

Materials Science II 2017/2018

 Lectures: **Monday 12:30 – 14:00, room KN: A-313**

 Lecturers: prof. Dr. Ing. Libor Beneš, IWE libor.benes@fs.cvut.cz BEN
 Ing. Jakub Horník, Ph.D. jakub.hornik@fs.cvut.cz HOR

| | Date | Lecturer | Lecture |
|----|------------|----------|--|
| 1 | 02.10.2017 | BEN | Introduction, application of materials (examples) |
| 2 | 09.10.2017 | BEN | Iron-carbon alloys and influence of other elements |
| 3 | 16.10.2017 | HOR | Fundamentals of metallurgy (classical metallurgical processes, special metallurgical processes) |
| 4 | 23.10.2017 | HOR | Phase transformations in ferrous alloys (austenitization, pearlitic, bainitic and martensitic transformation, tempering, T-T-T diagrams) |
| 5 | 30.10.2017 | BEN | Heat treatment of ferrous alloys (annealing, quenching, face hardening) |
| 6 | 06.11.2017 | BEN | Heat treatment in controlled atmospheres (carburizing, nitriding, carbonitriding, nitrocarburizing) and hot working |
| 7 | 13.11.2017 | HOR | Cast irons |
| 8 | 20.11.2017 | HOR | Tool steels |
| 9 | 27.11.2017 | BEN | Nonferrous metals and their alloys, processing |
| 10 | 04.12.2017 | BEN | Polymeric materials; Composites and processing |
| 11 | 11.12.2017 | HOR | Classification of steels and their designation |
| 12 | 18.12.2017 | HOR | Powder metallurgy and applications, technical ceramics |
| 13 | 08.01.2018 | BEN | Selection (design) of materials |
| 14 | 15.01.2018 | HOR | UNGRADED ASSESSMENT / 1st TERM OF EXAM |

 Laboratory works: **Tuesday 17:45 – 19:15, room KN: B-37, KN: B-40**

 Course tutor: Ing. Jan Krčil jan.krčil@fs.cvut.cz KRC
 Ing. Vladimír Mára vladimir.mara@fs.cvut.cz MAR

| | Date | Laboratory works course tutor / topic | |
|----|------------|--|--|
| | | KRC | MAR |
| 1 | 03.10.2017 | Introductory | Introductory |
| 2 | 10.10.2017 | Grain size | Equilibrium structures |
| 3 | 17.10.2017 | Equilibrium structures | Grain size |
| 4 | 24.10.2017 | Hardenability of steels | Hardness of carburized layer |
| 5 | 31.10.2017 | Hardness of carburized layer | Hardenability of steels |
| 6 | 07.11.2017 | Individual semester work check, diagrams | Individual semester work check, diagrams |
| 7 | 14.11.2017 | Cast Irons | Precipitation hardening of Al alloys |
| 8 | 21.11.2017 | Precipitation hardening of Al alloys | Cast Irons |
| 9 | 28.11.2017 | Flexural modulus of composites | Tensile testing of plastics |
| 10 | 05.12.2017 | Tensile testing of plastics | Flexural modulus of composites |
| 11 | 12.12.2017 | Presentation of semester work | Presentation of semester work |
| 12 | 19.12.2017 | Presentation of semester work | Presentation of semester work |
| 13 | 09.01.2018 | UNGRADED ASSESSMENT | UNGRADED ASSESSMENT |