

Course Material Submission Form OAN Match Definition Form

Today's Date:	5-20-08
----------------------	---------

Use this table to specify institutional data	
College/University:	The University of Akron
Name and title of individual submitting on behalf of the college/university	
Name:	Dr. Doug Frampton
Title:	Department Chair, Engineering & Science Technology
Address:	The University of Akron Department of Engineering & Science Technology Akron, OH 44325-6104
Email:	jdframpton@uakron.edu
Phone:	330-972-5139
Fax:	

<p>Indicate the reason for this submission:</p> <p> <input type="checkbox"/> New Course Match <input checked="" type="checkbox"/> Revised Materials - Faculty review panel requested clarification <input type="checkbox"/> Revised Materials - Institution submitting additional information <input type="checkbox"/> Revised Materials - Course content revised by institution, including situations of both content and credit hour change <input type="checkbox"/> Revised Materials - Other </p> <p>Describe specific revisions being made for "Revised Materials" submissions: Revisions specifying the linkage from the class topics to the Learning Outcomes are mentioned in the Additional Documentation area of the submission form.</p> <p>Institutional Notes to Faculty Panel (the institution is encouraged to add any additional clarifications for this submission):</p>

<p>Table 1 – Use this table to describe the course match for which materials are being submitted for the first time or revised.</p> <p>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.)</p> <p>Semester institutions complete this row: 2008 Academic Year <input type="checkbox"/> Summer <input checked="" type="checkbox"/> Autumn <input type="checkbox"/> Spring</p> <p>Quarter institutions complete this row:</p>

20 Academic Year <input type="checkbox"/> Summer <input type="checkbox"/> Autumn <input type="checkbox"/> Winter <input type="checkbox"/> Spring	
Ohio Articulation Number (OAN) (Use a separate form for each OAN.):	OET 004
Number of courses in the match:	1 (up to 10)
Current status of match:	<input type="checkbox"/> First time submission <input type="checkbox"/> Approved <input type="checkbox"/> Submitted <input type="checkbox"/> Disapproved <input type="checkbox"/> Error <input checked="" type="checkbox"/> Resubmitted <input type="checkbox"/> Pending <input type="checkbox"/> Error with enrollment <input type="checkbox"/> 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. 2860:238
	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.):	2860:238	Course Title:	Microprocessor Applications
Hours (be sure that the hours for this course matches the hours in the OAN.)			
<input checked="" type="checkbox"/> Semester Hours		<input type="checkbox"/> Quarter Hours	
Total Credit Hours	4	Lecture Hours	3
		Laboratory Hours (if applicable)	1
Course Placement in Major:		<input checked="" type="checkbox"/> Major Requirement <input type="checkbox"/> Major Elective <input type="checkbox"/> Other	
Pre-Requisite Course work (if applicable) (Be sure this is consistent with the OAN definition): 2860:237 (Digital Circuits)			
Catalog/Course Description: Programmable logic devices, computer modeling of digital circuits, memory circuits. Computer architecture, programming the microprocessor, microprocessor hardware, microprocessor applications, parallel I/O and programmable timers.			

Texts/Outside Readings/Ancillary Materials (Be sure that the text meets performance expectations):

1. Digital Fundamentals with PLD Programming, Thomas L. Floyd, or Digital Fundamentals, Thomas L. Floyd, 8th ed., or 7th ed.
2. The Intel Microprocessors, Architecture, Programming, and Interfacing, Barry B. Brey, Prentice-Hall, 2006, ISBN 0-13-119506 7th ed., (6th ed.), {5th ed.}
3. The TTL Data Book

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.)

Students understand various types of memory systems. They will analyze and design memory and memory decoding systems. Students will learn fundamentals of the microprocessor environment such as hardware functions and processor architecture. Hardware and software applications will be analyzed, designed, built, and tested. Assembly language will be used.

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

Laboratory: Successful completion of the laboratory is required to receive a passing grade in this course.

Weight		Approx. Grade Conversion	
Test 1	0.21	≥ 92	A
Test 2	0.21	≥ 90	A-
Homework	0.15	≥ 88	B+
Laboratory	0.18	≥ 82	B
Final Exam	0.25	≥ 80	B-
Total	1.00	≥ 78	C+
		≥ 72	C
		≥ 70	C-
		≥ 68	D+
		≥ 62	D
		≥ 60	D-
		< 60	F

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

The University of Akron, Summit College
Engineering and Science Technology

Microprocessor Applications

2860:238-001

John Edgerton

SHN-362, TTh 10:45 – noon

SHS-221B

Spring 2007

972-7054

3 cr. lec. + 1 cr. lab.

jedgerton@uakron.edu

Wk.	Assign.		Topic	Chapters		Laboratory
	Dates			Floyd	Brey	
1	1/16 1/18		Intro. & review, numbers, logic, FF Parity, shift regs., Intro. memory	1- 11,15 11, 12		Introduction to lab
2	1/23 1/25	A1	Memory basics ROMs, PROMs, RAMs, Flash	12 12	2,3,10	Equipment review
3	1/30 2/1	A2	Interface with computer bus Memory expansion.	12 12	2,3,10	Digital Frequency Mtr.
4	2/6 2/8	A3	Computer introduction Computer architecture	13 13	1, 2 2	Read/write memory
5	2/13 2/15	A4	Review TEST 1	All so far All so far		Programming Intro. 1
6	2/20 2/22	A5	Classes cancelled, Presidents' Day Introduction to programming		3, 4, 8	Intro. 2
7	2/27 3/1	A6	Program statements and their use The assembler		3, 4, 5 nts & 7	Intro. 3
8	3/6 3/8	A7	More program statements Examples		3,4,5,6 3 – 7	Program 1
9	3/13 3/15	A8	More program statements Linking with the assembler		3 – 7 3 – 7	Open lab
10	3/27 3/29	A9	Additional software topics Review		7,8, 11	Program 2
11	4/3 4/5	A10	TEST 2 Hardware, data I/O	Since Test 1		Open lab
12	4/10 4/12	A11	Hardware, data I/O Hardware, data I/O		11, 15	Input and Output
13	4/17 4/19	A12	Select: LabVIEW, C, AtoD,		8 - 12	Selection

			DtoA, PLDs, Other I/O, Hardware interrupts			
14	4/24 4/26	A13	Selection overview Pentiums, machine code, cycle times		18, 19	Selection
15	5/1 5/3	A14	Review Review			
	5/8		FINAL EXAM , Tues., noon – 1:55	Comprehensive		

This schedule is subject to change on notice of at least one week.

Students are expected to be aware of and to follow rules of The University of Akron. See for example, www.uakron.edu/registrar/Dates.php

Microprocessor Applications

Prerequisite: Successful completion of Digital Circuits, 2860:237

Students are required to have completed the appropriate prerequisites and co-requisites.

Objectives: Students understand various types of memory systems. They will analyze and design memory and memory decoding systems. Students will learn fundamentals of the microprocessor environment such as hardware functions and processor architecture. Hardware and software applications will be analyzed, designed, built, and tested. Assembly language will be used.

Laboratory: Successful completion of the laboratory is required to receive a passing grade in this course.

Tests and Final Exam: If you are absent from a test or the final, it will count as a grade of zero unless prior arrangements are made.

Homework: Homework will be assigned on a regular basis with an announced due date. Homework will be collected and graded. Your lowest homework grade will be dropped. Late homework will not be accepted.

First page at the top must show -- your name -- course name – and homework number. Staple additional pages to it. Paper size 8.5 x 11 inches, work only on one side. No spiral-ring tear-outs because of the ragged edge. For each problem, write problem number, show work, underline the answer.

Withdrawal: I will not sign any course withdrawals after Wednesday, April 11, 8:00 p.m.

Grade Computation

Weight		Approx. Grade Conversion	
Test 1	0.21	≥ 92	A
Test 2	0.21	≥ 90	A-
Homework	0.15	≥ 88	B+
Laboratory	0.18	≥ 82	B
Final Exam	0.25	≥ 80	B-
Total	1.00	≥ 78	C+
		≥ 72	C

≥ 70	C-
≥ 68	D+
≥ 62	D
≥ 60	D-
< 60	F

Work you turn in should be your own. While we encourage you to help each other learn, any work you turn in for a grade is to be essentially your own individual effort. If any items you turn in appear to be duplicates, or slightly modified duplicates of the work of others, harsh penalties will be assessed to all those involved.

Office Hours: Mondays and Tuesdays, 1-3. Wednesdays and Thursdays, 1-2.

Any student needing an accommodation based on a disability should see me and/or contact the Office of Accessibility at 330-972-7928, Simmons Hall 105.

Microprocessor Applications

Texts:

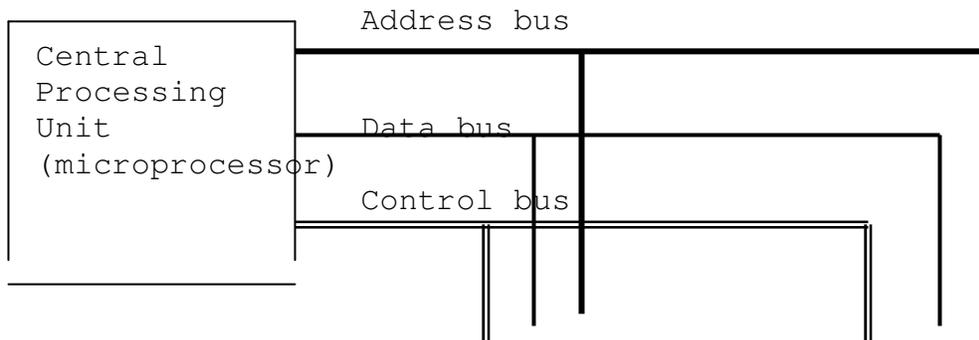
4. Digital Fundamentals with PLD Programming, Thomas L. Floyd, or Digital Fundamentals, Thomas L. Floyd, 8th ed., or 7th ed.
5. The Intel Microprocessors, Architecture, Programming, and Interfacing, Barry B. Brey, Prentice-Hall, 2006, ISBN 0-13-119506 7th ed., (6th ed.), {5th ed.}
6. The TTL Data Book

Additional References:

1. Notes on logic analyzers at the Agilent Technologies web site, <http://cp.literature.agilent.com/litweb/pdf/5968-8291E.pdf>
2. The 8088 and 8086 Microprocessors, Programming, Interfacing, Software, Hardware, and Applications, Walter A. Triebel and A. Singh, Prentice-Hall, 2003 4th ed.
3. The 80x86 IBM PC & Compatible Computers, vols. 1 & 2, Assembly Language, Design and Interfacing, Mazidi & Mazidi, Prentice Hall, 4th ed., 2003
4. Upgrading and Repairing PCs, 17th ed., Scott Mueller, Que, 2006
5. Applied C: An Introduction and More, A. E. Fisher, D. W. Eggert, S. M. Ross, McGraw-Hill, 2001

Basic VonNeuman computer architecture:

First study Floyd, 8th ed., chapter 13. Then study Brey, chapters 1&2.



Memory
cache,
hard
drives

Input ports
and
Output ports

The **Central Processing Unit** contains the Arithmetic Logic Unit(s), the control unit and the registers. The ALU does all the work, the calculations and so on. The control unit controls operations, such as keeping track of where in memory the program instructions are located and where the application data are located. The registers hold intermediate results, such as the answer to a multiplication operation, and control parameters such as the instruction pointer.

Memory holds the binary machine coded program instructions as well as the binary data. It is organized as an array of many words, often 8, 16, 32 or 64 bits to a word.

Input and output ports are access to anything external to the computer, from keyboard to monitor, USB, the internet connections, speakers, etc.

The busses tie it all together. The **address bus** points to the particular word in memory, or the I/O port being accessed. The number of signal lines in the address bus varies depending on the particular computer. A small micro might have only 16 whereas a Pentium has 34 or more. The **data bus** contains the binary data being transferred. The data bus size typically matches the word size of memory. The **control bus** tells when the transfer is to take place and controls other attributes such as direction (read or write) and whether it is a memory or I/O transfer. This can be summarized as the address bus is **where**, the data bus is **what**, and the control bus is **when**.

Additional Documentation:

Per the Review Panels request:

Learning Outcomes #3 and #4 are covered during weeks 11 & 12 with the Hardware, Data I/O classes.

Learning Outcome #8 is covered during the lecture from chapter 12 of the *Digital Fundamentals with PLD Programming* class.

Learning Outcome #9 is covered during the lecture from chapter 13 of the textbook.

OH - BOWLING GREEN STATE UNIVERSITY OH	TO	UNIVERSITY OF AKRON	EFFECTIVE DATES
ET 442		2860:238	Fall Semester 1982 - 9999
OH - COLUMBUS STATE COMMUNITY COLLEGE (1973A) OH	TO	UNIVERSITY OF AKRON	EFFECTIVE DATES
EET 252 and EET 253		2860:238	Spring Semester 1993 - 9999

OH - CUYAHOGA COMMUNITY COLLEGE	TO	UNIVERSITY OF AKRON	EFFECTIVE DATES
ELEC 255 and ELEC 256 and ELEC 257		2860:238	Summer Semester 1979 - Summer Semester 1998
EET 2140 and EET 2240		2860:238	Fall Semester 1998 - 9999
EET 2140 and EET 2241		2860:238	Fall Semester 1998 - 9999
ELEC 255 and ELEC 256 and ELEC 257 Limited to C&T		2860:238	Summer Semester 1979 - Summer Semester 1998
EET 2140 and EET 2240 Limited to C&T		2860:238	Fall Semester 1998 - 9999
OH - EDISON STATE COMMUNITY COLLEGE (1981A) OH	TO	UNIVERSITY OF AKRON	EFFECTIVE DATES
ELT216S and ELT232S		2860:238	Fall Semester 1993 - 9999
OH - LAKELAND COMMUNITY COLLEGE	TO	UNIVERSITY OF AKRON	EFFECTIVE DATES
EET 235 and EET 236 and EET 241 Limited to C&T		2860:238	Fall Semester 1978 - Summer Semester 2000
OH - LORAIN COUNTY COMM COLLEGE - QTRS (1971A)	TO	UNIVERSITY OF AKRON	EFFECTIVE DATES
ELEC 221 and ELEC 224		2860:238	Fall Semester 1978 - Fall Semester 1998

Limited to C&T			
OH - LORAIN COUNTY COMM COLLEGE- SEMS	TO	UNIVERSITY OF AKRON	EFFECTIVE DATES
ELCT 221 Limited to C&T		2860:238	Fall Semester 1998 - 9999
OH - MIAMI UNIVERSITY (1913A) OH	TO	UNIVERSITY OF AKRON	EFFECTIVE DATES
ENT 295 and ENT 297		2860:238	Fall Semester 1960 - 9999
OH - NORTH CENTRAL STATE COLLEGE (1976A) OH	TO	UNIVERSITY OF AKRON	EFFECTIVE DATES
ELE 273		2860:238	Fall Semester 1972 - 9999
ELE 274		2860:238	Fall Semester 1972 - 9999
OH - OWENS COMMUNITY COLLEGE (1976A) OH	TO	UNIVERSITY OF AKRON	EFFECTIVE DATES
EET205		2860:238	Summer Semester 1979 - 9999
OH - SINCLAIR COMMUNITY COLLEGE (1970A) OH	TO	UNIVERSITY OF AKRON	EFFECTIVE DATES
EET261 and EET262		2860:238	Fall Semester 1968 - 9999
OH - UNIVERSITY OF CINCINNATI (1913A) OH	TO	UNIVERSITY OF AKRON	EFFECTIVE DATES
34 ELTN 243 - Digital Systems III		2860:238	Fall Semester 1980 - 9999
34 ELTN 253 - Digital Systems III Lab		2860:238	Fall Semester 1980 - 9999
32 ELTN 242 - Digital Systems II		2860:238	Fall Semester 1980 - 9999
32 ELTN 344 - Microcomputers I		2860:238	Fall Semester 1980 - 9999
32 ELTN 354 - Microcomputer I Lab		2860:238	Fall Semester 1980 - 9999
OH - WASHINGTON STATE COMMUNITY COLLEGE (1979A) OH	TO	UNIVERSITY OF AKRON	EFFECTIVE DATES

ELEC 233 and ELEC 234		2860:238	Fall Semester 1980 - 9999
OH - YOUNGSTOWN STATE UNIVERSITY (1945A) OH	TO	UNIVERSITY OF AKRON	EFFECTIVE DATES
EET 2645 and EET 2645L and EET 3745 and EET 3745L and EET 4845 and EET 4845L		2860:238 2860:352	Fall Semester 2000 - 9999

OBR Use

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

Course Material Submission Form

Instructions and notes

1. Submit completed forms to atpanels@regents.state.oh.us.
2. Use this form to define course matches and to submit new or revised course materials for faculty panel review. Please do not submit a form for multiple OANs or Courses.
3. For course renumbering and credit hour revision, remember to withdraw the old match.
4. For course renumbering and credit hour revision, you may want to include information about how the new numbers relate to the old in the Institutional Notes to the Faculty Panel.
5. Click check boxes to check the item. Text fields will expand as you enter information. Press tab to move forward through form. Press Shift-tab to move backward. Note that these tables are implemented as MS Word tables. Keep that in mind as you are copying and pasting between your syllabi and this form. It is possible to paste tables as nested tables. Use the Edit Menu "Paste as Nested Tables" selection.
6. Once you are done entering your information, save the data file. Under the File menu, choose "Save as" and then enter the name (no spaces!) of the file using the following naming conventions:
 - a. For course material submissions: **Institution-OAN-Course Number-Sequence-Version. Institution** is the 4 character HEI institution designation. **OAN** is the Ohio Articulation Number whose match is being defined or revised. **Course Number** is the **transcript** course number. **Sequence** is an indication of which course of a multi-course match is addressed in this form. The sequence is of the form (n of m) for an m-course match. For example, 1 of 1 for a single course match or 1 of 2 and 2 of 2 for a 2 course match. **Version** is a number indicating the revision number of this submission. Start with "Ver1" for the first time submission and include the "Ver".

Example:

If you are submitting course materials for Rhodes Community College MATH110 for OMT005 the name of the file would be LMTC-OMT005-MATH110-(1 of 1)-Ver1.

If you are submitting course materials for Rhodes Community College MATH111 and MATH112 for OMT006 the name of the files would be LMTC-OMT006-MATH111-(1 of 2)-Ver1 and LMTC-OMT006-MATH112-(2 of 2)-Ver1.

7. Course materials must be submitted according to timelines below:

Considering the submissions of **new** courses for TAG matches, our goal is to work toward a timeline as follows:

Submit Course Material:	Start of Term 1
Faculty Panels Review Submitted Courses:	During Term 1
Approved course is effective:	Start of Term 2
Approved course is matched for transcript processing:	Term 3

A new match will have to be approved according to the timeframes below:

Course Approval Sample Timelines

Quarter Institutions

	Summer	Autumn	Winter	Spring
Course Material Submitted for Review	By 6/1	By 8/15	By 1/1	By 3/1
Faculty Panel Reviews Completed	By 8/1	By 12/31	By 2/28	By 5/31

Semester Institutions

	Summer	Autumn	Spring
Course Material Submitted for Review	By 6/1	By 8/15	By 1/1
Faculty Panel Reviews Completed	By 8/1	By 12/31	By 5/31

- If you want to submit supplementary supporting documentation, you may do that. Simply send the file along with this form and name the supplementary file **Institution-OAN-Course Number-Supplement. Institution, OAN, and Course Number** are as described in Number 6 above. Include the word **"Supplement"**. Just be sure to reference the supplement from the appropriate spot in this document.
- Remember that all institutions are required to have at least one course match for each OAN in all TAGs for which they have corresponding programs.
- This form should be used for all submissions or resubmissions starting immediately.
- If you encounter problems or have questions, please contact any of the individuals listed below:

Jim Ginzer (614) 752-9486 jginzer@regents.state.oh.us
 Sam Stoddard (614) 752-9532 [sstoddard@regents.state.oh.us](mailto:ssoddard@regents.state.oh.us)
 Brett Berliner (614) 466-2004 bberliner@regents.state.oh.us