İnşaat Mühendisliği Bölümü / İnşaat Mühendisliği Bölümü / Lisans (%100 İngilizce)

| Ders Kodu | Ders Adı | Teorik | Uygulama | Laboratuvar | Yerel Kredi | AKTS |
|---|---|---|---|---|---|---|
| CE440 | MALZEME TASARIMI | 2,00 | 2,00 | 0,00 | 3,00 | 7,00 |

Ders Detayı

| | | |
|---|---|---|
| **Dersin Dili** | : | İngilizce |
| **Dersin Seviyesi** | : | Lisans |
| **Dersin Tipi** | : | Seçmeli |
| **Ön Koşullar** | : | Var |
| **Dersin Amacı** | : | The aim of this course is to introduce students to the techniques developed on the conformity assessment and project design of materials of different origins in the production of products used and/or applied as building materials in the construction industry. |
| **Dersin İçeriği** | : | This module is about the examination of new generation natural, artificial or semi-artificial aggregate materials in terms of use conditions and performance criteria in the production of building materials. |
| **Dersin Kitabı / Malzemesi / Önerilen Kaynaklar** | : | EN ISO 12571 Hygrothermal performance of building materials and products - Determination of hygroscopic sorption properties. 2. A. Korjenic, J. Dreyer, S. Stastnik, J. Zach, Warmedammsysteme aus Recyclingmaterialien und ihre thermisch-hygrischen Eigenschaften, 12th Symposium fot Building Physics, Dresden 2007, ISBN 978-3-86005-564-9 High Performance Thermal Insulation Systems - Vacuum Insulated Products (VIP) Proceedings of the International Conference and Workshop EMPA Duebendorf, (january 22-24, 2001) R. Caps, J. Fricke. 'Thermal Conductivity of Opacified Powder Filler Materials for Vacuum Insulations', International Journal of Thermophysics, 21, 2, (2000), 445–452. R. Caps, U. Heinemann, M. Ehrmanntraut, J. Fricke, 'Evacuated Insulation Panels Filled with Pyrogenic Silica Powders: Properties and Application', High-Temperatures-High Pressures, 33, (2001), 151-156 European Standard EN 1602, 'Thermal insulating products for building applications - Determination of the apparent density', www.cenorm.be S.J. Gregg & K.S.W Sing : Adsorption, Surface Area and Porosity, Academic Press (1982) ISO Standard 9277, 'Determination of the specific surface area of solids by gas adsorption using the BET method, www.iso.ch R. Pirard, A. Rigacci, J.C. Maréchal, D. Quenard, B. Chevalier, P. Achard, J.P. Pirard – 'Characterization of hyperporous polyurethane-based gels by non-intrusive mercury porosimetry' Polymer, 44, (2003), 4881-4887 European Standard EN ISO 12571, 'Hygrothermal performance of building materials and products – Determination of hygroscopic sorption properties' IEA Annex 39, 'HIPTI : High Performance Thermal Insulation', www.ecbcs.org/annexes/annex39.htm S.J. Gregg & K.S.W. Sing, Adsorption, Surface Area and Porosity, (Academic Press, 1982) A.W. Adamson & A.P. Gast, Physical Chemistry of Surface, 6th Ed (John Wiley & Sons, 1997). D. Quenard, D. Giraud, F.D. Menneteau, H. Sallée, 'Heat transfer in packing of cellular pellets: microstructure and apparent thermal conductivity', High Temperaturs-High Pressures, (1998), 30, 1998, 709-715, Presented at the 14th European Conference on Thermophysical Properties, September 16-19, 1996 –Lyon – Villeurbanne, France S.Q. Zeng, A. Hunt, R. Greif, 'Transport properties of gas in silica aerogel', Journal of NonCrystalline Solids, 186, (1995), 264-270 M. Quinn Brewter : Thermal Radiative Transfer and Properties, A Wiley-Interscience Publication, John Wiley & Sons, Inc, (1992) R. Siegel & J.R. Howel, 'Thermal Radiation Heat Transfer, Hemisphere Publishing Corporation, Taylor & Francis Group, (1981) A. Rigacci, B. Ladevie, H. Sallee, B. Chevalier, P. Achard, O. Fudym, 'Measurements of comparative apparent thermal conductivity of large monolithic silica aerogels for transparent superinsulation applications', High Temperatures-High Pressures, 34, 5, (2002), 549-559 European Standard EN 993-15, Methods of test for dense shaped refractory products - Part 15: Determination of thermal conductivity by the hot-wire (parallel) method R. Caps, U.Heinemann, J.Fricke, P. Randel, 'Application of Vacuum Insulation in Buildings, VIA Symposium : Progress in vacuum insulation, Vancouver, (june 2000). U. Heinemann, R. Caps, J. Fricke, 'Characterization and Optimisation of filler materials fro vacuum s uper insulation', VUOTO, vol XXVIII, N. 1-2 – Gennaio-Giugno, (1999). |
| **Planlanan Öğrenme Etkinlikleri ve Öğretme Yöntemleri** | : | Following the literature, Effective use of the computer, Having detailed information on a unique subject, Learning and planning material testing and analysis methods, Evaluation and processing of research results, Transforming research results into articles and manuscripts, Making projects on building materials and designs as an engineer, and making technical Ability to approach problems, teamwork and interdisciplinary research. |
| **Ders İçin Önerilen Diğer Hususlar** | : | None |
| **Dersi Veren Öğretim Elemanları** | : | Prof. Dr. Lütfullah Gündüz |
| **Dersi Veren Öğretim Elemanı Yardımcıları** | : | None |
| **Dersin Verilişi** | : | Each topic is theoretically presented with detailed explanations. Technical methods and design models, analysis methods included in these explanations are also supported by sample project studies. |
| **En Son Güncelleme Tarihi:** | : | 5.08.2023 13:55:33 |

Ders Öğrenme Çıktıları

**Bu dersi tamamladığında öğrenci :**

1 Öğrenciler, yapı malzemelerinin üretim özelliklerini ve yapıdaki işlevini kavrayabileceklerdir

2 Öğrenciler, yapı malzemelerini amaçları doğrultusunda kullanarak, problemlere kalıcı ve gerçekçi çözümler üretebileceklerdir.

3 Öğrenciler, yapı malzemeleri üretimi ile ilgili problemleri tanımlama, analiz etme ve çözme becerisine sahip olabileceklerdir.

4 Öğrenciler, yapı malzemeleri üretimlerinde ortaya çıkan gelişmelere uygun olarak hayat boyu ögrenme yeteneğine sahip olacaklardır

5 Öğrenciler yapı malzemelerinin üretm yöntemlerinin irdelenmesinde yeterli tecrübeye sahip olabileceklerdir.

Ön Koşullar

| Ders Kodu | Ders Adı | Teorik | Uygulama | Laboratuvar | Yerel Kredi | AKTS |
|---|---|---|---|---|---|---|
| CE341 | YAPI MALZEMELERİ | 2,00 | 0,00 | 2,00 | 3,00 | 5,00 |

Haftalık Konular ve Hazırlıklar

| | Teorik | Uygulama | Laboratuvar | Hazırlık Bilgileri | Öğretim Metodları | Dersin Öğrenme Çıktıları |
|---|---|---|---|---|---|---|
| 1.Hafta | *Definitions, Concepts and General Introduction | | | | | |
| 2.Hafta | *Overview of Next Generation Aggregates | | | | | |
| 3.Hafta | *Use of Natural Aggregates_Overview | | | | | |
| 4.Hafta | *Usage of Artificial Aggregates_Overview | | | | | |
| 5.Hafta | | *Natural Aggregate Material Production Design_1 | | | | |
| 6.Hafta | | *Natural Aggregate Material Production Design_2 | | | | |
| 7.Hafta | | *Natural Aggregate Material Production Design_3 | | | | |
| 8.Hafta | | *Artificial Aggregate Material Production Design_1 | | | | |
| 9.Hafta | | *Artificial Aggregate Material Production Design_2 | | | | |
| 10.Hafta | | *Artificial Aggregate Material Production Design_3 | | | | |
| 11.Hafta | *Material Design Projecting_1 | | | | | |
| 12.Hafta | *Material Design Projecting_2 | | | | | |
| 13.Hafta | | *Material Design Project Implementation _1 | | | | |
| 14.Hafta | | *Material Design Project Implementation _2 | | | | |

Değerlendirme Sistemi %

2 Final : 60,000

3 Vize : 40,000

AKTS İş Yükü

| Aktiviteler | Sayı | Süresi(Saat) | Toplam İş Yükü |
|---|---|---|---|
| Vize / Midterms | 1 | 25,00 | 25,00 |
| Final / Final | 1 | 40,00 | 40,00 |
| Derse Katılım / Attending lectures | 13 | 4,00 | 52,00 |
| Laboratuvar / Laboratory | 7 | 4,00 | 28,00 |
| Ara Sınav Hazırlık / Preparation for midterm | 1 | 15,00 | 15,00 |
| Araştırma Sunumu / Research presentation | 1 | 35,00 | 35,00 |
| Ev Ödevi / Homework | 1 | 20,00 | 20,00 |
| | | Toplam : | 215,00 |
| | | Toplam İş Yükü / 30 ( Saat ) : | 7 |
| | | AKTS : | 7,00 |

Program Öğrenme Çıktısı İlişkisi

| | P.Ç. 1 | P.Ç. 2 | P.Ç. 3 | P.Ç. 4 | P.Ç. 5 | P.Ç. 6 | P.Ç. 7 | P.Ç. 8 | P.Ç. 9 | P.Ç. 10 | P.Ç. 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ö.Ç. 1 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ö.Ç. 2 | 0 | 0 | 0 | 0 | 0 | 5 | 4 | 0 | 0 | 0 | 0 |
| Ö.Ç. 3 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 0 |
| Ö.Ç. 4 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 4 |
| Ö.Ç. 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 |