Professor: Sheikh "Sam" Shamsuddin, Ph.D.   Updated Fall Semester: 8/17/19
Cell Phone: (312) 600-7493
Email: shamsuddin@iit.edu
Office Hours: By appointment, email, call, or text message
Classroom: In-Class and Online
          Tuesday 5:00PM – 7:40PM, Classroom: Stuart Building 213
Class Start Date: 8/21/2019 – 12/3/2019

Recommended Textbook: (Optional)
  Practical Guide to Linux® Commands, Editors, and Shell Programming, 3rd Edition, 2012
  ISBN-10: 013308504X
  ISBN-13: 978-0133085044

Course Catalog Description: This course focuses on preparation of shell scripts to enhance and streamline system administration tasks in all contemporary server operating systems. Scripting will be taught in both native and portable environments. The course will address shell programming, regular expressions, common and system-specific shell utilities and built-in commands, user defined and shell variables, flow control structures, shell functions, and the creation and execution of shell scripts. Homework and hands-on exercises will provide practical experience in contemporary server environments. **Prerequisite:** ITMO 556 (Intro to Open Source Software) Credit: (3-0-3)

Course Outcome:
  Upon successful completion of the course the student will able to:
  - Gain experience skills to write, compile, execute, troubleshoot, analyze, evaluate, and resolve problems using major Shell Scripting Languages - BASH, AWK, Perl, and PowerShell
  - Acquire the ability to develop, synthesize, and identify important language standard libraries and utilities
  - Build experience in software application and development theory and concepts
  - Gain the ability to locate and use of Help Resources

Course Objectives:
  - Develop the ability to write and resolve programming problems using BASH, Perl, and PowerShell
  - Understand the application of script utilities such as grep, sed, and system commands
  - Complete programming assignments using various scripting languages
  - Understand the integration and implementation of scripting and operating system commands
  - Understand scripting syntax and the language features
  - Build the confidence in writing Shell Scripting Programs

Readings/Videos: Readings for the class will be assigned from the textbook as well as in the form of online reading. Online resources and videos will be linked from or embedded in a Blackboard page. It is essential that you do all readings, view the videos, and complete all labs and assignments. These materials are a necessary and integral part of the class and will form the basis for any class discussions on the topic. Specific readings are assigned by topic above.

Course Notes: Copies of the course lecture notes in the form of PowerPoint presentation, websites, additional references accompanying each lecture will be provided on Blackboard. You should be aware that note taking is encouraged and should help them understanding of the material.

Blackboard: The course will make intensive use of Blackboard (http://blackboard.iit.edu/) for communications, assignment submissions, group project coordination, providing online resources and administering examinations. All remote students will view the course lectures online via Blackboard, and online readings and other class resources may be found on Blackboard.

Attendance: Students are expected to be responsible to view all lectures provided online. Students may contact the instructor if further assistance is needed.

Assignments, Exams: This course involves a great deal of hands-on activities and programming assignments. All Assessments and Assignments must be completed on or before the due dates. Late work will not be accepted. The instructor will not accept bulk Assessments or Assignments. Make-up exams are not encouraged except on emergencies situation. It is extremely critical that students complete all tasks on time. Past experience has shown that students who were behind on their assignments never caught up. Submitting assignments in the order assigned will ensure progression according to academic design of the course. Collaboration and teamwork are encouraged; however, students must submit and do their own work. Failure to submit on or before the due dates that will be available on class blackboard will result in zero point. All tasks mentioned above will be assigned via class blackboard.

Note on Assignments: While the theory, concepts, and applications of the subject matter are identical, assignments for graduate students will be slightly different from the undergraduate students. The level of motivations will be relatively challenging.

Academic Honesty:
All work you submit in this course must be your own. You must fully attribute all material directly quoted in papers and you must document all sources used in the preparation of the paper using complete, APA-style bibliographic entries. Including directly quoted material in an assignment without attribution is always plagiarism and will always be treated as such by the instructor. No more than thirty-three percent of material included in any paper may be direct quotes. If you submit plagiarized material you WILL receive a grade of ZERO for the assignment, an Academic Honesty Violation Report will be filed, and it may result in your expulsion from the course with a failing grade as per the IIT and ITM academic honesty policies. There is no excuse for not understanding this policy and if you do not understand it please consult with your instructor to discuss the matter until you do.

E-mail: Every attempt will be made to answer e-mail on a daily basis. When sending e-mail please indicate clearly the problem or concern you are having, your name and course enrolled.

Grading: Method of student's evaluation is based on the accumulation of points on Assignments, Assessments, Labs, and Exams. The grading distribution is as following:

Grading criteria will be as follows:

A	*Outstanding work reflecting substantial effort*	90-100%
B	*Excellent work reflecting good effort*	80 to <90%
C	*Satisfactory work meeting minimum expectations*	70 to <80%
E	*Unsatisfactory work*	0 to <60%

Withdrawal policy: No longer attending a class does not constitute an automatic withdrawal. Students are responsible to withdraw from the course if they have decided not to pursue with the course anymore. Please check the university's calendar for the last date to withdraw the course.

Disabilities: Reasonable accommodations will be made for students with documented disabilities. In order to receive accommodations, students must obtain a letter of accommodation from the Center for Disability Resources and make an appointment to speak with me as soon as possible. My office hours are listed on the first page of the syllabus. The Center for Disability Resources (CDR) is located in 3424 S. State St., room 1C3-2 (on the first floor), telephone 312.567.5744 or disabilities@iit.edu.

Class Tentative Schedule

Week	Topics	Chapter Readings
8/20/19	Class and course introduction. Getting the class notes. Logging in into Linux Operating System.	Class notes. 1 to 4, ref
8/27/19	--------- BASH Scripting, AWK, grep and sed --------- Shell commands. Shell Variables. Linux utilities.	4 to 7, notes, ref
9/3/19	Selection Control, I/O and Redirection.	8, 10, notes, ref
9/10/19	Loops, Functions	8, 10, notes, ref
9/17/19	Regular Expressions – Grep and Sed	Notes, ref
9/24/19	Arrays and File I/O	8, 10, noted, ref
10/1/19	Scripting using AWK	12, notes, ref
10/8/19	Mid-term	
10/15/19	---------- Perl Scripting ---------- Scalar Variables, Lists and Arrays.	11, notes, ref
10/22/19	Hashes	11, notes, ref
10/29/19	I/O, Selection Control, Loops	11, notes, ref
11/5/19	Subroutines, File I/O	11, notes, ref
11/12/19	---------- PowerShell ---------- Simple programming. Selection Control and Loop.	Notes, ref
11/19/19	Arrays, Modules, and Files	Notes, ref
11/26/19	Final Exam Project Distribution	
12/3/19	Final Exam Due	

NOTE: Graduate students may have different or additional assignments.

Expectations and Assignment Submission Rules
1. All assignments, (including assessments, projects, labs, and any related course work) must be submitted on or before the given due dates. Late assignments are not acceptable.
2. When an assignment due date has passed, it will disappear from the class Blackboard (Bb). Please do not ask the instructor to reset the assignment due date or inform the instructor that you can no longer see the assignment on the Bb.
3. Late assignments are not acceptable unless on medical (with a doctor's letter) or emergency situation (with proof).

4. To receive full points, a complete assignment must be submitted by following the assignment's requirements and specifications.
5. Unless specified, all assignments must be submitted on the class Bb. All programs source code listings must be presented with the program output/result.
6. Unless requested by the instructor, no assignments should be sent to the instructor's email address. Any assignments sent to the instructor's email without permission will be disregarded.
7. Submitting assignments in the order assigned will ensure progression according to the academic design of the course.
8. Discussions and collaborations are permitted. However, students must do their assignments. Dishonest work will be disciplined according to the university's policy.
9. If you are caught copying someone's work, you will be placed in one of the following possibilities (depending on the work):
    a. You get a zero for your current assignment.
    b. You will get one letter grade less in the course; i.e. if you get an A, you will get a B grade.
    c. You will be expelled from the university.
10. If you are caught copying above, all of your previous work relating to the course will be re-examined and re-evaluated. All of your future work in the course will be closely scrutinized.
11. I am aware of grading distribution for this course as stated in the syllabus.
12. The grading distribution will not be curved.
13. A student's attitude and behavior relating to the course will be considered when a borderline grade befalls to boost up the grade to the next higher letter grade.
14. An incomplete grade is not allowed.
15. Students are responsible for withdrawing from the course if no longer attend the class. Please check the university's academic calendar on the last day allowed to withdraw from the class.
16. Bad planning on a student's part is not an emergency on the instructor's part.

This syllabus is a contract between the instructor and the student as to what the instructor will deliver and what is expected from the student. If the instructor changes the syllabus, the revised version will be uploaded on the Blackboard. Revisions to readings and assignments will be communicated via Blackboard.