College of Management of Technology
Management of Technology Section

# Minor in
# Systems Engineering:

# Registration Form

**Deadline to register: end of the first semester of the master program**

**STUDENT'S PERSONAL INFORMATION**

Last name: .....

First name: .....

SCIPER: .....

E-mail address: .....

Section: .....  Current semester: .....

**I register for the Minor in Systems Engineering.**

**Date of beginning (semester/year):** .....

Place and date:  Signature:

## Please mail this form to:

- the secretariat of your section
- the secretariat of the MTE section:

EPFL CDM MTE
Odyssea Building
Station 5
CH-1015 Lausanne

# STUDY PLAN 2021 - 2022
# INTERDISCIPLINARY MINOR in SYSTEMS ENGINEERING
## Minor Advisor: prof. Th. Weber

## The minor must be done during the Master studies and requires to obtain 30 credits

**Legend**: A = Autumn, S = Spring / 1 semester = 14 weeks

***Lecturers, credits and course periods are subject to change***
***Courses already taken within the frame of the bachelor or master cannot be taken a second time in a minor***

| Codes | Courses | Lecturers | Course catalogue | Credits | Nb of places | Semester | | |
|---|---|---|---|---|---|---|---|---|
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| | **CORE COURSES** | | | | | | | |
| MICRO-570 | Advanced machine learning | Billard | MT | 4 | | | S | ☐ = ..... cr |
| MICRO-455 | Applied machine learning | Billard | MT | 4 | 300 | A | | ☐ = ..... cr |
| MGT-484 | Applied probability & stochastic processes | Sutter | MTE | 4 | | A | | ☐ = ..... cr |
| COM-502 | Dynamical system theory for engineers | Thiran P. | SC | 4 | | | S | ☐ = ..... cr |
| ENG-421 | Fundamentals in systems engineering 1) | de Weck/Gass | EL | 5 | | A | | ☐ = ..... cr |
| MATH-265 | Introduction to optimization and operations research | Lurkin | GC | 3 | | A | | ☐ = ..... cr |
| MGT-448 | Statistical inference and machine learning (not given in 2021-22) 2) | Kiyavash | MTE | 4 | | A | | ☐ = ..... cr |
| | | | | | | | | |
| | **DOMAIN-SPECIFIC COURSES** | | | | | | | |
| | **Industrial engineering** | | | | | | | |
| ME-416 | Fundamentals of computer aided manufacturing | Kyritsis | GM | 5 | | A | | ☐ = ..... cr |
| ME-516 | Lifecycle performance of product systems | Kyritsis/Friot | GM | 3 | | | S | ☐ = ..... cr |
| | | | | | | | | |
| | **Operations research** | | | | | | | |
| MGT-528 | Operations: economics & strategy | Weber | MTE | 4 | | A | | ☐ = ..... cr |
| MGT-483 | Optimal decision making | Kuhn | MTE | 4 | | | S | ☐ = ..... cr |
| MGT-526 | Supply chain management | Seifert | MTE | 4 | 60 | | S | ☐ = ..... cr |
| | | | | | | | | |
| | **Space systems engineering** | | | | | | | |
| EE-584 | Spacecraft design and system engineering | Foing | EL | 4 | | A | | ☐ = ..... cr |
| | | | | | | | | |
| | **Energy and process systems engineering** | | | | | | | |
| ME-451 | Advanced energetics | Maréchal | GM | 5 | | A | | ☐ = ..... cr |
| ME-454 | Modelling and optimization of energy systems | Maréchal | GM | 4 | | A | | ☐ = ..... cr |
| | | | | | | | | |
| | **Systems biology** | | | | | | | |
| BIO-463 | Genomics and bioinformatics | Rougemont | SV | 4 | | | S | ☐ = ..... cr |
| ChE-411 | Principles and applications of systems biology | Hatzimanikatis | CGC | 3 | | A | | ☐ = ..... cr |
| BIO-341 | Systèmes dynamiques en biologie | Naef | SV | 4 | | A | | ☐ = ..... cr |
| | | | | | | | | |
| | **Network systems engineering** | | | | | | | |
| MGT-416 | Causal inference | Kiyavash | MTE | 3 | | | S | ☐ = ..... cr |
| COM-514 | Mathematical foundations of signal processing | Bejar Haro/Simeoni | SC | 6 | | A | | ☐ = ..... cr |
| COM-512 | Networks out of control 2) | Thiran P./Grossglauser | SC | 4 | | | S | |
| | | | | | | | | |
| | **Control engineering** | | | | | | | ☐ = ..... cr |
| ME-524 | Advanced control systems | Karimi | GM | 3 | | | S | ☐ = ..... cr |
| ME-523 | Commande non linéaire | Müllhaupt | GM | 3 | | A | | ☐ = ..... cr |
| ME-425 | Model predictive control | Jones | GM | 4 | | A | | ☐ = ..... cr |
| ME-421 | System identification | Karimi | GM | 3 | | | S | |
| | | | | | | | | |
| | **Project** | | | | | | | ☐ = ..... cr |
| ENG-422 | Optional project in Systems engineering | Various lecturers | -- | 8 | | A or S | | ☐ = ..... cr |
| | | | | | | | | |

**Remarks :**

1) Recommended for everyone

2) Given every 2 years