

## Tribology: contact - friction - lubrication - wear

ECTS	Course (h)
3	18

<b>Mention du master transmettant la fiche UE :</b>	<b>Chimie et Sciences des Matériaux</b>
<b>Composante de gestion de l'UE :</b>	<b>Faculté des Sciences – Département de Chimie</b>
<b>Responsable de l'UE :</b>	<b>Vincent FRIDRICI</b>
<b>Statut du responsable :</b>	<b>MCF</b>

### **REQUIREMENTS**

Basic knowledge in mechanical properties of materials (elasticity, plasticity, traction curve)

### **PROGRAMM**

- Introduction to tribology, surfaces, contacts
- Mechanics and physical-chemistry of contact
- Friction - adhesion
- Liquid and solid lubrication
- Different lubrication regimes: HD, EHD, mixed, limit
- Lubricants and additives
- Wear / tribological damage: mechanisms, quantification
- Characterization of rubbed/worn surfaces: mechanical, physical-chemical and topographical
- Experimentation in tribology. Test devices and tribological maps
- Applications of tribology to transportation and health

Work in autonomy in group of 2 students on a bibliographic survey

### **SPECIFIC SKILLS**

- Transversal skills: Perform a bibliographic survey
- Specific skills: Understand the tribological behavior of contacts, in dry and lubricated conditions