UNDERGRADUATE CURRICULUM CHANGE MEMO

Date: February 1, 2021

From: Joel Quintana, Research Assistant Professor Mechanical Engineering

Through: Jack Chessa, Chair of Mechanical Engineering

Through: Louis Everett, Chair of Curriculum Committee,
             College of Engineering

Through: Norman Love, Associate Dean for Academic Affairs and
             Undergraduate Studies, College of Engineering

Through: Patricia Nava, Interim Dean College of Engineering

To: Art Duval, Chair of University Curriculum Committee

Proposal Title: New Course: MECH 4328 - Intro to LabVIEW

The Mechanical Engineering department has updated their BS degree plan taking effect in Fall 2019. The new degree plan creates more flexibility for students to adjust the education to suit their ambitions. Students are able to take courses in several "track" or emphasis areas. One of these tracks is called Electro-Mechanical. In this track students gain knowledge and practice in applying sensors and actuators to Mechanical Systems allowing them to be controlled.

National Instruments LabVIEW and its various data logging and control hardware packages are ubiquitous within the aerospace industry including notable examples such as NASA, Blue Origin, Raytheon, and Lockheed Martin. It is important for those Mechanical and Aerospace engineering students to be able to learn how to develop test and evaluation programs on the perform. This includes simple programs enabling rapid development of research experiments to complex control and data acquisition algorithms and architectures for ongoing academic and research projects. Proposed, is the development of a LabVIEW course that prepares students for the Certified LabVIEW Associate Developer (CLAD) level certification. National Instruments states "The CLAD is the entry-level LabVIEW certification, and it demonstrates a broad understanding of LabVIEW core features and functionality."

CURRICULUM PROPOSAL

APPROVAL PAGE

Proposal Title: MECH 4328 - Introduction to and Certification in LabVIEW

College: Engineering   Department: Mechanical

DEPARTMENT CHAIR- Jack Chessa

I have read the enclosed proposal and approve this proposal on behalf of the department.

_____   _____

Signature   Date

COLLEGE CURRICULUM COMMITTEE CHAIR – Louis Everett

I have read the enclosed documents and approve the proposal on behalf of the college curriculum committee.

_____   _____

Signature   Date

COLLEGE DEAN – Patricia Nava

I have read the enclosed documents and approve the proposal on behalf of the college. I certify that the necessary funds will be allocated by the college in support of this proposal.

_____   _____

Signature   Date

Good afternoon Julie,

Attached are the approved UG Proposals that have been approved by our college.

I know you mentioned they will be in the March 1, 2021 UGCC agenda.

Best Regards,

Virginia

Virginia Granda-Becker
Coordinator for Academic Affairs and Undergraduate Studies

College of Engineering
The University of Texas at El Paso
500 W. University Ave
El Paso, TX 79968
Office: (915) 747-8011
www.utep.edu/engineering/eec

From: Nava, Patricia A.
Sent: Tuesday, February 16, 2021 3:04 PM
To: Love, Norman D <ndlove@utep.edu>; Granda, Virginia D <granda@utep.edu>
Subject: RE: UG Proposals Approved by COECC

These are approved.

Patricia A. Nava, Ph.D.
Interim Dean
Professor of Electrical and Computer Engineering
El Paso Electric Professor in Education
UTEP Distinguished Teaching Professor

From: Love, Norman D
Sent: Monday, February 15, 2021 10:04 AM
To: Nava, Patricia A. <pnava@utep.edu>; Granda, Virginia D <granda@utep.edu>
Subject: FW: UG Proposals Approved by COECC

Dear Virginia,

I approve of the attached proposals.

I'm forwarding these proposals to Dr. Nava for her review and approval (or denial).

Norman

From: "Granda, Virginia D" <granda@utep.edu>
Date: Friday, February 12, 2021 at 5:07 PM
To: Norman Love <ndlove@utep.edu>
Subject: FW: UG Proposals Approved by COECC

Dr. Love,

Please find attached the UG proposals that were approved by our COECC and its chair.

Can you please reply letting me know if you approve them?

If you would, can you please forward them to the Dean for her approval?

Best Regards,

Virginia

Virginia Granda-Becker
Coordinator for Academic Affairs and Undergraduate Studies

College of Engineering
The University of Texas at El Paso
500 W. University Ave
El Paso, TX 79968
Office: (915) 747-8011
www.utep.edu/engineering/eec

From: Everett, Louis
Sent: Friday, February 12, 2021 5:05 PM
To: Granda, Virginia D <granda@utep.edu>
Subject: Re: UG Proposals Approved by COECC

I approve them. Thank you.

Get Outlook for iOS

From: Granda, Virginia D <granda@utep.edu>
Sent: Friday, February 12, 2021 4:58:37 PM
To: Everett, Louis <leverett@utep.edu>
Subject: UG Proposals Approved by COECC

Good afternoon Dr. Everett,

Attached are the UG proposals that were approved by our COECC this month.

Please reply if you approve these proposals as the COECC chair.

Best Regards,

Virginia

Virginia Granda-Becker
Coordinator for Academic Affairs and Undergraduate Studies

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COURSE ADD

College : Engineering   Department : Mechanical

Rationale for adding the course:
LabVIEW is a valuable tool for Aerospace and Mechanical engineering students wanting to conduct controls and data acquisition in research and test and evaluation of electro-mechanical systems.

All fields below are required

Subject Prefix and # MECH

Title (29 characters or fewer): Intro to LabVIEW

Dept. Administrative Code : 1920

CIP Code 14.1901.00

Departmental Approval Required ☒Yes   ☐No

Course Level ☒UG   ☐GR   ☐DR   ☐SP

Course will be taught: ☒ Face-to-Face   ☒ Online   ☒ Hybrid

How many times may the course be taken for credit? (Please indicate 1-9 times): 3

Should the course be exempt from the "Three Repeat Rule?" ☐Yes   ☒No

Grading Mode: ☒Standard   ☐Pass/Fail   ☐Audit

Description (600 characters maximum):
Students will have completed the course with broad working knowledge of LabVIEW environment, a basic understanding of coding, & the ability to read & interpret existing code.

Contact Hours (per week):   3 Lecture Hours   Lab Hours   Other

Types of Instruction (Schedule Type): Select all that apply

☒A	Lecture		☐ H	Thesis
☐ B	Laboratory		☐ I	Dissertation
☐ C	Practicum		☐ K	Lecture/Lab Combined
☐ D	Seminar		☐ O	Discussion or Review (Study Skills)
☐ E	Independent Study		☐ P	Specialized Instruction
☐ F	Private Lesson		☐ Q	Student Teaching

Fields below if applicable

If course is taught during a part of term in addition to a full 16-week term please indicate the length of the course (ex., 8 weeks): 8 weeks

TCCN (Use for lower division courses) :

Prerequisite(s):		
Course Number/ Placement Test	Minimum Grade Required/ Test Scores	Concurrent Enrollment Permitted? (Y/N)
MECH3352 - Engineering Analysis 2	C	N

Corequisite Course(s):		Equivalent Course(s):
N/A		N/A

Restrictions:	
Classification	N/A
Major	N/A

Degree Plan

Required Credits: 128

Code	Title	Hours
University Core Curriculum		
Complete the University Core Curriculum requirements.		42
Mechanical Engineering Designated Core (All courses require a grade of C or better.)		
CE 2326 Econ for Engrs & Scientists is a designated core course. It is required for graduation even if other course is used to fulfill the core. All Mechanical Engineering majors are encouraged to take CE 2326 to fulfill the core.		
Required Courses:		
CE 2326	Econ for Engrs & Scientists	3
CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305	4
MATH 1508	Precalculus ((Listed if completed, but not required))	3-5
or MATH 1310	Trigonometry and Conics	
PHYS 2420	Introductory Mechanics	4
Mechanical Engineering (Other Requirements) (All courses require a grade of C or better.)		
Required Courses:		
MATH 1411	Calculus I	4
MATH 1312	Calculus II	3
MATH 2313	Calculus III	3

Code	Title	Hours
MATH 2326	Differential Equations	3
Science Elective		
Select one of the following options:		4
BIOL 1305 & BIOL 1107	General Biology and Topics in Study of Life I [c]	
CHEM 1306 & CHEM 1106	General Chemistry and Laboratory for CHEM 1306 [c]	
PHYS 2421	Introductory Electromagnetism	
MATH/Science Elective		
Select one of the following:		
BIOL 1306	Organismal Biology	
MATH 3323	Matrix Algebra	
MATH 3335	Applied Analysis I	
MATH 4329	Numerical Analysis	
MATH 4336	Applied Analysis II	
PHYS 2325	Survey of Modern Physics	
PHYS 3351	Analytical Mechanics I	
STAT 3320	Probability and Statistics	

Code	Title	Hours
MATH Elective		
Select one of the following:		
MATH 3323	Matrix Algebra	
MATH 3335	Applied Analysis I	
MATH 4329	Numerical Analysis	
MATH 4336	Applied Analysis II	
STAT 3320	Probability and Statistics	
Mechanical Engineering Major		
Required Courses: [1]		
MECH 1305	Graphic & Design Fundamentals [c]	3
MECH 1321	Mechanics I-Statics [c]	3
MECH 2103	Engineering Computations [3]	1
MECH 2311	Intro to Thermal-fluid Sci [c]	3
MECH 2322	Mechanics of Materials [c]	3
MECH 2331	Matl & Manufacturing Processes [c]	3
MECH 2340	Mechanics II - Dynamics [c]	3

Code	Title	Hours
MECH 2342	Electro Mechanical Systems [c]	3
MECH 3312	Thermodynamics [3]	3
MECH 3314	Fluid Mechanics [3]	3
MECH 3334	Mechanical Design [3]	3
MECH 3345	System Dynamics [3]	3
MECH 3352	Engineering Analysis II [3]	3
MECH 4315	Heat Transfer [3]	3
MECH 4366	Senior Design Project [2, 3]	3
Select one of the following:		
MECH 2131	Manufacturing Engineering Lab [c]	
MECH 2132	Additive Manufacturing Lab [c]	
MECH 2133	Metal Casting Lab [c]	
MECH 2134	Intelligent Manufacturing	
Select two of the following:		
MECH 3103	Mechatronics Lab [3]	
MECH 3113	Thermo-fluid Lab [3]	

Code	Title	Hours
MECH 3123	Solid Mechanics Lab 3	
Select one of the following:		
MECH 4326	Finite Element Analysis 3	
MECH 4328	Intro to LabVIEW	
MECH 4330	Dynamic Systems Simulation 3	
MECH 4392	Special Topics in Computation 3	
Select five of the following (minimum of one from each area):		
Solid Mechanics Area		
MECH 4336	Principles of Engr Design 3	
MECH 4395	Special Topics in Mech. Engr. 3	
Thermal Fluid Area		
MECH 4316	Thermal System Design 3	
MECH 4394	Special Topics in Therm Fluid 3	
Electro-Mechanical Area		
MECH 4346	Mechatronics 3	
MECH 4332	Mechanical Sys Computations	
MECH 4334	Mechanical Sys Control	

Course Adds for MECH 4332, 4334, 4345 approved at 02.01.21 UGCC meeting

Code	Title	Hours
MECH 4345	Mechanical Sys Comm and Sensing	
MECH 4393	Special Topics in Elect-Mech [3]	
Total Hours		**128**

Course List

C   Course require a grade of C or better.

[1]   All institutional courses appearing in this area count towards the major GPA with a minimum of 2.0

[2]   Must be in the last full semester and have a 2.0 GPA or better in major.

[3]   Course requires grade of D or better