# Archive for 200220_SPRING_LAB #1 on Jan 18, 2003

**ERIC RICE >** Have you tried Lab 1 yet?
**CHARLES LAWSON >** I have.
**ERIC RICE >** Can you get the graphs to look how Jones wants them to look?
**RENNA HARVEY >** No. It is difficult?
**ERIC RICE >** Simulation is easy, I just can't get the margins or titles where he wants them, on the graphs.
**ERIC RICE >** Can we disable sound on this thing?
**WILLIAM CAIN >** I was unable to left click on each wire and name the node names on page 6, anyone else have any luck with this?
**CHARLES LAWSON >** Double click.
**WILLIAM CAIN >** Thanks Charles!
**ERIC RICE >** Anyone know how to move the title of the graphs and change the margins?
**CHARLES LAWSON >** Where does it say to move the title?
**ERIC RICE >** In the lab instructions, if printing in landscape title must be on the left.
**CHARLES LAWSON >** Eric, I think he means the left side of the paper, not the graph. When you print in landscape it's automatic.
**ERIC RICE >** It doesn't seem to be... Mine was on the right. Also, I couldn't find a way to set the margins, so a staple will cover part of the graph.
**RICHARD JONES >** By the way, my K is sticking so bear with me.
**RICHARD JONES >** In order to be in the vitual classroom, you need to have already printed out the labs and tried them on multisim. Who does not have MultiSim
**DANIEL JOHNSON >** I should have it by Tuesday
**EDUARDO AYALA >** I Don'T . Waiting on The mail Ordered it 3 days ago.
**RICHARD JONES >** Why so late?
**EDUARDO AYALA >** Good q?
**BOBBY BUNN >** Professor Jones, could you change the font color on your responses?
**RICHARD JONES >** You have control of that font color
**VERNON KOZLOWITZ >** Prof. Jones, Why don't you cut off your phone?
**RICHARD JONES >** I keep the phone on for lab 1 for students having a hard time logging in. I have a lot who are discovering that they are behind a fire wall.
**RICHARD JONES >** Ok. Rules:

- When you login in and class is in session, don't say hello and don't test.
- Don't draw on the drawing tablet.
- Have the printed labs in front of you with the list of questions you developed when you were working on it.
- The class is mainly a question and answer class
- You might have noticed that the website has past questions and answers from previous semesters.
- It helps if you print them out and study them before you do the lab itself.

**RICHARD JONES >** The first thing we need to do is look at the syllabus.

**RICHARD JONES >** I take calls on my home phone but I don't list the number in my syllabus anymore. The number is (757) 489-4393. DO NOT LEAVE VOICE MAIL ON THIS NUMBER. I SELDOM CHECk IT. Voice mail should be left at the office number, but it is MUCH better to email me.

**RICHARD JONES >** This Syllabus has three items which are not correct for long distance students. If you are long distance, you DO NOT NEED A Zip drive and you do not need an ODU LAN account. Also, the schedule on page 6/6 says Local and it isn't (of course)

**RICHARD JONES >** When I ask for questions, I will type a ?

**RICHARD JONES >** ?

**VERNON KOZLOWITZ >** When is the report due?

**RICHARD JONES >** See page 6

**RICHARD JONES >** There are two types of reports.

**RICHARD JONES >** The Informal report is nothing more than the informal report handout that is located next to the lab on the website. Just click on INFORMAL link and print it out. It should be carefully completed. You have to attach to it any graphs or circuits which were asked for in the lab. They have to be Well labeled, (both titles and axis) and be well annotated. Annotation is where students blow it big time. Read the formal report guidelines for how to do so. The guidelines are also for informals.

**RICHARD JONES >** The other type of report is the formal report. You still have to turn in an informal report with the formal but the graphs are embedded in the formal, not the informal. The report due dates are shown on the schedule.

**RICHARD JONES >** ???

**BOBBY BUNN >** Are we allowed to print the graph from MultiSim, or do they need to be pasted into Word before printing?

**RICHARD JONES >** For the informal, whatever gives you a nice looking graph.

**RICHARD JONES >** ALL FIGURES in a FORMAL report MUST be embedded, not on their own page so they must be pasted into the document

**ERIC RICE >** How do we change title locations and margins, with multisim?

**WILLIAM BEDARD >** The graph lines do not print out dark when printing from Multisim. What do we do about this?

**RENNA HARVEY >** So whenever the labs are due, so are the reports ?

**ERIC RICE >** How do we change the title locations and margins with multisim?

**RICHARD JONES >** So change the darkness of the grid lines.

**WILLIAM BEDARD >** They change on screen, but not in the printout.

**RICHARD JONES >** right click on the graph and select general and then grid. That is a printer problem, not a MS problem.

**WILLIAM BEDARD >** Elect Workbench support confirmed this.

**RICHARD JONES >** change the color to black vice silver. That might help

**RICHARD JONES >** What did they say.

**WILLIAM BEDARD >** It's a bug that they don't have a fix for at this time

**RICHARD JONES >** Ok.

**RICHARD JONES >** DO the best you can.

**RICHARD JONES >** That brings up a point.

**RICHARD JONES >** I would prefer that you did not call the support line yourself if it can be avoided.
**RICHARD JONES >** Please do it thru me.
**MICHAEL MCKEIVER >** Why do the node labels disappear when you paste a circuit into word?
**ERIC RICE >** How do we change the title locations and margins with multisim?
**RICHARD JONES >** I have spent years making the deals with them that I have and sometime students piss them off.
**RICHARD JONES >** Title locations don't get changed.
**RICHARD JONES >** What do you mean by margins
**BOBBY BUNN >** multiSim sometimes cuts off the left axis heading when printing, (description such as voltage), can this be penciled in on informals?
**RICHARD JONES >** Ye and in the formals.
**RICHARD JONES >** Byt the WORD has lots of problems with graphics being pasted in.
**ERIC RICE >** When printing a circuit, you can specify margins so that part isn't covered by the staple, but I can't do this with the graphs.
**RICHARD JONES >** If you are a word user and a graphic isn't working,
**RICHARD JONES >** try to first past into a pint or a cad program and them cut and paste from there.
**RICHARD JONES >** When you cut and paste into a document, the documents margins are what is important.
**ERIC RICE >** So when printing from multisim, it doesn't matter if part is covered by the staple?
**RICHARD JONES >** You can change the font on pables in circutis so they printout in doucments better.
**RICHARD JONES >** Yes it does matter.
**ERIC RICE >** How do change it it so that it will be correct?
**RICHARD JONES >** That is why I prefer to ALWAYS cut and paste into the WP document.
**ERIC RICE >** Ok. I will do that.
**RICHARD JONES >** ??
**RICHARD JONES >** We are not using the white board today so you can enlarge the chat windo over it if you lie
**RICHARD JONES >** like
**MICHAEL MCKEIVER >** where can we find some info on the word generator?
**RICHARD JONES >** later
**RICHARD JONES >** Any questions about the grade weights on page 2/6
**RICHARD JONES >** ok. The Journal is only for the project.
**BOBBY BUNN >** are all labs required?
**RICHARD JONES >** More on that during week 6.
**RICHARD JONES >** All labs are required.
**WILLIAM CAIN >** Can we get the design journal thru ODU?
**RICHARD JONES >** I do drop lowest, but not a zero.
**RICHARD JONES >** Ask that one next week
**RICHARD JONES >** Locate the hardware page and start ordering the parts shown.
**RENNA HARVEY >** Spealing of the Journal, are Composition books ok?
**RICHARD JONES >** Pay attention to the difference between local and long distance students
**RICHARD JONES >** No.
**RICHARD JONES >** I will give you the choices later.
**RENNA HARVEY >** ok
**RICHARD JONES >** Last chance for syllabus questions???
**RICHARD JONES >** Ok.
**BOBBY BUNN >** project intros?

**RICHARD JONES >** See syllabus schedule
**BOBBY BUNN >** what are they?
**RICHARD JONES >** Be clearer. What do you mean?

**BOBBY BUNN >** don't understand project intro #1. Is this something I do or is it a lecture?
**RICHARD JONES >** No. That is the first day I introduce the project to you. There are 7 labs for 7 weeks and the rest of the semester is your project. We don't meet on line after week 7,.
**BOBBY BUNN >** tks
**RICHARD JONES >** Ok.
**RICHARD JONES >** The first handout for lab 1 was just a little disussion about switches and pull-up resistors with a bit of multisim thrown in. There is nothing you need to do but read and understnad.
**RICHARD JONES >** It might come in handy for your project knowlege however.
**RICHARD JONES >** The next hand out (MAIN) is where the lab 1 starts.
**RICHARD JONES >** I will ask questions by page on this. Remember, you are supposed to already triedthe lab by now.
**RICHARD JONES >** page2?
**RICHARD JONES >** Page 3 an 4?
**RICHARD JONES >** The options/preferences it to help with the look and feel of the circuit.
**BOBBY BUNN >** printing Oscope measurements? pg 2
**RICHARD JONES >** The circuit prints out much better when the wires are thicker.
**RICHARD JONES >** Wrong page 2
**BOBBY BUNN >** do we print these from multiSim?
**MICHAEL MCKEIVER >** info on word generator?
**RICHARD JONES >** You are on the 9 page document, not the 28 page document
**BOBBY BUNN >** ok
**RICHARD JONES >** Again, I find it best to cut and paste
**RICHARD JONES >** Wire colors are NOT NECESSARY UNLESS you hae a color printer.
**RICHARD JONES >** In fact, it will make your black and white less easy to ready if you use colors.
**CHARLES LAWSON >** I've had trouble with "bad" connections. Does wire size affect this in any way?
**RICHARD JONES >** Note that on page 6 I say to save the circuit as often as possible
**RICHARD JONES >** good idea.
**RICHARD JONES >** No. Wire size does not.
**RICHARD JONES >** I don't know why but on the digital side the wires may seem to be connected but they aren't.
**RICHARD JONES >** What I do is change the color of the wire.
**RICHARD JONES >** All wires attached to it should change also.
**RICHARD JONES >** Note:
**RICHARD JONES >** When you do a lot of rewiring, deletions, etc, the NETlist in the background getts mixed up. This is a problem with ALL simulators which ahve a visual front.
**RICHARD JONES >** So, if the circuit doesn't work one of your troubleshooting techniques should be to "Copy ALL"
**RICHARD JONES >** Open a new circuit, and then "Paste"
**RICHARD JONES >** This forces it to rewrite the NETLIST.
**RICHARD JONES >** I hve been lobbying for a rewrite button but I haven't wone that one yet.
**BOBBY BUNN >** the lable color sometimes does not change w/the wire color on mine. is this a connection problem? or NetList? Can I correct this?
**RICHARD JONES >** Also note that for a digital circuit, the FIRST THINGS YOU NEED TO PUT ON THE

CIRCUIT ARE
**RICHARD JONES >** a VCC and a DIGITAL GROUND.
**RICHARD JONES >** The digital ground is a little perimid with a stick on it.
**RICHARD JONES >** IT MUST BE ON THE CIRCUIT BUT IS NOT used by the ciruit.
**RICHARD JONES >** What it does is connect the actual grounds on each chip itself to a ground plane.
**RICHARD JONES >** This program outputs a file to be used by a PCB program and this is what it is for.
**RICHARD JONES >** The VCC can be used in the circuit if desired, but if you need a real ground choose the regular ground next to the digital ground for it.
**WALTER ROSE >** question p.5? I am not getting a font list, why?
**RICHARD JONES >** Label colors are set by the preference. Don't worry if it doesn't change with the wire.
**RICHARD JONES >** Rose, perhaps you don't have any built in fonts.
**RICHARD JONES >** Never seen that one.
**RICHARD JONES >** page 7.
**RICHARD JONES >** Word Generator.
**WALTER ROSE >** I have looked at help, can't find how to load fonts
**RICHARD JONES >** The WG is nothing then a place to store commands.
**RICHARD JONES >** Look at FIgure 5 on page 8
**RICHARD JONES >** The left most window is where you see the program that is entered.
**RICHARD JONES >** IT IS IN HEX.
**RICHARD JONES >** Each digit represents 4 binary bits.
**RICHARD JONES >** Therefore, each line sends output to 32 (0 - 31) outputs
**RICHARD JONES >** Is this part clear?
**WALTER ROSE >** very
**ERIC RICE >** Yes.
**RICHARD JONES >** for instance.
**RICHARD JONES >** Line 1 (the second line) is a HEX 5.
**RICHARD JONES >** So outputs 4-31 will have lows on them.
**RICHARD JONES >** Output 3 will have a low
**RICHARD JONES >** outlut 2 and 0 will have a high
**RICHARD JONES >** output 1 will be a low.
**RICHARD JONES >** If you placed you currsor on that line, the binary window at the bottom would show the binary equivalent.
**RICHARD JONES >** The program area is programed in the hex window in the lower right hand corner.
**RICHARD JONES >** We don't use the ASCII window in this course.
**RICHARD JONES >** Each time yuou enter a number in the HEX window and hit enter, it is shown on the desired line and then the cursor goes down one program line
**RICHARD JONES >** The ADDRESS section has 4 windows.
**WALTER ROSE >** do u have to hit enter, it did not and it took
**RICHARD JONES >** How did you tell the computer that you were finished with that line?
**WALTER ROSE >** clicked on the next line, left window
**RICHARD JONES >** Much better to hit enter.
**WALTER ROSE >** thanks
**RICHARD JONES >** The EDIT WINDOW SHOWS WHAT LINE IS BEING EDITED. YOU DO NOT TYPE IN THIS WINDOW.
**RICHARD JONES >** THE CURRENT WINDOW SHOWS WHAT LINE IS CURRENTLY BEING SENT THE OUTPUTS. YOU DO NOT TYPE IN THIS WINDOW.
**DANIEL JOHNSON** has left. [ 01:56:58 PM ]

**RICHARD JONES >** WHEN YOU FINISH programing, you enter the initial line of the program (IN HEX) (Found by placing the cursor on the desired line and reading address in the EDIT WINDIW)
**RICHARD JONES >** Then you do the same with the last line in your program in the FINAL WINDOW (ALSO IN HEX).
**RICHARD JONES >** All other lines should go away.
**RICHARD JONES >** The Controls section sets how you want the program to run.
**RICHARD JONES >** CYCLE will run between INITIAL and FINAL over and over.
**RICHARD JONES >** Burst will do it only one time and stop after the last line is executed.
**RICHARD JONES >** Step allows you to go thru it step by step.
**WALTER ROSE >** how do you toggle to the next step
**WILLIAM CAIN >** Explain all other lines should go away please?
**RICHARD JONES >** If you were to place the cursor on line 7 and the click on the break point button, a little asterick will appear next to the line
**RICHARD JONES >** Wait Rose.
**RICHARD JONES >** Then when you click on Burst, it will execute up to that line then stop. Then you can step it past that line. This is a troubleshooting tool.
**WILLIAM CAIN >** I see that
**WILLIAM CAIN >** Ok thank you.
**RICHARD JONES >** You get rid of the breakpoint in the same manner. Place the cursor on the breakkpointed line and then click breakpoint.
**RICHARD JONES >** OK ROSE, noite that there are no program lines showing after line 10 hex.
**WALTER ROSE >** yes
**RICHARD JONES >** They all went away after a 10 was placed in the window
**WALTER ROSE >** yes
**RICHARD JONES >** Does that answer your question?
**WALTER ROSE >** no!! when I run the component in step mode how do I make it step (execute) the next function?
**RICHARD JONES >** either click on the step button each time or if you lookk at the top right had corner of the workplace you will see a pause/resume button. Clickk on it for each step.
**WALTER ROSE >** ok thanks
**RICHARD JONES >** NExt, the TRIGGER SECTION. FOR THIS COURSE< leave it on INTERNAL.
**RICHARD JONES >** This device supplies its own clock pulse.
**RICHARD JONES >** WHen it is being used, you must ise the R output (stands for Data Ready) as your clock signal to the circuit. Note that it is not a 50% duty cycle.
**RICHARD JONES >** The frequency is set in the Frequecy block.
**RICHARD JONES >** I spend the next 9-22 pages talking about how to use the Logic analyser and then modify the grapher output once it is used.
**RICHARD JONES >** One item in the Logic analyzer.
**RICHARD JONES >** The TERMs will take on whatever name you give the line attached to each input.
**RICHARD JONES >** If for some reason the name doesn't show, there is most likkely a bad connection between where the name is connected and the input to the analyzer.
**RICHARD JONES >** You can use the Clock/div section to squeeze the view on the LA to see more of the output.
**WALTER ROSE >** so would this explain why I can't change my wire net description?
**RICHARD JONES >** If you click on the SET button, you will see a setting of clock frequency.
**RICHARD JONES >** This should be set to 10 times the clock frequency of your circuit.
**RICHARD JONES >** Possibley. If I was you I would copy all, andd then past into a new circuit.
**MARK BUCEVICIUS >** I can not get my Logic Analyzer output to go down to 16ms. I change it before I

run burst, but it changes once the burst starts.
**RICHARD JONES >** ANy questions up to page 22
**WALTER ROSE >** I am planning on doing that after class
**RICHARD JONES >** MB, I don't understand
**ERIC RICE >** Should we leave the clock frequency at 1 kHz for the labs?
**RICHARD JONES >** Wait ER
**MARK BUCEVICIUS >** I can not get the display to look the the one in the handout. It changes once the circuit is run.
**RICHARD JONES >** What does it look likke then?
**MARK BUCEVICIUS >** The Time increment changes and it does not go down to 16.00m. It show approx 50ms.
**RICHARD JONES >** Do you have it set on 16 clocks/Div
**MARK BUCEVICIUS >** Yes
**RICHARD JONES >** 1khz
**MARK BUCEVICIUS >** Yes on the WG and 10khz on the LA.
**RICHARD JONES >** Only 10 Hex lines of code showing on the WG?
**MARK BUCEVICIUS >** Yes
**RICHARD JONES >** DOes not make since. 1khz is 1 ms. 10 hex is 16 so 16 ms of program.
**MARK BUCEVICIUS >** I will work on it more and email you what I find out. Thanks
**RICHARD JONES >** Are you talking about the grapher or thelogic analyzer
**MARK BUCEVICIUS >** The Logic Analyzer
**RICHARD JONES >** The grapher might go out to 50 ms and then you just change the axis final number and increments. The LA can not show it. LEt me know.
**RICHARD JONES >** ??
**RICHARD JONES >** ER?
**WILLIAM CAIN >** Should the waveform we obtain macth the waveform given on page 22 exactly?
**ERIC RICE >** Yes. Should we leave the frequency of the word generator set at 1 kHz?
**RICHARD JONES >** ER, it is normally left at those values for the class.
**RICHARD JONES >** WC, I don't see why not.
**ERIC RICE >** Thanks.
**WILLIAM CAIN >** Ok, thanks
**RICHARD JONES >** Don't forget, I don't want this output. I always want the result of the GRAPHEr output.
**RICHARD JONES >** Ok. Page 23
**RICHARD JONES >** Once you have a printout, you need to analyze the results so that you can see how a T ff works.
**RICHARD JONES >** \
**RICHARD JONES >** You should use this to fill out table 1
**RICHARD JONES >** Is there anyone who does not understand Qp and Qn
**RICHARD JONES >** COme on. I can't believe that everyone understands this.
**WALTER ROSE >** it is written on pg 24
**RICHARD JONES >** BUt do you UNDRSTAND?
**WALTER ROSE >** yes
**WILLIAM CAIN >** Qp - present state, Qn - next state
**RICHARD JONES >** Ok. By the way, Why I'm thinking about it, DO NOT SEND IN THE LAB, ONLY THE INFORMAL.
**RICHARD JONES >** Correct.
**RICHARD JONES >** QN is the state that the FF output will go to after the next clock pulse if the input does

not change.
**RICHARD JONES >** Once you have filled out the table, you should NEATLY annotate (By hand) the graph showing how you found the values for it.
**RICHARD JONES >** I takke off for no annotation or poor or wrong annotation
**RICHARD JONES >** ???
**RICHARD JONES >** Figure 21
**RANDY SHIPP >** how do we get these reports to you
**RICHARD JONES >** All this is doing is setting all the lines attached to it HIGH ALL THE TIME
**RICHARD JONES >** Reports are sent to me via the site coordinators.
**RICHARD JONES >** That is also how I get them back to you.
**RANDY SHIPP >** ok
**RICHARD JONES >** SO, an F means that outputs 0 - 3 are HIGH. If you set this on cycle, this is the same thing as tying all 45 lines to VCC and using a regular clock input.
**RICHARD JONES >** But this time, you can set how long it is going to run.
**RICHARD JONES >** Don't forget to annotate the oscope grapher output showing the measurements for the period for each waverform.
**RICHARD JONES >** Provide any calculations on the graph itself for frequency calcs.
**RICHARD JONES >** ANY QEUSTIONS AT ALL FOR THIS PART?
**ERIC RICE >** Should the left and right axis of the o'scope be labled in voltage, etc.?
**RICHARD JONES >** If it is a voltage then yes. (the oscope output)) In this class, it won't be anything else. That makes since since that is all a Oscope will measure.
**ERIC RICE >** Ok.
**RICHARD JONES >** You can change it to say input and output if you like
**RICHARD JONES >** It just has to be descriptive so an idiot (me) can understand what I'm looking at.
**ERIC RICE >** Ok.
**RICHARD JONES >** Ok, now lets look at the 9 page handout.
**RICHARD JONES >** If you remember from 310 or other digital courses, a D ff can be built with a JK and an Inverter.
**RICHARD JONES >** In this one, we are using a NAND gate as an inverter.
**RICHARD JONES >** Everything should be self-explanitory until page 5
**RICHARD JONES >** When you get a nice graph, you are too plainly and NEATLY mark the areas where the FF is in each of the 4 modes given.
**RICHARD JONES >** Do the same thing on Table 3.
**RICHARD JONES >** And finally, Table 4 is where you record the results of the previous tables. Note that the columns are different.
**RICHARD JONES >** These tables are written as TRANSITION TABLE WITH PRESENT AND NEXT STATE ON THE LEFT.
**RICHARD JONES >** YO MUST USE don't cares for the JKK table.
**RICHARD JONES >** That is it.
**RICHARD JONES >** Any questions?
**THOMAS BEHE >** Back for a second, is Vcc used only with TTL and Vdd used with CMOS? (Supply)
**RICHARD JONES >** We will not be using CMOS in Simms for this class.
**BOBBY BUNN >** I am understanding labs 3,5,6,& 7 are all formal reports, is this correct?
**RICHARD JONES >** I don't think so.
**RICHARD JONES >** Just a second
**RICHARD JONES >** That is correct. 6 counts double and is not one of the ones available for drop the lowest.

**RICHARD JONES >** ????
**RANDY SHIPP >** Mr. Jones, do the labs need to be turned in to the coordinator by the due date or to you in VA?
**RICHARD JONES >** They have to be stamped by the site by that date.
**RANDY SHIPP >** Thanks
**RICHARD JONES >** Please read VERY closely the formal report standards. The rules apply to the graphs and circuits for the informal as well.
**RICHARD JONES >** If you have any questions please use the FSCS SYSTEM LINK ON THE 315 PAGE TO COMMUNICATE.
**RICHARD JONES >** YOU USE YOU EMAIL ID AND PASSWORD TO LOGIN.
**RICHARD JONES >** IF YOU SEND ME ANYTHING, MAKE SURE IT IS VIA FSCS.
**RICHARD JONES >** ok. i'M AVAILABLE BY PHONE IN MY OFFICE TILL ABOUT 4:30 IF YOU WANT TO TALK FURTHER. i'LL LET YOU GO. DN'T FORGET
**RICHARD JONES >** THAT THE ARCHIVE FOR THIS MEETING IS AVAILBLE ON bb AND THAT PAST ARCHIVES ARE ON THE WEB PAGE.