COLLEGE OF ENGINEERING
COURSE AND CURRICULUM CHANGES

Approved at the College of Engineering
Course and Curriculum Meeting

October 16, 2014

Edwards Conference Room

9:30

Undergraduate/Graduate

EXPEDITED

Contact Person: James Goddard
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Units that may be directly impacted by these changes:

Please provide the sponsors of a proposal change with any information regarding fiscal or programmatic impact on your department, program or students
Expedited COURSE PROPOSALS
Courses Numbered 000-598

Electrical and Computer Engineering

From:

ECE 542 - Local Area Networking

Credits: (3)

An introduction to data communication concepts used in the network, data link, and physical layers of the Open Systems Interconnection (OSI) model. Hardware and software aspects of data communications as well as modern Local Area Network (LAN) standards will be emphasized.

Note
Two hours lecture and three hours lab a week.

Requisites
Prerequisite: ECE 241, high-level programming language.

When Offered
Fall, Spring

UGE course
No

K-State 8
None

To:

ECE 542 – Computer Networking

Credits: (3)

Introduction to application, transport, network and link layer protocols, with emphasis to Internet TCP/IP protocols.

Note
Three hours lecture/week.

Requisites
Prerequisite: ECE 241, high-level programming language.
When Offered
Fall, Spring

UGE course
No

K-State 8
None

Rationale: This is a change to the title and course catalog description. They are being changed to better reflect the fact that the course covers the main concepts and protocols in computer networking.

Effective: Fall 2015

Impact: None outside the ECE Department

Expedited COURSE PROPOSALS
Courses Numbered 599-999

Electrical and Computer Engineering

From:

ECE 764 - Design of Microwave Circuits

Credits: (3)

The design of communication circuits and systems operating at microwave frequencies. Topics include antennas, transmission lines, microstrip matching networks, S-parameters, frequency synthesizers, and downconverter components such as LNAs, mixers, and microstrip bandpass filters. Projects involve design, simulation with electronic design automation tools, and laboratory measurements.

Note
Two hour lecture and three hour lab a week.

Requisites
Prerequisite: ECE 502, 512, 526, and 557.

When Offered
Fall

UGE course
No
K-State 8
None

TO:

ECE 764 - Antennas & Microwave Circuits

Credits: (3)

The design of communication circuits and systems operating at microwave frequencies. Topics include antennas, transmission lines, microstrip matching networks, S-parameters, frequency synthesizers, and downconverter components such as LNAs, mixers, and microstrip bandpass filters. Projects involve design, simulation with electronic design automation tools, and laboratory measurements.

Note
Two hour lecture and three hour lab a week.

Requisites
Prerequisite: ECE 502, 512, 526, and 557.

When Offered
Fall

UGE course
No

K-State 8
None

Effective: Fall 2015

Rationale: This is a change to the title of the course only. The title is being changed to better reflect the fact that the course covers antenna operation and design, not just circuits. No other changes are made, so only the Title change information is shown below. All other course information should remain unchanged.

Impact: None outside the ECE Department
From:

ECE 841 - Wide Area Networking

Credits: (3)

Design and analysis of networks that span large distances or multiple local area networks (LANs). Topics include queuing theory, LAN standards, routing, switching, security, and higher-level protocols.

Note:
Three hours rec. a week.

Requisites:
Pr.: STAT 410 or STAT 510, high-level programming language.

When Offered:
Spring

To:

ECE 841 – Network Theory

Credits: (3)

Introduction to the theoretical tools, methods, and algorithms to analyze networks, investigate their structure, and their behavior and properties, as well as several practical applications in computer networks, social networks, and power grids.

Note:
Three hours rec. a week.

Requisites:
Pr.: STAT 410 or STAT 510, high-level programming language.

When Offered:
Spring

Effective: Fall 2015
**Rationale:** This is a change to the title and course catalog description. They are being changed to better reflect the fact that the course covers a wide range of topics related to the discipline of network science and engineering.

**Impact:** None outside the ECE Department

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**From:**

ECE 861 – *Noise Theory*

**Credits:** (3)

Study of noise phenomena and measurement; the representation of noise by statistical parameters, the noise factor of undesired noise sources, and the measurement applications of noise generators.

**Note:**
Three hours rec. a week.

**Requisites:**
Pr.: ECE 512.

**When Offered:**
Fall

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**To:**

ECE 861 – *Applied Probability Theory & Random Processes*

**Credits:** (3)

Applications of probability theory, random variables and stochastic processes; Tools relevant to both modeling uncertainty and inferencing in the presence of uncertainty; probabilistic methods applicable to problems in electrical and computer engineering arena including power systems, communication systems and networks, biomedical systems etc.

**Note:**
Three hours lec. a week.

**Requisites:**
Pr.: ECE 512.
When Offered:
Fall

Effective: Fall 2015

Rationale: This is a change to the title and course catalog description. They are being changed to better reflect the fact that the course covers a wide range of topics related to the engineering applications of probability theory and random processes and not just the modeling of noise.

Impact: None outside ECE Department

From:

ECE 963 - Signal Detection Theory

Credits: (3)

A study of optimum signal detection principles for analog and digital communication over the linear additive noise channel. Includes series representations for random signals and the derivation of minimum mean square error (MMSE) receivers for AM and FM and maximum likelihood (ML) receivers for FSK, MSK, and M-Ary PSK.

Note:
Three hours rec. a week.

Requisites:
Pr.: ECE 861.

When Offered:
Spring

To:

ECE 963 - Detection & Estimation Theory

Credits: (3)

Theoretical foundations of detection and estimation theories. Bayesian decision theory with applications to signal detection in discrete time; concept of sufficient statistic and Minimum variance unbiased estimation; Bayesian estimation; Best linear unbiased estimation; Kalman filtering and its variants; filtering, smoothing and prediction applications across various engineering fields.
Note: Three hours lec. a week.

Requisites: Pr.: ECE 861.

When Offered: Spring

Effective: Fall 2015

Rationale: This is a change to the title and course catalog description. They are being changed to better reflect the fact that the course covers the fundamentals of both signal estimation and detection theories.

Impact: None outside the ECE Department