| AUTOMOTIVE MATERIALS | | | | | | | | | |
|----------------------|--|---|---|--|--|--|--|--|--|
| 1 | Course Title: | AUTOM | OTIVE MATERIALS | | | | | | |
| 2 | Course Code: | OTO402 | 1 | | | | | | |
| 3 | Type of Course: | Optional | | | | | | | |
| 4 | Level of Course: | First Cyc | le | | | | | | |
| 5 | Year of Study: | 4 | | | | | | | |
| 6 | Semester: | 7 | | | | | | | |
| 7 | ECTS Credits Allocated: | 4.00 | | | | | | | |
| 8 | Theoretical (hour/week): | 3.00 | | | | | | | |
| 9 | Practice (hour/week): | 0.00 | | | | | | | |
| 10 | Laboratory (hour/week): | 0 | | | | | | | |
| 11 | Prerequisites: | None | | | | | | | |
| 12 | Language: | Turkish | | | | | | | |
| 13 | Mode of Delivery: | Face to f | ace | | | | | | |
| 14 | Course Coordinator: | Prof. Dr. | RUKİYE ERTAN | | | | | | |
| 15 | Course Lecturers: | Yok | | | | | | | |
| 16 | Contact information of the Course Coordinator: | Prof. Dr. Rukiye Ertan e-mail: rukiye@uludag.edu.tr Tel: + 90 (224) 294 06 53 Adres: Uludağ Üniversitesi, Mühendislik Fakültesi, Otomotiv Mühendisliği Bölümü, 16059, Görükle-Bursa, Türkiye. | | | | | | | |
| 17 | Website: | None | | | | | | | |
| 18 | Objective of the Course: | Giving information about the types of materials and the structure and mechanical properties of these materials used in automotive industry. | | | | | | | |
| 19 | Contribution of the Course to Professional Development: | Knows the materials and alternatives used in the design and manufacture of automotive parts and can select the optimum material. | | | | | | | |
| 20 | Learning Outcomes: | | | | | | | | |
| | | 1 | Knows the types and properties of materials used in automotive industry. | | | | | | |
| | | 2 | Can determine which material can be used in which part. | | | | | | |
| | | 3 | Knows the properties of metal, polymer and composite materials. | | | | | | |
| | | 4 | Knows the methods of testing and manufacturing of materials and parts used in automotive. | | | | | | |
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| | | 9 | | | | | | | |
| | Course Contents | 10 | | | | | | | |
| 21 | | | | | | | | | |
| Maak | Theoretical | U | Practice | | | | | | |
| 1 veek | Automotive materials overview | | | | | | | | |
| 2 | Material selection in automotive | | | | | | | | |
| 2 | Iron-based materials | | | | | | | | |
| 3 | non-based materials | | | | | | | | |

| 4 | Cast | t iron | s | | | | | | | | | | | | | | | |
|---|--|--------------------------|-------|-------|-----|-----|-----|--|--|------|----------|-----------------|---------|----------|---------------------------|-------|------|--|
| 5 | Steel alloys | | | | | | | | | | | | | | | | | |
| 6 | Heat treatment of steels | | | | | | | | | | | | | | | | | |
| 7 | Alun | Aluminum and its alloys | | | | | | | | | | | | | | | | |
| 8 | Mag | Magnesium and its alloys | | | | | | | | | | | | | | | | |
| 9 | Titar | Titanium and its alloys | | | | | | | | | | | | | | | | |
| 10 | Poly | Polymer materials | | | | | | | | | | | | | | | | |
| 11 | Polymer materials | | | | | | | | | | | | | | | | | |
| 12 | Composites | | | | | | | | | | | | | | | | | |
| 13 | Destructive material test methods | | | | | | | | | | | | | | | | | |
| 14 | Non-destructive material test methods | | | | | | | | | | | | | | | | | |
| | | | | | | | | | _ | | | | | | | | | |
| 22 | Textbooks, References and/or Other Materials: | | | | | | | 1. Dr Uy 2. "S Ec 3. en 4. Er 20 5. | Prof. Dr. Fehim Findik, Prof. Dr. Sefer Cem Okumuş, Dr. Öğr. Üyesi Murat Çolak , 'Malzeme Seçimi ve Uygulamaları', Seçkin Yayınevi, 2.baskı, 2016 Charles, J.A., Crane, F.A.A. and Furnes, J.A.G. "Selection and Use of Engineering Materials", Reed Educational and Professional Publishing Ltd., 1999. Kalpakjian, Serope "Manufacturing processes for engineering materials" New Jersey : Prentice Hall , 2003. Rowe, Jason "Advanced Materials in Automotive Engineering", Woodhead Publishing in Materials, Elsevier, 2012 Davies, Geoffrev "Materials for Automobile | | | | | | | | | |
| Activit | Activites | | | | | | | Number | | | Dura | Duration (hour) | | | Total Work Load (hour) | | | |
| Theore | tical | am | | | | | 1 | | 30 | 140 | | | 3.00 | | | 42.00 | | |
| Practicals/Labs | | | | | | 0 | | | 0.00 | 0.00 | | | 0.00 | | | | | |
| Self_sty | ldy a | nd pr | epera | ition | | | 1 | | | 140 | | | 2.00 | | _ | 28.00 | | |
| Homew | lomeworks | | | | | | | 2 | | | 20.00 | 20.00 | | | 40.00 | | | |
| ₽ roject | ects 2 | | | | | | | | 100.00 | | | 0.00 | 0.00 | | | 0.00 | | |
| Field S | Studies | | | | | | | | 1 | | | 3.00 | 3.00 | | | 3.00 | | |
| Stuctcers | læras Exarde | | | | | | | | 1 2.5 | | | 2.50 | 2.50 | | | 2.50 | | |
| Others | ers | | | | | | | | | 0 | | | 0.00 | 0.00 | | | 0.00 | |
| Final E | Exams | | | | | | | | 100.00 | | | 2.50 | 2.50 | | | 2.50 | | |
| Total W | Vork I | oad | | | | | | | | | | | | 120.5 | | | | |
| Cotalse | severk load/ 30 hr | | | | | | ho | homework and final exam grades. | | | | | 3.93 | | | | | |
| ECTS (| CTS Credit of the Course | | | | | | | | | | | | | 4.00 | | | | |
| 25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS | | | | | | | | | | | | | | | | | | |
| | 1 | PQ1 | PQ2 | PQ3 | PQ4 | PQ5 | PQ6 | PQ7 | PQ8 | PQ9 | PQ1 0 | PQ11 | PQ12 | PQ1 3 | PQ14 | PQ15 | PQ16 | |
| ÖK1 | ; | 3 | 1 | 4 | 1 | 2 | 4 | 5 | 3 | 3 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | |
| ÖK2 | 1 | 3 | 1 | 4 | 1 | 2 | 4 | 5 | 3 | 3 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | |
| ÖK3 | | 3 | 1 | 4 | 1 | 2 | 4 | 5 | 3 | 3 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | |
| ÖK4 | : | 5 | 1 | 5 | 1 | 2 | 4 | 5 | 3 | 3 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | |
| | LO: Learning Objectives PQ: Program Qualifications | | | | | | | | | | rogra | ım Qu | alifica | tions | | | | |

| Contrib | 1 very low | 2 low | 3 Medium | 4 High | 5 Very High |
|---------|------------|-------|----------|--------|-------------|
| ution | | | | | |
| Level: | | | | | |