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| **Nova Southeastern University**  **College of Engineering and Computing**  **Information Security**  **Course Syllabus (Winter 2020)** |  |

**Last Date Revised: 01/03/2020**

# I. COURSE NUMBER AND TITLE

Title & ID: **Computer and Network Forensics** ISEC650

Course Term & CRN: Term: 202030 CRN: 31149

Semester & Schedule: Winter 2020 January 6 – May 03, 2020

Class Meeting Time: Online meeting

Classroom Location: Not applicable

# II. INSTRUCTOR

Instructor: J. Richard “Rick” Kiper, Ph.D., Adjunct Professor

Office: Not applicable

Email: [kiper@nova.edu](mailto:kiper@nova.edu)

Tel: 954-595-0805

Office Hours: Live classroom meetings are scheduled every two weeks.

You can always make an appointment if you cannot attend these meetings, or you may contact me via e-mail at any time.

This course is administered by the Department of Computer Science. If the instructor cannot be reached, please contact the Department of Computer Science at 954-262-2052.

# III. COURSE DESCRIPTION

This course is designed to provide an overview of the techniques and technologies that are being applied to the practice of computer and network forensics. The knowledge of computer and network forensics has become essential in securing today's network-centric computing environment. This course will give the students both the fundamental knowledge and hands-on practice on computer and network forensics.

**Prerequisites:** There are no formal prerequisites.However, you *must* have a strong programming and/or technical background, as well as be comfortable with the technical aspects of how file systems operate. You will be diving deeply into file system structures.

# IV. REQUIRED TEXTS AND MATERIALS

It is very important you establish your Lab account in the "Navigate 2" environment during the first few days of this course.  I've given you two weeks to establish your lab account and complete Lab 01.  As you know, our textbook/lab combo is:

**System Forensics, Investigation, and Response (Easttom) 3rd  edition book,**

**ISSA 3.0 Lab Environment via Toolwire Voucher Code**

**Print Bundle Text and Lab – ISBN: 9781284121841**

**NOTE: Our "Course ID" is 3A33A9.  You will need this enroll in our class lab.**

Lab Access must be purchased.  In the **Getting Started** section of Canvas I uploaded an **easy-to-follow guide** on how students may purchase and set up the Lab.  If you need **Technical Support** for the ISSA series and Virtual Security Cloud Labs, call 1-866-601-4525 or email [ISSAsupport@jblearning.com](mailto:ISSAsupport@jblearning.com).

# V. REQUIRED SOFTWARE

* Web browser
* Word processor
* You may find a spreadsheet useful.
* Any other tools you may find useful for analysis of files. If you are capable of programming, you are welcome to create custom tools and applications to assist your analyses. Programming is not necessary but it could be helpful.

# VI. COURSE REQUIREMENTS AND POLICIES

* This is course is delivered in **two-week blocks**. This means you have **two weeks** to complete **two weeks** of work. You are expected to read each assignment/lab description thoroughly and complete them by 11:59 EST on the date they are due.
* Because of the flexibility afforded by the two-week block approach, **late assignments will not be accepted.** Two weeks should accommodate sicknesses and most family emergencies.
* There are weekly assignments that include readings, discussions, and labs. In addition, you will complete one research paper and one exam report package. **All assignments must be submitted as per the assignment instructions in Canvas.**
* Students who are having difficulties should contact the instructor early in the semester.
* Students are encouraged to **discuss course topics with other classmates**. However, the assignments you submit must be your own work. Students may not exchange answers for any graded assignments. Any work that shares the same structure and exhibits the same errors as another student will be considered copying.
* New material may be added, or listed material eliminated depending on the progress made in the course. It is the student’s responsibility to consult the Canvas “**Course Announcements**” regularly.
* The final grade is calculated based on the total value of all discussions, labs, discussions, and papers, as indicated in Section IX below.
* Per the graduate catalog, a student may not do additional work or repeat an examination to raise a grade.
* Plagiarism, copying, cheating and copyright infringement will not be tolerated in this class. Evidence of academic dishonesty of any type, including copying information verbatim from other sources, including other students, will result in 0 points for the problem/assignment in question for the first infraction and possible academic discipline for repeat infractions.
* Except for highly extenuating circumstances, an incomplete grade will not be awarded.
* If an event occurs that warrants consideration, only those students who are missing at most 40% of assignments of any type (discussions, labs, or papers) will be considered. It is the student’s responsibility to monitor their progress and take note of the final withdrawal date for the class.
* **Please review the university policy and procedures at the end of the document.**

# VII. ASSIGNMENT DESCRIPTION

**Bi-Weekly Assignments**

Rather than assigning work to be turned in every week, **this course requires you to submit two weeks of work, every two weeks**. This provides a high level of flexibility in your schedule and study habits, while keeping you on a reasonable pace for the course. In every two-week block I expect you to *read*, *attend*, *post*, *respond*, and *practice* concepts related to that block.

**READ - Textbook Chapters**

During each two-week block, I suggest you read the assigned chapters first. The textbook chapters do not precisely correspond to the content of the labs, but there is enough overlapped material to be valuable. You may also complete the interactive “lectures” available under the **Learning Tools** section of the Navigate 2 online environment, but this is entirely optional.

**ATTEND - Live Lectures**

Approximately every two weeks I will be delivering a live class in either the GoToMeeting or Zoom platform (Check Canvas for updates). While attending these online meetings is optional, I will be clarifying course content and presenting additional “real life” information that might appear in subsequent Discussion assignments. These meetings are also great opportunities for you to ask me questions about the course content, my experience in the FBI, or digital forensics in general. These meetings will be recorded.

**POST – Contribute to Discussions**

You will be responsible for contributing thoughtful responses to **TWO** separate Discussion questions assigned during each two-week block. Both submissions are due on the second Wednesday of the two-week block, in order to allow for a meaningful discussion. However, I will award a **1 point bonus** to submissions posted by the first Wednesday of the two-week block.

**RESPOND – Reply to Contributions of Classmates**

You must post a thoughtful reply to at least TWO separate classmate postings for EACH Discussion thread. In other words, you will post at least **FOUR replies** during each two-week block.

**PRACTICE – Online Labs**

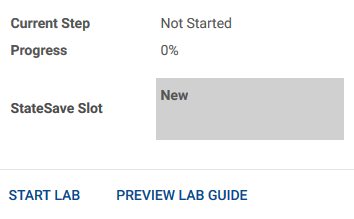
Hands-on experience is an essential part of learning digital forensics. For each lab you will submit:

* **“Lab Report” –** This is a simple word-processing document containing screenshots and other data collected during the lab (The lab instructions will tell you which data and files to collect). Organize the screenshots/captions/data in the same order as that of the lab.
* **Deliverables –** The lab may also require you to submit **actual files** that you export from the lab environment.

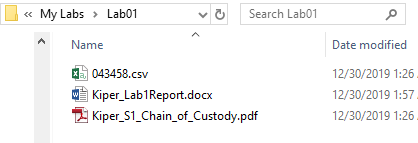
In each lab you will complete either **Section 1** (Hands-On Demonstration) OR **Section 2** (Applied Learning), depending on the lab. During the first few weeks we will stick with Section 1, so you can have time to get used to the environment. Then we will move to Section 2 for the rest of the labs (You can still complete Section 1 if you need more guidance or practice, but it won’t be graded). **Section 3** (Lab Challenge and Analysis) will always be optional, and you can earn as many as **2 points extra credit** if completed correctly and on time.

**Lab Tips**

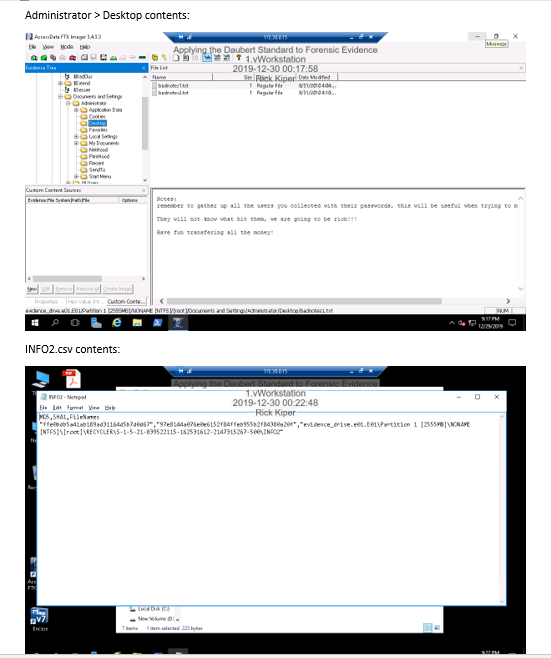
* Read the “**Lab Guide**” (available at the landing page of each lab) to familiarize yourself with the lab structure, common lab tasks and technical requirements:



* You can contact **Technical Support** (<https://jbl-lti.hatsize.com/uploads/ISSA_Support.pdf>) if you have any trouble with the labs.
* Pay attention to the **Deliverables** **list** in each lab.
* Create a **folder** on your local computer for each lab and save your Lab Report and deliverable files identified in the lab, so you can easily upload them to the Lab Assignments in Canvas. For example, your Lab01 folder could look like this:



* Pay attention to the **time limitations** in each lab – don’t leave it open while you’re doing other things. Mouseover the blue banner at the top to see how much time you have left.
* While within a lab, you should go to System > Overwrite StateSave – even when you **first want to save a state**.
* If you view something in **Notepad**, use Format > Word Wrap to view all the contents before taking a screen shot for your Lab Report.
* For **Labs 1-10**, the “Lab Report” is a **simple document** containing screenshots and brief descriptions/captions (Conversely, for the “Final Lab” the report and notes will be more sophisticated). For example, the contents of the simple Lab Report could look like this in response to instructions from Lab 01:



**Additional Assignments**

In addition to the above bi-weekly assignments, you will submit **two other assignments**:

**Research Paper** – An original work containing 6-8 double-spaced pages of text (not counting figures, tables, front matter, citations, or appendices). More details will be provided during the course.

**Exam Report Package** – A realistic set of documents based on a “Final Lab” that will be introduced during the second half of the course. More details will be provided at that time.

# VIII. COURSE SCHEDULE

You can print this page and post it on your bulletin board, or enter it into your favorite scheduling app. If dates or assignments change for any reason (e.g., natural disasters) I will send you an updated Schedule. **NOTE: All assignments are to be submitted by 11:59 PM Eastern Time on the dates listed.**

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| **Week** | **Due Date** | **Tasks to complete** |
| 1-2 |  | *Read:* Chapters 1 and 2 |
| 01/09/2020 | *Attend:* Zoom lecture and Q & A at 8PM EST (optional) |
| 01/15/2020 | *Post:* Discussion 1 and Discussion 2 contributions |
| 01/19/2020 | *Respond:* Reply to at least 2 postings for each discussion |
| 01/19/2020 | *Practice:* **Establish Account** in “Navigate 2” lab environment and Complete **Lab 1 Section 1** (Submit Lab Report and deliverables) |
| 3-4 |  | *Read:* Chapters 3 and 4 |
| 01/23/2020 | *Attend:* Zoom lecture and Q & A at 8PM EST (optional) |
| 01/29/2020 | *Post:* Discussion 3 and Discussion 4 contributions |
| 02/02/2020 | *Respond:* Reply to at least 2 postings for each discussion |
| 02/02/2020 | *Practice:* Complete **Labs 2 and 3, Section 1** (Submit Lab Reports and deliverables) |
| 02/02/2020 | *Submit:* Proposed Research Paper Topic |
| 5-6 |  | *Read:* Chapters 5 and 6 |
| 02/06/2020 | *Attend:* Zoom lecture and Q & A at 8PM EST (optional) |
| 02/12/2020 | *Post:* Discussion 5 and Discussion 6 contributions |
| 02/16/2020 | *Respond:* Reply to at least 2 postings for each discussion |
| 02/16/2020 | *Practice:* Complete **Labs 4 and 5, Section 2** (Submit Lab Reports and deliverables) |
| 7-8 |  | *Read:* Chapters 7 and 8 |
| 02/20/2020 | *Attend:* Zoom lecture and Q & A at 8PM EST (optional) |
| 02/26/2020 | *Post:* Discussion 7 and Discussion 8 contributions |
| 03/01/2020 | *Respond:* Reply to at least 2 postings for each discussion |
| 03/01/2020 | *Practice:* Complete **Labs 6 and 7, Section 2** (Submit Lab Reports and deliverables) |
| 03/01/2020 | *Submit:* Draft Research Paper (OPTIONAL) |
| **SPRING BREAK 03/02–08/2020** | | |
| 9-10 |  | *Read:* Chapters 9 and 10 |
| 03/12/2020 | *Attend:* Zoom lecture and Q & A at 8PM EST (optional) |
| 03/18/2020 | *Post:* Discussion 9 and Discussion 10 contributions |
| 03/22/2020 | *Respond:* Reply to at least 2 postings for each discussion |
| 03/22/2020 | *Practice:* Complete **Labs 8 and 9, Section 2** (Submit Lab Reports and deliverables) |
| 11-12 |  | *Read:* Chapters 11 and 12 |
| 03/26/2020 | *Attend:* Zoom lecture and Q & A at 8PM EST (tentative) |
| 04/01/2020 | *Post:* Discussion 11 and Discussion 12 contributions |
| 04/05/2020 | *Respond:* Reply to at least 2 postings for each discussion |
| 04/05/2020 | *Practice:* **No Lab - Submit Final Research Paper** |
| 13-14 |  | *Read:* Chapters 13 and 14 |
| 04/09/2020 | *Attend:* Zoom lecture and Q & A at 8PM EST (optional) |
| 04/15/2020 | *Post:* Discussion 13 and Discussion 14 contributions |
| 04/19/2020 | *Respond:* Reply to at least 2 postings for each discussion |
| 04/19/2020 | *Practice:* Complete **Lab 10, Section 2** (Submit Lab Report and deliverables) |
| 15-16 |  | *Read:* Review previous course materials |
| 04/23/2020 | *Attend:* Zoom lecture and Q & A at 8PM EST (optional) |
| 04/29/2020 | *Post:* Discussion 15 *– No replies required* |
| 05/03/2020 | *Practice:* Complete **Final Lab** (Submit Lab Report, notes and deliverables) |

# IX. GRADING CRITERIA

**Point Allocation:**

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| **Discussions 1-15  (10pts each)** | 150 points |
| **Labs 1-10  (20 pts each)** | 200 points |
| **Research Paper** | 200 points |
| **Exam Report Package** | 150 points |

**Grading Scale:**

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| **A** | 94 -100% |
| **A-** | 90 - 93% |
| **B+** | 87 - 89% |
| **B** | 84 - 86% |
| **B-** | 80 - 83% |
| **C+** | 77 - 79% |
| **C** | 74 - 76% |
| **C-** | 70 - 73% |
| **F** | <70% |

**How you will be graded:**

**Discussions 1 - 15 (10 pts each = 150 points)**

Your posted discussions and replies will be graded on the following criteria:

* **Ideas, Arguments, & Analysis** - Ideas expressed in discussion posts include original thought, substantial depth, and are relevant to topic. Viewpoint shows strong logical thinking, reasoning, and analysis with evidence and examples. Construction of new meaning and insights are evident.
* **Connection to Course Materials** - Strong, direct connections are made to readings and/or other course materials (lectures, media, resources, etc.) and are clearly stated.
* **Contribution to Learning Community** - Effectively contributes to the learning community. Frequently initiates dialogue and motivates group discussion by providing feedback to students’ postings, asking follow-up questions, and through thoughtful, reflective comments. Respectfully encourages a variety of viewpoints and invites contributions from others.
* **Writing Quality** - Discussion posts are well written and clearly articulated using standard English, characterized by elements of a strong writing style with correct grammar, punctuation, usage, and spelling.
* **Required Postings/Timeliness** - All required postings by the deadline (required: 1 posting + 2 replies to classmates); adequate time for others to read and respond prior to deadline. Bonus points *may* be awarded for posting early and for exceeding the number of required posts.

**Labs 1-10 (20 pts each = 200 points)**

Your labs will be evaluated on completeness and accuracy of each **Lab Report**, along with other **deliverables** (files) resulting from each lab. Remember, you only need to provide what is required by the lab instructions.

**Research Paper (200 points)**

This paper will contain **6-8 pages of text** (not counting figures, tables, front matter, citations, or appendices) and will be graded on the following criteria:

* **Relevance** - Your work is focused upon a critical area of current or emerging focus.
* **Knowledge** - You have demonstrated an advanced application of knowledge and have consistently applied the higher-level cognitive skills of analysis, evaluation, and synthesis.
* **Presentation** - Your presentation of the material is clear, complete, and well organized.
* **Validity** - Your conclusions are supported by the analysis.
* **Required Length** – Your paper contains 6-8 pages of text (not counting figures, tables, front matter, citations, or appendices)
* **References** - You selected a variety of research sources (at least ten) written at the appropriate level, you used your sources well, and your sources are all clearly related to your topic.

**Examination Report Package (150 points)**

The Examination Report Package will contain, at a minimum:

* **Examination Report** – A Summary of processes, analysis and findings
* **Administrative documents** – including an Exam Request and Chain of Custody
* **Examination notes** – including Imaging logs and notes of analysis steps with screenshots

This package will be graded on **accuracy**, **completeness**, and **presentation**. Examples will be provided during the course.

**Extra Credit:**

*Regarding extra credit, retaking and exam, etc:*

"A student may not do additional work or repeat an examination to raise a grade" (NSU 2020 Graduate Catalog, p. 32).

I award bonus points for Discussions and Labs as previously described, but no other extra credit is available.

# X. UNIVERSITY-WIDE POLICY STATEMENTS

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| **College and University Policies and Procedures:** | Top of Form  Top of Form  Top of Form  **1. Standards of Academic Integrity** For the university-wide policy on academic standards, see the section Code of Student Conduct and Academic Responsibility in the *NSU Student Handbook*. Also see the section Student Misconduct in the CEC graduate catalog.  Each student is responsible for maintaining academic integrity and intellectual honesty in his or her academic work. It is the policy of the college that each student must:   * Submit his or her own work, not that of another person * Not falsify data or records (including admission materials and academic work) * Not engage in cheating (e.g., giving or receiving help during examinations; acquiring and/or transmitting test questions prior to an examination; or using unauthorized materials, such as notes, during an examination) * Not receive or give aid on assigned work that requires independent effort * Properly credit the words or ideas of others according to accepted standards for professional publications (see the next section *Crediting Words or Ideas*) * Not use or consult paper writing services, software coding services, or similar services for the purpose of obtaining assistance in the preparation of materials to be submitted for course assignments or for theses or dissertations. * Not commit plagiarism (*Merriam-Webster’s Collegiate Dictionary* (2004) defines plagiarism as “stealing or passing off ideas or words of another as one’s own” and “the use of a created production without crediting the source.”)(see *Crediting Words or Ideas* below)   *Crediting Words or Ideas*  When using the exact words from another work, quotation marks must be used for short quotations (fewer than 40 words), and block quotation style must be used for longer quotations. In either case, a proper citation must also be provided. *Publication Manual of the American Psychological Association, Sixth Edition,* contains standards and examples on quotation methods.  When paraphrasing (summarizing, or rewriting) the words or ideas from another work, a proper citation must be provided. (*Publication Manual of the American Psychological Association, Sixth Edition* contains standards and examples on citation methods. The *New Shorter Oxford English Dictionary* (1993) defines paraphrase as “An expression in other words, usually fuller and clearer, of the sense of a written or spoken passage or text…Express the meaning (of a word, phrase, passage, or work) in other words, usually with the object of clarification…” Changing word order, deleting words, or substituting synonyms is not acceptable paraphrasing—it is plagiarism, even when properly cited. Rather than make changes of this nature, the source should be quoted as written.  *Original Work*  Assignments, exams, projects, papers, theses, dissertations, etc., must be the original work of the student. Original work may include the thoughts and words of others, but such thoughts or words must be identified using quotation marks or indentation and must properly identify the source (see the previous section *Crediting Words or Ideas*). At all times, students are expected to comply with the school’s accepted citation practice and policy.  Work is not original when it has been submitted previously by the author or by anyone else for academic credit. Work is not original when it has been copied or partially copied from any other source, including another student, unless such copying is acknowledged by the person submitting the work for the credit at the time the work is being submitted, or unless copying, sharing, or joint authorship is an express part of the assignment. Exams and tests are original work when no unauthorized aid is given, received, or used before or during the course of the examination, reexamination, and/or remediation.  Top of Form  **2. Writing Skills**  Students must demonstrate proficiency in the use of the English language. Grammatical errors, spelling errors, and writing that fails to express ideas clearly will affect their grades and the completion of their academic programs. The faculty will not provide remedial help concerning grammatical errors or other writing difficulties. It is the student’s responsibility to proofread and edit his or her work, which, in both form and content, should be letter-perfect. Work that is not properly edited will be rejected.  Top of Form  NSU complies with the American with Disabilities Act (ADA). The university’s detailed policy on disabilities is contained in the NSU *Student Handbook.* Student requests for accommodation based on ADA will be considered on an individual basis. Students with disabilities should discuss their needs with NSU’s ADA Coordinator before the commencement of classes if possible.  Top of Form  **4. Communication by Email**  Top of Form  Students must use their NSU email accounts when sending email to faculty and staff and must clearly identify their names and other appropriate information, e.g., course or program. When communicating with students via email, faculty and staff members will send mail only to NSU email accounts using NSU-recognized usernames. Students who forward their NSU-generated email to other email accounts do so at their own risk. CEC uses various course management tools that use private internal email systems. Students enrolled in courses using these tools should check both the private internal email system and NSU’s regular email system. NSU offers students web-based email access. Students are encouraged to check their NSU email account and their course management email daily.  **5. The Temporary Grade of Incomplete (I)**  Top of Form  The temporary grade of Incomplete (I) will be granted only in cases of extreme hardship. Students do not have a right to an incomplete, which may be granted only when there is evidence of just cause. A student desiring an incomplete must submit a written appeal to the course professor at least two weeks prior to the end of the term. In the appeal, the student must: (1) provide a rationale; (2) demonstrate that he/she has been making a sincere effort to complete the assignments during the term; and (3) explain how all the possibilities to complete the assignments on time have been exhausted. Should the course professor agree, an *incomplete contract* will be prepared by the student and signed by both student and professor. The *incomplete contract* must contain a description of the work to be completed and a timetable. The completion period should be the shortest possible. The completion date will not typically extend beyond 30 days from the last day of the term for master’s courses or beyond 60 days from the last day of the term for doctoral courses. The *incomplete contract* will accompany the submission of the professor’s final grade roster to the program office. The program office will monitor each *incomplete contract*. When the incomplete contract ends the course professor will assign a grade based upon the work completed. No student may graduate with an I on his or her record.  Top of Form  **6. Grade Policy Regarding Withdrawals**  Course withdrawal requests must be submitted to the program office in writing by the student. Requests for withdrawal must be received by the program office by the withdrawal deadline (see dates in the academic calendar in the catalog and program brochures or websites). Withdrawals sent by email must be sent from the student’s assigned NSU email account. Requests for withdrawal received after 11:59 p.m. EST on the withdrawal deadline date will not be accepted. Failure to attend class or participate in course activities will not automatically drop or withdraw a student from the class or the university. Students who have not withdrawn by the withdrawal deadline will receive letter grades that reflect their performance in the course. When a withdrawal request is approved, the transcript will show a grade of W (*Withdrawn*) for the course. *Students with four withdrawals will be dismissed from the program.* Depending on the date of withdrawal, the student may be eligible for a partial refund (see the appropriate catalog section Refund Policy Regarding Withdrawals).  Top of Form  Top of Form  Top of Form  Top of Form  Top of Form  Top of Form  Top of Form  Top of Form  Top of Form  **10. Responsibility for Payment of Tuition and Fees**  Once registered, students are personally responsible for the payment of their tuition and fees. Returned checks, cancelled credit cards, employer or agency refusal to pay, ineligibility for financial aid, and other reasons for non-payment may result in a direct bill to the student, and/or referral to a collection agency.  Payment and refund policies are based on the view that a student registering for a class is reserving a place in that class and that tuition and fees cover the opportunity to secure that place in the class. Since no other person can purchase that place, the student is responsible for the tuition and fees associated with it. Simply not attending does not constitute a reason for non-payment.  Bottom of Form  Bottom of Form  Bottom of Form  Bottom of Form  Bottom of Form  Bottom of Form  Bottom of Form  Bottom of Form  Bottom of Form  Bottom of Form  Bottom of Form  Bottom of Form  Bottom of Form  Bottom of Form  Bottom of Form  Bottom of Form  Bottom of Form  Top of Form  Bottom of Form  Bottom of Form |