

| Mechanical engineering (ME) |                  |   | ME     |                      |      |
|-----------------------------|------------------|---|--------|----------------------|------|
| Type                        | Module           | Nom complet   |        | Descriptif           | ECTS |
| TSM                         | TSM_AdvMech      | Advanced Structural Mechanics   | R      | <a href="#">Lien</a> | 3    |
| TSM                         | TSM_CSM          | Computational Structural Mechanics  | R      | <a href="#">Lien</a> | 3    |
| TSM                         | TSM_EcoSysSus    | Ecodesign of sustainable and efficient mechanical systems                     | R      | <a href="#">Lien</a> | 3    |
| TSM                         | TSM_FMechHeat    | Fluid Mechanics and Heat Transfer   | R      | <a href="#">Lien</a> | 3    |
| TSM                         | TSM_MatSurf      | Materials and Surfaces  | R      | <a href="#">Lien</a> | 3    |
| TSM                         | TSM_AdvTherm     | Advanced Thermodynamics   | O      | <a href="#">Lien</a> | 3    |
| TSM                         | TSM_Dynamics     | Structural Dynamics   | O      | <a href="#">Lien</a> | 3    |
| TSM                         | TSM_FundEnEn     | Fundamentals of Energy and Environment  | O      | <a href="#">Lien</a> | 3    |
| FTP                         | FTP_CompAlg      | Numerical Analysis and Computer Algebra                                       | R      | <a href="#">Lien</a> | 3    |
| FTP                         | FTP_OrdDiff      | Ordinary Differential Equations and Dynamical Systems                         | R      | <a href="#">Lien</a> | 3    |
| FTP                         | FTP_SmartMachine | Intelligent and hyperconnected machine  | R      | <a href="#">Lien</a> | 3    |
| FTP                         | FTP_AppStat      | Applied Statistics and Data Analysis  | O      | <a href="#">Lien</a> | 3    |
| FTP                         | FTP_Energy       | Energy: Production, Consumption and Management                                | O      | <a href="#">Lien</a> | 3    |
| FTP                         | FTP_MachLe       | Machine learning  | O      | <a href="#">Lien</a> | 3    |
| FTP                         | FTP_ModSim       | Modelling simulation and optimisation   | O      | <a href="#">Lien</a> | 3    |
| FTP                         | FTP_Multiply     | Multiphysics  | O      | <a href="#">Lien</a> | 3    |
| FTP                         | FTP_Optimiz      | Optimization  | O      | <a href="#">Lien</a> | 3    |
| FTP                         | FTP_PartDiff     | Partial differential equations in engineering applications                    | O      | <a href="#">Lien</a> | 3    |
| FTP                         | FTP_Physics      | The Physics of Materials and Engineering Devices                              | O      | <a href="#">Lien</a> | 3    |
| CM                          | CM_QRM           | Quality and Risk Management   | O      | <a href="#">Lien</a> | 3    |
| CM                          | CM_AcWritPre     | Academic Writing and Presenting   | O      | <a href="#">Lien</a> | 3    |
| CM                          | CM_AdvProjMgmt   | Advanced project management   | O      | <a href="#">Lien</a> | 3    |
| CM                          | CM_CmplPro       | Management of Complex Processes   | O      | <a href="#">Lien</a> | 3    |
| CM                          | CM_Entrepr       | Corporate management and entrepreneurship                                     | O      | <a href="#">Lien</a> | 3    |
| CM                          | CM_InnChang      | Innovations and change management   | O      | <a href="#">Lien</a> | 3    |
| CM                          | CM_PrivLaw       | Privacy and Law   | O      | <a href="#">Lien</a> | 3    |
| CM                          | CM_SustDev       | Sustainable developments  | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_AdvFemNL      | Advanced and Nonlinear FEM Simulation   | R      | <a href="#">Lien</a> | 3    |
| MA                          | MA_AMTO          | Additive Manufacturing & Topology Optimisation                                | R      | <a href="#">Lien</a> | 3    |
| MA                          | MA_CFD           | Computational Fluid Dynamics  | R      | <a href="#">Lien</a> | 3    |
| MA                          | MA_EMR           | Efficient Mechanical Redesign   | R      | <a href="#">Lien</a> | 3    |
| MA                          | MA_IMP           | Integrated and Pluridisciplinary Mechanics                                    | R      | <a href="#">Lien</a> | 3    |
| MA                          | MA_PAMPA         | Powder based Advanced Materials Processing and Applications                   | R      | <a href="#">Lien</a> | 3    |
| MA                          | MA_PLM           | Product Lifecycle Management  | R      | <a href="#">Lien</a> | 3    |
| MA                          | MA_VibrAcoust    | Applied Vibration and Acoustics   | R      | <a href="#">Lien</a> | 3    |
| MA                          | MA_AdMa          | Advanced Manufacturing  | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_AppMic        | Applied MicroNanotechnologies   | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_BioCI         | Capteurs et instrumentation en bio-ingénierie                                 | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_EXPLT         | Exploitation de l'énergie   | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_GPL           | Gestion de production et logistique   | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_HYBRD         | Systèmes hybrides   | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_HYDR          | Hydraulique   | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_INTE1         | Optimisation énergétique  | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_MSM           | Méthodologie de sélection des matériaux                                       | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_PGE           | Poly-génération d'Energie   | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_SecuFS        | Sécurité et fiabilité des systèmes  | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_SIMI          | Simulation multiphysique en ingénierie  | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_SOC1          | Systèmes optiques de contrôle industriel                                      | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_SOLTH         | Solaire thermique   | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_STOCK         | Stockage de l'énergie   | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_TMA           | Fluid Mechanics and Thermodynamics of Turbomachinery                          | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_TTS           | Technologie des Traitements de Surface  | O      | <a href="#">Lien</a> | 3    |
| MA                          | MA_VERB          | Valorisation Energétique de la Biomasse: procédés durables et biocombustibles | O      | <a href="#">Lien</a> | 3    |
| PA                          | PA               | Projet d'Approfondissement  | Oblig. |                      | 6    |
| PI                          | PI_ME            | Projet Interdisciplinaire en groupe   | Oblig. |                      | 6    |
| TM                          | TM               | Travail de Master   | Oblig. |                      | 30   |

## Légende

|     |                                     |
|-----|-------------------------------------|
| TSM | Modules Technico-Scientifiques      |
| FTP | Principes Théoriques Fondamentaux   |
| CM  | Modules Contextuels                 |
| MA  | Modules d'Approfondissement         |
| MAP | Modules d'Apprentissage par Projet  |
| PA  | Projet d'Approfondissement          |
| PI  | Projet Interdisciplinaire en groupe |
| TM  | Travail de Master                   |
| R   | Module Recommandé                   |
| O   | Module Optionnel                    |

Sous réserve de modifications