Course Material Submission Form
OAN Match Definition Form

Today's Date:	5/5/2008

Use this table to specify institutional data	
College/University:	Miami University
Name and title of individual submitting on behalf of the college/university	
Name:	Carol Jones
Title:	Assistant Registrar
Address:	301 S Campus Ave Rm 110
Email:	Jonescm3@muohio.edu
Phone:	513.529.8707
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Indicate the reason for this submission:

☐ New Course Match
☐ Course Renumbering Only (do not use for calendar changes)
☒ Revised Materials - Faculty review panel requested clarification
☐ Revised Materials - Institution submitting additional information
☐ Revised Materials - Course content revised by institution, including situations of both content and credit hour change
☐ Revised Materials – Other

Describe specific revisions being made for "Revised Materials" submissions:
Addressing feedback:
OBOR NOTES: missing outcomes 7,12,13,14,15,, course number must be listed on page 2 of TAG form

Institutional Notes to Faculty Panel (the institution is encouraged to add any additional clarifications for this submission):

Table 1 – Use this table to describe the course match for which materials are being submitted for the first time or revised.		
Proposed effective year and term of match (Final effective date will depend on actual approval of match by faculty panel. Effective Year and Term is the first term in which students taking the course will receive matching credit.) Semester institutions complete this row: 2000 Academic Year ☐ Summer ☒ Autumn ☐ Spring Quarter institutions complete this row: 2000 Academic Year ☐ Summer ☒ Autumn ☐ Winter ☐ Spring		
Ohio Articulation Number (OAN) (Use a separate form for each OAN.):	**OET005**	
Number of courses in the match:	1 (up to 10)	
Current status of match:	☐ First time submission ☐ Approved ☐ Submitted ☐ Disapproved ☐ Error ☒ Resubmitted ☐ Pending ☐ Error with enrollment ☐ Not submitted	
Course or Courses being matched to or currently matched to the OAN listed above. (Course Numbers must be exactly what will appear on a student's transcript.):	**Course Number**	
	1.	ENT 196
	2.	
	3.	
	4.	
	5.	
	6.	
	7.	
	8.	
	9.	
	10.	

Table 2 - Use this table to submit course materials for the first time or to revise previously submitted course materials. You must submit each course in a separate form, repeating the match definition information in Table 1 above for each form submitted.

Course Number. (Course Numbers must be exactly what will appear on a student's transcript.):	ENT 196	**Course Title**:	Electronics

Hours (be sure that the hours for this course matches the hours in the OAN.) 3

☒ **Semester Hours** ☐ **Quarter Hours**

Total Credit Hours	3	**Lecture Hours**	3	**Laboratory Hours (if applicable)**	3

Course Placement in Major:
- ☐ Major Requirement
- ☐ Major Elective
- ☐ Major Not Offered
- ☐ Other

Pre-Requisite Course work (if applicable) (Be sure this is consistent with the OAN definition):
See catalog/course description

Catalog/Course Description:
196 Electronics (3) Detailed study of analog electronic circuits and devices. Emphasis placed on operating parameters of linear (analog) circuits; techniques of circuit analysis applied as an integral part of the course. Use of computerized data analysis encouraged. Prerequisite: ENT 192. 2 Lec. 1 Lab. (Electrical technology)

Texts/Outside Readings/Ancillary Materials (Be sure that the text meets performance expectations):
Title: (1) Electronics Fundamentals: Circuits, Devices and Applications (2) Electronic Devices and Circuit Theory
Author: (1) • Thomas L. Floyd (2) • Robert L. Boylestad
Publish Date: (1) 2001 (2) 2002
Publisher: (1) Prentice Hall (2) Prentice Hall

Other texts:

Course Objectives and/or Plan of Work:
(Provide a clear indication of how the course objectives align with the matched OAN's learning outcomes. This will facilitate the faculty panel course review process.)
GENERAL OBJECTIVES:
- To understand the vocabulary of semiconductor and analog circuit design.
- To understand how to design the peripheral circuitry required to produce useful active analog circuits using diodes, transistors, thyristors and integrated circuits.
- To learn how to design, assemble, analyze, test and repair semiconductor circuits.
- To understand how to design active analog circuits to handle different frequency requirements, power output loads, thermal environments, applications, and electrical noise interference.
- To learn to analyze an analog circuit to determine its operating parameters, and to predict if the circuit will be stable or oscillatory.

OUTCOMES:
After completing this course, students are expected to have an understanding of and ability to apply the following topics:

- Semiconductor properties
- Diode applications
- Special-purpose diodes
- Bipolar junction transistors (BJTs)
- BJT biasing circuits and stability
- BJT amplifier circuits
- Multistage amplifier design
- Power amplifiers
- Field effect transistors (FETs)
- JFET and MOSFET biasing circuits
- FET amplifier circuits
- Frequency analysis
- Thyristors and applications
- Negative and positive feedback concepts
- Oscillators
- Op-Amps, circuits and applications
- Electronically regulated power supplies

Description of Assessment and/or Evaluation of Student Learning (The assessment plan needs to be appropriate for the expected rigor of the course) :

Master Syllabi and Working Syllabi (if both are used):

MIAMI UNIVERSITY
SCHOOL OF APPLIED SCIENCE
DEPARTMENT OF ENGINEERING TECHNOLOGY

ENT 196	ELECTRONICS	3
Course Number	Title	Credit Hours

DESCRIPTION:
Detailed study of analog electronic circuits and devices. Emphasis placed on operating parameters of linear (analog) circuits; techniques of circuit analysis applied as an integral part of the course. Use of computerized data analysis encouraged.
PREREQUISITE: ENT 192
TEXT AND COURSE MATERIALS:
Semiconductor Circuit Design and Applications – by Dr. Robert A. Summers
(Note: The text material is being beta tested and will be handed out during the class prior to each lecture at no cost to the students.) Students are required to purchase a 1 ½" three ring binder to hold the notes. No other text is required.

Students are required to purchase an OrchEd – "Circuit Lab Platform" trainer, available in the bookstore. We will build the trainer during the first two laboratory periods. We will use the trainer throughout the course to assemble and test the various laboratory experiments and circuits we will be building.

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MEETING PLACE AND TIME:
Class meets once per week for three hours and 40 minutes.

TOPICAL OUTLINE:
Week 1 Operations and Applications of the Semiconductor "PN" Junction
Week 2 Semiconductor Diode Model and Applications like simple power supplies
Week 3 Bipolar Junction Transistor Model, Characteristics, Operation and Applications
Week 4 Designing Small Signal BJT Amplifiers, Advanced Biasing Techniques
Week 5 Introduction to JFET and MOS FET, Field Effects Transistors
Week 6 Analyzing the Frequency Response of BJTs and FETs.
Week 7 Designing Digital Devices from BJTs and FETs
Week 8 Using BJTs and FETs to build Operational Amplifiers and Higher Order Devices
Week 9 Operational Amplifiers Applications, Devices and Design
Week 10 Advanced Operational Amplifier Applications and Design Techniques
Week 11 Introduction to Active Filters Using Operational Amplifiers
Week 12 Designing Stable Analog Circuits, Oscillators, and Specialized Circuits like Phase Locked Loop Frequency Synthesizers, Negative and Positive Feedback
Week 13 Audio Class D Amplifiers, Multistage Power Amplifiers and Power Circuits
Week 14 Linear and Switching Power Regulators

Week 15 Thyristor Devices like Triacs, Diacs, SCRs, and SCSs

LABS:
Lab 1 – Build the Circuit Lab Platform Trainer – Needs to be ready to test by week 2.
Lab 2 - Test the Circuit Lab Platform Trainer and use it to test some fundamental diode circuits
Lab 3 - Design, Build and Test a Linear Voltage Regulator
Lab 4 – Design a Stable, Fixed Gain Universal Amplifier & Measure It's Characteristics
Lab 5 – Build and FET Front End AM Radio Receiver
Lab 6 – Design and Build a Tuned Amplifier
Lab 7 – Design a Class D PWM Audio Amplifier
Lab 8 – Designing a Simple Operational Amplifier Circuit
Lab 9 – Design and Build an Op. Amp. Linear Audio Amplifier
Lab 10 – Design an Op. Amp. Bridge Signal Conditioner
Lab 11 – Design and Build a Wein-Bridge Filter/Oscillator and an Integrator Op. Amp. Function Generator
Lab 12 – Design, Build and Test a Simple AM Radio Transmitter
Lab 13 – Build a Class A-B Linear Power Amplifier
Lab 14 – Design, Build and Test a Switching Voltage Regulator With Current Limit.
Lab 15 – Lab Final: Given Design Specifications, Design Build and Test a Circuit to do the job.

Additional Documentation:

OBR Use

Approved-Effective Date	
Pending (i.e. Additional Information Requested)	
Disapproved	
Today's Date	