

Module 1.1

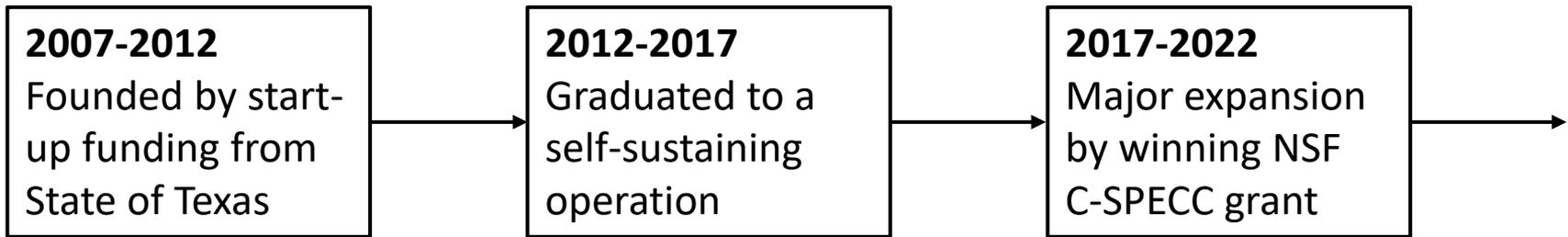
Course Overview

Ravi Sandhu

Spring 2021

MISSION

Excellence in graduate-level sponsored research



- **FlexCloud & FlexFarm**
World class research laboratories
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In collaboration with:
College of Engineering
College of Business
College of Education
Open Cloud Institute
Cyber Center for Security & Analytics

Partnership with 4 NISD High Schools:
Harlan, Woodson, Taft, Business Careers

Spring 2021

CS 6393: Cyber Security Foundations and Practice (Cross-Listed)

CS 4483: Cyber Security Foundations and Practice (Cross-Listed)

Location: Internet. Mode: Fully asynchronous.

Prerequisites: For CS 6393: CS 5323 or permission of instructor

Prerequisites: For CS 4483: CS 3113 or permission of instructor

[Prof. Ravi Sandhu](#)

[Welcome Message](#)

Class web site: www.profsandhu.com/cs6393_s21

Consult this page frequently. It will evolve over the course of the semester.

CS 6393 and CS 4483, Spring 2021, Prof. Ravi Sandhu Welcome Message

Welcome to the Spring 2021 offering of the cross-listed courses CS 6393 and CS 4483. I very much miss being face-to-face in class with you. This experience of a totally virtual and completely asynchronous course delivery is a first for me, since I did not teach in Fall 2020 and Spring 2020 was only half in this mode. Most of you, likely experienced this mode in Fall 2020.

I do not believe it is possible or reasonable to meaningfully replicate the camaraderie, learning dynamics and excitement of an in-person class in this mode. What we will do is utilize the beneficial aspects of virtual asynchronous lectures to create a completely different but meaningful learning experience.

This is an elective course. Presumably all the students have a particular interest in cyber security, so I will assume that cyber security is exciting to you all. My goal in such elective courses has been twofold: (i) to impart knowledge that will be useful to students as they proceed through their careers which will require some hard work by all of us, and (ii) to have enjoyment, along with the hard work, in the process. We will pursue these same goals in our new virtual and asynchronous mode.

WELCOME!

PS If you would like to learn more about me and my career in cyber security please visit www.profsandhu.com

I. Recent Announcements

Click for the [complete list](#)

Course Relevant

- 1/28/21: Module 1.1 is available
- 1/28/21: Class-wide email: [Module 1.1 is available](#)
- 1/22/21: Class-wide email: [Welcome and please acknowledge receipt](#)

General Interest

- 1/28/21: [\(i\) ACM announcement](#) [\(ii\) ACM flyer 1](#) [\(iii\) ACM flyer 2](#) [\(iv\) ACM-W announcement](#)

II. Course Format

- **Lecture Units and Modules:** Lecture structure and organization are described [here](#).
- **Virtual Attendance:** Evidence of virtual attendance must be provided as per the requirements and policies stated [here](#).
- **Assignments:** There will be one assignment for each lecture unit, posted [here](#). Submission requirements, policies and grading rubric are given [here](#).
- **Grades:** Will be entirely based on **assignments** and **virtual attendance** (equal weightage for both). Each assignment has equal weightage. **No examinations.**

III. Communication

- **Students to Instructor:** Send email to ravi.sandhu@utsa.edu. Please begin the subject line with 6393 or 4483.
- **Instructor to Students:** Primary communication channel is this web page. Occasionally class-wide email will be sent.
- **Office Hours:** Please request a 30min Zoom appointment via email. Include your availability for Mon, Wed or Fri.
- **Frequently Asked Questions:** A list of frequently asked questions and answers is available [here](#).

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Lecture Units and Structure

- Each lecture unit will nominally cover 2-3 semester weeks.
- Each unit will comprise multiple modules.
- Each module will be in narrated PowerPoint and available for download at the student's convenience.
- Class does not meet synchronously in real-time.
- Lectures will be supported by papers from the literature. There is no textbook.
- Papers will be marked as follows:
 - Full: read in full
 - Part: read partially
 - Ref: for reference

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Virtual Attendance Requirements

- For each lecture module number N you have viewed, please send an email according to the following template.
 - **To:** ravi.sandhu@utsa.edu
 - **Subject:** 6393 module N OR **Subject:** 4483 module N
 - **Email body:**

As per the UTSA honor code I attest I have viewed the lecture module specified in the subject line. The following comment on the module has been formulated and written entirely by me without any assistance from anyone.

Your comment should address any one of the following: (i) identify one of the main points of the lecture, (ii) pose a question based on the lecture, or (iii) argue against one of the points made in the lecture. Please be brief: maximum 3 sentences.
- You may bundle the response for more than one module and more than one unit in a single email.

Virtual Attendance Policies

- Virtual attendance will be scored as satisfactory/unsatisfactory.
- Students will be informed regarding unsatisfactory responses and given opportunity to resubmit.
- There is no formal deadline for individual modules. I will alert students who are falling behind a reasonable schedule.
- The entire set must be submitted by Friday, May 7, 2021 (1 week after last day of class).

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Complete List of Assignments in Chronological Order

One assignment per lecture unit

- Assignment 1: TBD, Due: TBD
- Assignment 2: TBD, Due: TBD
- Assignment 3: TBD, Due: TBD
- Assignment 4: TBD, Due: TBD
- Assignment 5: TBD, Due: TBD
- Assignment 6: TBD, Due: TBD

Assignment Submission Requirements

- Your response for assignment N must be submitted by the specified due date as a pdf file named *<your last name>N.pdf*
- For assignment number N please submit your response in an email according to the following template.
 - **To:** ravi.sandhu@utsa.edu
 - **Subject:** 6393 assignment N OR **Subject:** 4483 assignment N
 - **Email body:** *Please include the following honor code statement*
As per the UTSA honor code I attest I have not taken any help from anyone, including but not limited to my classmates, in formulating and writing this response. Also, I have not given any help to anyone else in writing their response to this assignment. Finally, I attest I have cited all sources used in my response and identified as quotations any material taken directly from such sources.
 - **Email attachment:** *Include a pdf file named as <your last name>N.pdf*

Assignment Policies

- One assignment for each lecture unit.
- Must be submitted by designated deadlines, but otherwise no time limit.
- Will be based on Prof. Sandhu's lectures as well as require students to go beyond the lectures.
- Response must be formulated and written individually without discussion with anyone else.
- You can refer to any material but are not allowed to discuss with anyone, including but not limited to your classmates.
- Excessive searching for relevant material is not recommended.
- Please cite any external sources used in your response and identify any parts directly taken from such a source as a quotation.

Assignment Grading Rubric

- There is no "correct" answer as such.
- Each question will be graded on three aspects as follows:
 - ◊ EQ: Evidence of Effort and Quality of presentation
 - ◊ CR: Content Completeness and Relevance
 - ◊ CO: Content Originality
- Grading will be on a 3 point scale as follows:
 - ◊ 1: Answer is below the expected level for this class
 - ◊ 2: Answer is at the expected level for this class
 - ◊ 3: Answer is above the expected level for this class
- The overall score is not to be interpreted as a percentage.
- Each assignment is intended to be a teaching as well as a grading exercise.
- I will be happy to discuss your answer and grading one-on-one, including possible upgrading of the score.

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IV. Recent and Upcoming Lecture Units

Click for the [complete list](#)

- **Unit 1:** Course and Cyber Security Overview. Weeks 1-2, ending 1/29/21.
 - **Module 1.1:** Course Overview
 - Slides with audio: [pptx+audio](#)
 - Slides without audio: [pptx pdf](#)
 - **Module 1.2:** Cyber Security Big Picture
 - **Module 1.3:** TCP/IP Security Story
 - **Readings:** Full: [How to spell cyber security?](#), [Bishop-2003](#), [Solms-Niekerk-2013](#), [Sandhu-et al-2010](#)
- **Unit 2:** The SSL Protocol and its Intrinsic Vulnerability. Weeks 3-4, ending 2/12/21.
- **Unit 3:** Access Control Models Alphabet Soup. Weeks 5-7, ending 3/5/21.
SPRING BREAK, Week ending 3/12/21.
- **Unit 4:** Detection Technologies. Weeks 8-9, ending 3/26/21.
- **Unit 5:** Cloud Enabled IoT Access Control. Weeks 10-12, ending 4/16/21.
- **Unit 6:** TBD. Weeks 13-14, ending 4/30/21.

- Goals:
 - ❖ All of us should enjoy the course
 - ❖ All of us should learn something that will be beneficial through our careers
- Course format
 - ❖ Designed to be convenient for all of us without compromising learning objectives
- Please be organized and responsive as the semester proceeds
- Do not hesitate to reach out with questions or concerns