Version:** | 2 | **Huvudområde:** | Produktutveckling |

## Lärandemål

After a successful course, the student shall:

Kunskap och förståelse
- show familiarity withthe complete range of different moulding materials used in foundry technology, including the various types of aggregates as refractory, inorganic and organic binder systems, coatings, additives, tools, etc.
- display knowledge of the most important mould and coremaking methods used in the foundries.

Färdighet och förmåga
- demonstrate skills of performing the significant quality control measurements of moulding aggregates and moulding mixtures.
- demonstrate the ability to evaluate these measurements and to produce relevant information for the casting manufacturing process.

Värderingsförmåga och förhållningssätt
- demonstrate the ability to choose the suitable type of moulding material/mould or core making method necessary for the manufacturing of different types of castings.

## Innehåll

This course provides a general overview of different moulding materials, mould/coremakig methods and quality control measurements. The main aim of the course is to enhance the knowledge by giving explanations to the mould and coremaking processes commonly employed.

The course includes the following topics
- Introduction to Moulding Materials
- Moulding Aggregates, Measurements of Sand Properties
- Chemically Bonded Systems: Cold and Thermosetting Processes, Quality Control
- Fundamentals of Green Sand Moulding, Quality Control
- Moulding and Coremaking Methods, Reclamation

## Undervisningsformer

Lectures, entry assignment, weekly quizzes, discussion forums, laboratory exercises.

Undervisningen bedrivs på engelska.

## Förkunskapskrav

Passed courses at least 90 credits within the major subject Mechanical Engineering, 15 credits Mathematics, and completed course in Component Casting, 6 credits, and proof of English proficiency is required (or the equivalent).

## Examination och betyg

Kursen bedöms med betygen 5, 4, 3 eller Underkänd.

Poängregistrering av examinationen för kursen sker enligt följande system:

| Examinationsmoment | Omfattning | Betyg |
|---|---|---|
| Examination[1] | 2 hp | 5/4/3/U |
| Laborationer[2] | 1 hp | U/G |

[1] Bestämmer kursens slutbetyg vilket utfärdas först när samtliga moment godkänts.

[2] Laboratory exercises are designed to cover a wide variety of the lecture materials, and also the individual topics. Passing all of the labs are mandatory to complete the course. Labs 1-2 will be online and Labs 3-4 will cover 1 day on campus.

## Övrigt

Laboratory exercises are designed to cover a wide variety of the lecture materials, and also the individual topics. Evaluation of laboratory exercises are graded with Pass (G) or Fail (U). Passing all of the labs are mandatory to complete the course. Labs 1-2 will be online and labs 3-4 will cover 1 day on campus.

## Kurslitteratur

The literature list for the course will be provided 8 weeks before the course starts.

Mandatory literature:

ASM Metals Handbook Volume 15, on-line available via the University Library
J.R. Brown - Foseco Ferrous and Non-ferrours Foundryman's Handbook
Lecture slides and additional literature provided in PingPong.

Reference literature:

Chemically Bonded Cores and Moulds - An Operator's Manual for the use of chemically bonded, self-setting sand mixtures - American Foundry Society
Principles of Sand Control - American Foundry Society
C.W. Ammen - The Complete Handbook of Sand Casting
J. Campbell - Complete Casting Handbook, 1st edition, Chapter 4, 15.