

## Inscription au Mineur en Génie Mécanique / *Application to the Mechanical Engineering Minor*

Ce formulaire dûment complété est à envoyer pour signature **par email** :

1. Au responsable du mineur, Alain Prenleloup : [alain.prenleloup@epfl.ch](mailto:alain.prenleloup@epfl.ch)
2. Une fois signé, à la section de Génie Mécanique : [sgm@epfl.ch](mailto:sgm@epfl.ch)

*This form duly completed must be sent for signature, by e-mail:*

1. *To the minor's supervisor, Alain Prenleloup : [alain.prenleloup@epfl.ch](mailto:alain.prenleloup@epfl.ch)*
2. *Upon signature, to the Mechanical Engineering Section: [sgm@epfl.ch](mailto:sgm@epfl.ch)*

### Informations de l'Etudiant / Student information :

Je m'inscris au Mineur en Génie Mécanique et je certifie l'exactitude des informations fournies ci-dessous. /  
I am applying for the Mechanical Engineering Minor and certify that the information provided below is accurate.

|                                |                                                                                                                                                                |           |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Nom, prénom / Name, first name | Date                                                                                                                                                           | Signature |
| SCIPER                         | Semestre actuel/<br>Current semester<br><input type="checkbox"/> MA1 <input type="checkbox"/> MA2<br><input type="checkbox"/> MA3 <input type="checkbox"/> MA4 | Section   |

### IMPORTANT :

Sur la page suivante, veuillez inscrire la répartition des cours choisis pour atteindre les 30 crédits obligatoires à la validation du mineur, qui sera soumise à validation du responsable du mineur

**Pour toute modification à votre choix de cours**, veuillez compléter la 2<sup>e</sup> partie en indiquant quel(s) cours vous souhaitez supprimer, et quel(s) cours vous souhaitez rajouter.

*On the next page, please list the distribution of courses chosen to achieve the 30 credits required to validation the minor, which will be submitted for approval by the minor supervisor.*

**In case of changes**, please complete the second part, indicating which courses you wish to remove and which courses you wish to add.

Dans le présent document, le genre masculin est utilisé au sens neutre et désigne les femmes autant que les hommes.

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### Choix de cours / course selection

Minimum 30 crédits à choisir / *minimum 30 credits needed*

| Cours : Code – nom / courses : code - name                                  | Credits | Semestre |
|-----------------------------------------------------------------------------|---------|----------|
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| <i>Total des crédits (min. 30 crédits) / credit total (min. 30 credits)</i> |         |          |

### Validation du Responsable du Mineur / *Minor supervisor's approval*

Par sa signature, le responsable du mineur confirme accepter la répartition des crédits ci-dessus /  
*By his signature, the minor supervisor confirms that he accepts the credit repartition above*

|                                       |      |           |
|---------------------------------------|------|-----------|
| Nom, prénom / <i>Name, first name</i> | Date | Signature |
|                                       |      |           |

### Modification(s) du choix de cours / *Course selection change(s)*

| Cours supprimé(s) / <i>deleted course(s)</i> | Credits | date | Signature for approval |
|----------------------------------------------|---------|------|------------------------|
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| <b>Cours rajouté / <i>added course</i></b>   |         |      |                        |
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validé par la Vice-présidence académique le 19 juin 2025

Les cours déjà suivis au bachelor ou au master ne peuvent pas être pris également dans un mineur.

187 crédits offerts

| CODE                      | MATIERES                                                           | ENSEIGNANTS<br>sous réserve de<br>modification | LIVRET<br>DE<br>COURS | CREDITS<br>ECTS | NBRE<br>PLACES | PERIODE<br>DES COURS |     |
|---------------------------|--------------------------------------------------------------------|------------------------------------------------|-----------------------|-----------------|----------------|----------------------|-----|
|                           |                                                                    |                                                |                       |                 |                | AUT                  | PRI |
| Groupe "Mineur"           |                                                                    |                                                |                       | 30              |                |                      |     |
| Cours de base             |                                                                    |                                                |                       |                 |                |                      |     |
| ME-324                    | Commande numérique des systèmes                                    | Müllhaupt                                      | GM                    | 2               |                |                      | P   |
| ME-321                    | Control systems + TP                                               | Jones + Salzmann                               | GM                    | 4               |                | A                    |     |
| ME-311                    | Dynamique des systèmes mécaniques                                  | Schiffmann                                     | GM                    | 3               |                |                      | P   |
| ME-280                    | Fluid mechanics (for GM)                                           | Schneider                                      | GM                    | 4               |                |                      | P   |
| ME-390                    | Foundations of artificial intelligence                             | Kamgarpour                                     | GM                    | 3               |                | A                    |     |
| ME-341                    | Heat and mass transfer                                             | Tagliabue                                      | GM                    | 4               |                |                      | P   |
| ME-342                    | Introduction to turbomachinery                                     | Yim                                            | GM                    | 2               |                |                      | P   |
| ME-343                    | Mécanique des fluides compressibles                                | Gallaire                                       | GM                    | 4               |                |                      | P   |
| ME-332                    | Mécanique vibratoire                                               | Villanueva                                     | GM                    | 4               |                | A                    |     |
| ME-372                    | Méthode des éléments finis                                         | Gallaire                                       | GM                    | 3               |                | A                    |     |
| ME-371                    | Méthodes de discrétisation en fluides                              | Burzio                                         | GM                    | 3               |                |                      | P   |
| ME-373                    | Modélisation et simulation par éléments finis                      | Boujo                                          | GM                    | 3               | 120            |                      | P   |
| ME-320                    | Product development and engineering design                         | Hughes                                         | GM                    | 3               |                | A                    |     |
| ME-331                    | Solid mechanics                                                    | Botsis                                         | GM                    | 4               |                |                      | P   |
| ME-351                    | Thermodynamics and energetics II                                   | Raju Natarajan                                 | GM                    | 3               |                |                      | P   |
| Cours d'approfondissement |                                                                    |                                                |                       |                 |                |                      |     |
| ME-524                    | Advanced control systems                                           | Karimi                                         | GM                    | 3               |                |                      | P   |
| ME-451                    | Advanced energetics                                                | Maréchal/Orrego                                | GM                    | 5               |                | A                    |     |
| ME-465                    | Advanced heat transfer                                             | Haussener                                      | GM                    | 3               |                |                      | P   |
| ME-445                    | Aerodynamics                                                       | Mulleners                                      | GM                    | 4               |                | A                    |     |
| ME-435                    | Aéroélasticité et interaction fluide-structure                     | Farhat                                         | GM                    | 3               |                | A                    |     |
| ME-403                    | Applied mechanical design (pas donné en 2025-26)                   | Schiffmann                                     | GM                    | 5               | 40             | A                    |     |
| ME-481                    | Biomechanics of the cardiovascular system                          | Stergiopulos                                   | GM                    | 3               |                |                      | P   |
| ME-482                    | Biomechanics of the musculoskeletal system                         | Pioletti                                       | GM                    | 5               |                |                      | P   |
| ME-462                    | Cavitation et phénomènes d'interface                               | Farhat                                         | GM                    | 3               |                | A                    |     |
| ME-523                    | Commande non linéaire                                              | Müllhaupt                                      | GM                    | 3               |                | A                    |     |
| ME-498                    | Continuous improvement of manufacturing                            | Kaboli                                         | GM                    | 5               | 50             |                      | P   |
| ME-551                    | Engines and fuel cells                                             | van Herle                                      | GM                    | 4               |                | A                    |     |
| ME-459                    | Heat pump systems                                                  | Schiffmann                                     | GM                    | 3               |                |                      | P   |
| ME-453                    | Hydraulic turbomachines                                            | Vagnoni                                        | GM                    | 4               |                | A                    |     |
| ME-443                    | Hydroacoustic for hydropower plants                                | Nicolet                                        | GM                    | 3               |                |                      | P   |
| ME-444                    | Hydrodynamics                                                      | Gallaire                                       | GM                    | 5               |                |                      | P   |
| ME-466                    | Instability                                                        | Gallaire                                       | GM                    | 3               |                | A                    |     |
| ME-413                    | Introduction to additive manufacturing                             | Boillat/Brugger/Moser                          | GM                    | 3               |                | A                    |     |
| ME-464                    | Introduction to nuclear engineering                                | Scolaro                                        | GM                    | 2               |                |                      | P   |
| ME-446                    | Liquid-gas interfacial heat and mass transfer                      | Lu                                             | GM                    | 3               |                | A                    |     |
| ME-410                    | Mechanical product design and development                          | Paik                                           | GM                    | 5               | 30             | A                    |     |
| ME-411                    | Mechanics of slender structures                                    | Reis                                           | GM                    | 5               |                | A                    |     |
| ME-470                    | Mechanics of soft and biological matter (pas donné en 2025-26)     | Kim                                            | GM                    | 4               |                | A                    |     |
| ME-480                    | Mechanobiology: how mechanics regulate life (pas donné en 2025-26) | Persat/Sakar                                   | GM                    | 4               |                | A                    |     |
| ME-436                    | Micro/Nano robotics                                                | Sakar                                          | GM                    | 3               |                |                      | P   |
| ME-426                    | Micro/Nanomechanical devices                                       | Villanueva                                     | GM                    | 4               |                | A                    |     |
| ME-425                    | Model predictive control                                           | Jones                                          | GM                    | 4               |                | A                    |     |
| ME-454                    | Modelling and optimization of energy systems                       | Maréchal                                       | GM                    | 4               |                | A                    |     |
| ME-429                    | Multiagent decision-making and control                             | Kamgarpour                                     | GM                    | 4               |                |                      | P   |
| ME-422                    | Multivariable control                                              | Ferrari Trecate                                | GM                    | 4               |                | A                    |     |
| ME-469                    | Nano-scale heat transfer                                           | Tagliabue                                      | GM                    | 4               |                |                      | P   |
| ME-427                    | Networked control systems                                          | Ferrari Trecate                                | GM                    | 3               |                | A                    |     |
| ME-474                    | Numerical flow simulation                                          | Boujo                                          | GM                    | 5               |                | A                    |     |
| ME-484                    | Numerical methods in biomechanics                                  | Terrier                                        | GM                    | 3               |                |                      | P   |
| ME-419                    | Production management                                              | Kaboli                                         | GM                    | 5               |                | A                    |     |
| ME-460                    | Renewable energy (for ME)                                          | Haussener/van Herle                            | GM                    | 4               |                |                      | P   |
| ME-468                    | Solar energy conversion                                            | Haussener                                      | GM                    | 4               |                | A                    |     |
| ME-421                    | System identification                                              | Karimi                                         | GM                    | 3               |                |                      | P   |
| ME-458                    | Thermal power plants                                               | Van Herle                                      | GM                    | 3               |                |                      | P   |
| ME-467                    | Turbulence                                                         | Schneider                                      | GM                    | 5               |                |                      | P   |