

KMU381 Mesleki İngilizce I (Professional English I) [1-8]

References:

1. YDI339 Technical English For Chemical Engineers Ders Notları (2012)
2. Akar N. Z., Özkan Y., Tarhan Ş. (2005) "Language and Communication Skills After Graduation"
3. Öniz A.S. and Cross T.M. (1981)"Physical Science Reader Series" Volume I, Middle East Technical University Ankara, Turkey.
4. Glendinning E. and Mantell H., (1983), "Write Ideas", Longman Group Limited
5. Shreve N.R., Brink J. A. Jr. (1977),"Chemical Process Industries, Mc Graw-Hill, London
6. Shreve N.R., Brink J.A.Jr. (Çeviri: Çataltaş A.İ.), 1985 Kimyasal Proses Endüstrileri I, İnkilap Kitabevi, İstanbul
7. McCabe W.L., Smith J.C. and Harriott P., 1985, Unit Operations of Chemical Engineering, Mc.GrawHill Book Company, NewYork.
8. Kimya Mühendisliği Ünit Operasyonları, 1981, McCabe-Smith'den Çeviren: Prof. Dr. Emir Gülbaran, İ.T.Ü.Mühendislik Mimarlık Fakültesi Yayınları,sayı 137, Matbaa Tek. Koll. ŞTİ, İstanbul

Introduction, Passage reading and translation, Sentence comprehension, finding the facts [1-8]

Give the same information of the following paragraph in other words?

« Some people argue that the huge coal reserves in some countries make the search for new sources of energy less urgent. But this is not facing the facts. They forget that new demands will almost certainly be made on our coal reserves as a source of plastics. Coal is much too valuable to burn. “

Answer: “Coal reserves are huge but, as a valuable source of raw material for plastics, coal should not be wasted.”

»[1-2]

»[1-2]

Eric Glendinning and Helen Mantell, Write Ideas ,Longman Group Limited 1983

Complete the paragraph with the words in the list. Use each word only once

(match indicates alternative source available contrast electricity stored sited requirements)

« The role of **alternative** energy sources, such as solar energy, wave power and wind power, has been researched in many countries. Studies in the USA have suggested that solar energy could provide 20% of US heating and cooling **requirements** by the end of the century. The same research **indicates** that in several countries, including Britain, wind power might be of value. Wave power could also be an important **source** of electrical energy.

Of these sources, solar energy in the northern hemisphere is most **available** when it is least needed- in the middle of the day and in summer. Moreover existing methods of energy transfer for solar power are relatively inefficient. If long-term storage could be devised so that energy available in peak periods of supply could be **stored** for use in peak periods of demand, much greater use could be made of solar power. In **contrast**, wave and wind power availability **match** the curve of energy demand i.e. the winds are strongest and the tides are highest during the winter. For the present, wind power is by far the cheapest of these alternative sources. It requires, however, aero-generators, as big as **electricity** pylons, which would be **sited** along coastlines, where they could be very ugly. »1-2

»1-2

Eric Glendinning and Helen Mantell, Write Ideas ,Longman Group Limited 1983

What is the following paragraph about?

»1-1

“Why is concrete more common than other construction materials? First, concrete becomes stronger as time passes. That is, old concrete is stronger than new concrete. For example, a concrete building becomes six times stronger in one year. Second, a concrete building does not have to be a certain shape. Builders can form concrete into various shapes because it is not originally a solid like wood and steel. Third, concrete is less expensive than many other construction materials.”

»1-1

»1-1

A.Suzan Öviz and Dr. Toni M. Cross , Physical Science Reader Series Volume I, Middle East Technical University Ankara, Turkey, 1981

Complete the paragraph with the words in the list. Use each word only once.

(relatively, available, solar, existing, stored, contrast)

«

Of these sources, solar energy in the northern hemisphere is most available when it is least needed- in the middle of the day and in summer. Moreover existing methods of energy transfer for solar power are relatively inefficient. If long-term storage could be devised so that energy available in peak periods of supply could be stored for use in peak periods of demand, much greater use could be made of solar power. In contrast, wave and wind power availability match the curve of energy demand i.e. the winds are strongest and the tides are highest during the winter.

»1-2

»1-2 Eric Glendinning and Helen Mantell, Write Ideas ,Longman Group Limited 1983

reading and translation

«

The steady-state behaviour of binary and multicomponent packed distillation columns is simulated using two film plug flow and back-mixing models. Orthogonal collocation on finite elements is demonstrated to be a powerful and efficient method of solution of these models. Close agreement is obtained with experimental results reported by other workers suggesting that the procedures described form a good basis for column design.

»[13]

[13]

Wardle A.P., Hapoğlu H. (1994)
"On The Solution of Models of Binary and Multicomponent Packed Distillation Columns Using Orthogonal Collocation on Finite Elements",
Chemical Engineering Research and Design, Vol. 72, Part A, 551-564

İki film piston akış ve geri karışmalı modeller kullanılarak, ikili ve çok bileşenli distilasyon kolonlarının yatışkın haldeki çalışma davranışının benzetimi gerçekleştirilmiştir. Sonlu elementler üzerine ortogonal kolokasyon tekniğinin, bu modeller için etkili ve verimli bir çözüm yöntemi olduğu gösterilmiştir. Elde edilen sonuçlar ile yaptıkları çalışmaların kolon tasarımı için iyi bir temel oluşturduğunu ileri süren diğer araştırmacıların bildirdiği deney sonuçları arasında, iyi bir uyum olduğu gözlenmiştir.

Bazı Kelimelerin Türkçe Tercümeleri

orthogonal collocation : ortogonal kolokasyon
finite elements : sonlu elementler

**İkili ve Çok Bileşenli Damıtma Kolon Modellerinin Çözümünde
Sonlu Elementler Üzerine Ortogonal Kolokasyon Yönteminin Kullanılması**
(On The Solution of Models of Binary and Multicomponent Packed Distillation Columns
Using Orthogonal Collocation on Finite Elements)

[13]

Wardle A.P., Hapoğlu H. (1994)
"On The Solution of Models of Binary and Multicomponent Packed Distillation
Columns Using Orthogonal Collocation on Finite Elements",
Chemical Engineering Research and Design, Vol. 72, Part A, 551-564

Bir Ceketli İyi Karıştırmalı Reaktörün Tanımlanması ve Doğrusal Olmayan Kutup Yerleştirmeli Kendinden Ayarlamalı PID Kontrolü

(Identification and Nonlinear Pole Placement Self Tuning PID Control of a Jacketed Well Mixed Reactor) [16]

Özkan G., Hapoğlu H., Albaz M. (1998)

"Identification and Nonlinear Pole Placement Self Tuning PID Control of a Jacketed Well Mixed Reactor"

Chemical Engineering Communications, 170, 199-215

This paper describes the application of NonLinear Self Tuning PID (NLSTPID) system with the intention of controlling the temperature of a cooling jacketed polymer reactor containing toluene and styrene mixture. The use of polynomial Nonlinear AutoRegressive Moving Average with eXternal input (NARMAX) model related with tank temperature and heat input for nonlinear control was emphasised. The first part of the paper presents an identification algorithm for the construction of polynomial NARMAX and AutoRegressive Moving Average with eXternal input (ARMAX) models. A Pseudo Random Binary Sequence (P.R.B.S) signal was utilised as a forcing function in order to determine the parameters of the models. Levenberg Marquardt algorithm was used to estimate the relevant parameters of NARMAX model. Similar work was carried out for ARMAX model using Bierman, Kalman and Least Square Estimation algorithms. The time response of the tank temperature obtained from computer simulation, identified models and experimental data to a unit step change in manipulated variable were compared. Next, linear and non linear models were used with STPID algorithm to demonstrate the performance of the available control in response to disturbances. All theoretical works were compared with experimental data.

Bu çalışma, toluen ve styrene karışımı içeren soğutma ceketli bir polimer reaktörünün sıcaklığının kontrolü için doğrusal olmayan kendinden ayarlamalı PID (NLSTPID) sisteminin uygulamasını anlatmaktadır. Doğrusal olmayan kontrol için tank sıcaklığı ve ısı girdisi ile ilişkili polinom tipi doğrusal olmayan sistem modelinin (NARMAX) kullanımı üzerinde durulmuştur. Çalışmanın ilk kısmı polinom tipinde doğrusal olmayan sistem modeli (NARMAX) ve doğrusal sistem modeli (ARMAX) yapıları için tanımlama algoritmasını göstermektedir. Modellerin parametrelerini belirlemek için yalancı gelişigüzel ikili sinyal (P.R.B.S) bir zorlayıcı etki olarak kullanılmıştır. Levenberg Marquardt algoritması NARMAX modelinin ilgili parametrelerini hesaplamak için kullanılmıştır. ARMAX model için, Bierman, Kalman ve Least Square algoritmaları kullanılarak, benzer çalışma gerçekleştirilmiştir. Ayarlanabilen değişkene bir basamak etkisi verildiğinde, bilgisayar benzetimi, tanımlanmış modeller ve deneysel verilerden elde edilen tank sıcaklığının zamana göre değişimleri karşılaştırılmıştır. Daha sonra yük etkilerine karşı mevcut kontrol etkinliğini göstermek için doğrusal ve doğrusal olmayan modeller, STPID algoritması ile kullanılmıştır. Bütün teorik çalışmalar deneysel verilerle karşılaştırılmıştır.

Bazı Kelimelerin Türkçe Tercümeleri

nonlinear pole placement self tuning	:	doğrusal olmayan kutup yerleştirmeli kendinden ayarlamalı
Pseudo Random Binary Sequence (PRBS)	:	yalancı gelişigüzel ikili sinyal
AutoRegressive Moving Average with eXternal input (ARMAX)	:	ARMAX modeli
Nonlinear AutoRegressive Moving Average with eXternal input (NARMAX)	:	doğrusal olmayan NARMAX modeli
NonLinear Self Tuning PID (NLSTPID)	:	doğrusal olmayan kendinden ayarlamalı PID