

THE VIRGINIA UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL CATALOG 2017 – 2018

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**The Virginia University of Science & Technology is certified
To Operate in the Commonwealth of Virginia
by the State Council of Higher Education for Virginia (SCHEV).**

★★★ Notice ★★★

This catalog serves as an official document of the Virginia University of Science & Technology d/b/a VUST (hereinafter “**VUST**”) and provides general information about VUST’s degree programs, course offerings, policies, procedures, regulations, faculty, and administrative officers for 2017-2018 academic year only. Each student is expected to read this document carefully and should direct any questions regarding academic program requirements or the content of this catalog to his/her VUST academic advisor, faculty advisor/mentor, or course instructor. Compliance with the policies, procedures, and regulations set forth in this catalog is the personal responsibility of each student.

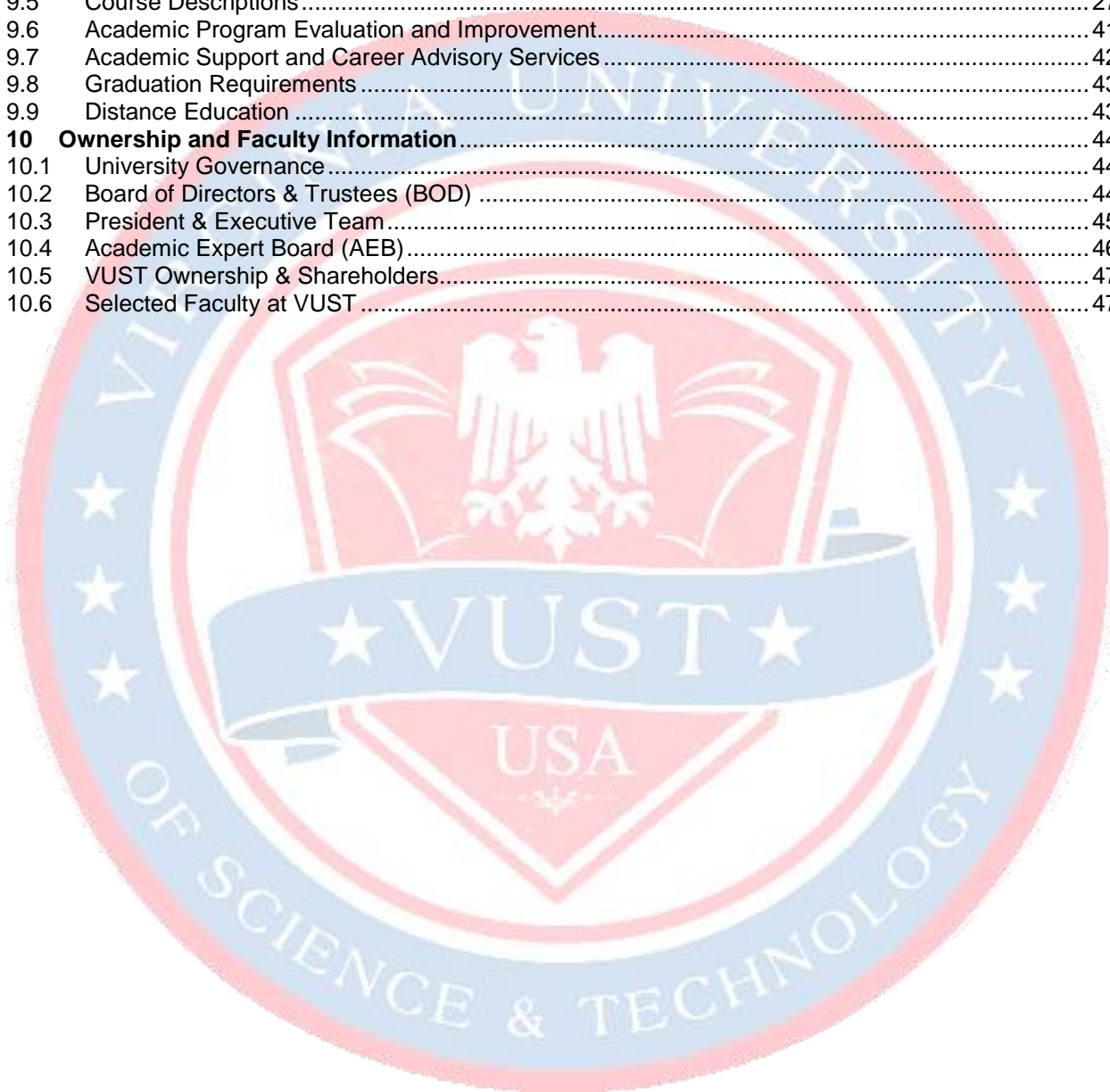
VUST complies with the Drug-Free Workplace Act of 1988 and the Drug-Free Schools and Communities Act Amendments of 1989, and all applicable federal, state and local laws and regulations relating thereto. VUST does not discriminate on the basis of race, color, national origin, sex, sexual orientation, political view, age, religion, disability, status as a veteran or any other personal delimitation or attribute in any of its policies, practices, or procedures. This includes but is not limited to admissions, employment, financial assistance, and educational services.



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1. General Information

1.1 About VUST

VUST is a private university established in the Commonwealth of Virginia. The VUST campus is located in McLean, Virginia at 8400 Westpark Drive, Suite 118, McLean, Virginia 22102-3522. McLean is a suburb of the nation's capital, Washington D.C., and is located within a 25-40 minute drive of most of the Greater Washington Metropolitan area (inclusive of Southern Maryland, Washington, D.C. and Northern Virginia). The VUST campus is conveniently situated within walking distance of both the Greensboro and Spring Hill stations of the silver line of the Washington, D.C. Metro rail system.

VUST's primary telephone number is 703-298-5852, its fax number is 703-992-0249, and its website is www.vust.us. School contact email: info@vust.us.

VUST is developing an experienced professional management team, a highly qualified faculty, and a dedicated professional recruitment team. VUST strives to build and sustain advanced academic programs and first-class student services.



Figure 1. VUST Campus Building

1.2 University History

In 2009, Dr. Martin Ma and other long-term educators first formed an initiative committee for the purpose of establishing a new, private university in Northern Virginia. The committee members engaged expert

consultants to conduct a marketing analysis, feasibility study, and risk assessment profile for the creation of the new university, while at the same time engaging in a fundraising campaign to bring interested investors into the project. An initial board of directors for the university project was organized, and in April of 2012, a group of key directors attended the State Council for Higher Education in Virginia's ("SCHEV") mandatory orientation program. VUST was formally incorporated in the Commonwealth of Virginia in January of 2013. By March of 2015, the board of directors had secured a permanent campus home for VUST in McLean, Virginia, equipped with classrooms, offices, labs, a library, and other facilities. In October of 2015, VUST formally applied to SCHEV for accreditation as a Virginia university, with the goal of opening its doors to students for the first time in 2016.

The State Council of Higher Education for Virginia (SCHEV) certifies Virginia University of Science & Technology to operate as a degree-granting postsecondary institution in the Commonwealth of Virginia in May 2016. On September 16, 2016, The Virginia University of Science & Technology had its grand opening ceremony. 2006 Nobel Prize in Physics Laureate Honorable Dr. Mather is Keynote Speaker at VUST Open Ceremony. The University is also proud that honorable Amata Coleman Radewagen, U.S. Representative, as the speaker in the VUST Open Ceremony. The former Assistant Speaker of the US House of Representatives, US Senator, honorable Chris Van Hollen, and US Senator honorable Ben Cardin gave video greetings. US Congressman honorable John Delaney granted the Certificate of Special Congressional Recognition to Virginia University of Science & Technology. US Senator honorable Tim Kaine, honorable US House Representatives Barbara Comstock, Gary Connelly, Donald Payne, Jr, and Virginia Lt. Governor honorable Ralph Northan assigned their representatives to attend the VUST Open Ceremony to present Official Citations and Greeting letters to VUST. Former Chief Finance Officer of US Department of labor Samuel Mok, Maryland Senator Susan Lee, Virginia Delegate and Majority Leader Tim Hugo, Directors of Information Technology from US Department of Labor and US Office of Personal Management (OPM), as well Fairfax County leaders and many community leaders attended the VUST open Ceremony.

The first class of Master of Science in Cybersecurity and Information Assurance at Virginia University of Science & Technology is fall 2016. Most of VUST students are minority and women with more than 10 years of working experience in Information Technology and network security fields. Many of them are senior technical leaders in their organizations or governmental agencies.

1.3 Mission Statement

VUST is a creative and dynamic higher educational institute that offers equal opportunity for higher education with cutting-edge technology in an innovative state of the art of learning to all of our students from Virginia and anywhere else in the world.

VUST's Vision is to establish a well-known, medium sized, comprehensive private university in the mid-Atlantic region within 15+ years with both domestic and international recognition. Its goal will be achieved in three stages by accomplishing its short term, middle term, and long-term plans.

The Mission of the Virginia University of Science & Technology is to meet the growing need for highly-skilled, graduate trained, job-ready men and women primarily in the computer and information technology industry, with particular emphasis on the cybersecurity sector.

1.4 Purpose

VUST's initial purpose is to meet the growing need for highly skilled, graduate-trained, job-ready men and women primarily in the computer and information technology industry, with particular emphasis on the security sector. While VUST's primary focus is on teaching and learning, it is planning to develop a center to conduct research in Cybersecurity and Information Technology that will engage VUST faculty and students. VUST intends to share research results and resources with local communities.

1.5 Goals and Objectives

- To offer graduate programs in high-growth fields within the areas of computer and information technology, emphasizing in Cybersecurity and Information Assurance.
- To offer professional programs in computer & information technology that address critical manpower needs and disturbing knowledge gaps.
- To develop graduates who are job-ready and who will gain employment commensurate with their skills and competencies.
- To provide well-qualified practitioner faculty who are committed to excellence in promoting student learning and in assisting students become job-ready and find suitable employment.
- To operate VUST with enviable program quality, admirable integrity and sustainable profitability.
- To build a management team that will lead VUST in a manner that will enable achievement of these goals and objectives.

1.6 VUST Facilities and Equipment

The VUST campus is located in McLean, Virginia at 8400 Westpark Drive, Suite 118, McLean, Virginia 22102-3522. The facility consists of three classrooms, one distance learning center/conference room, one cybersecurity lab, a library, a student lounge area, and four administrative offices.

VUST has 42 laptop PC computers, one Apple MacBook computer, seven all-in-one smart touchscreen PC desktop computers, four printers, three 90" Smartboard & projector, and three 65" 3D smart TV, and etc. Microsoft Office 2018 and Adobe Professional software are installed in all the computers.

VUST has set up three state-of-the-art classrooms (Figure 2) with cutting-edge technology, such as smartboards with interactive features (Figures 3 and 4.). VUST also set up its teleconference and distance learning center. This center will also serve as VUST's conference room (Figure 4), and library (Figure 5).



Figure 2. VUST State-of-the-Art Classroom

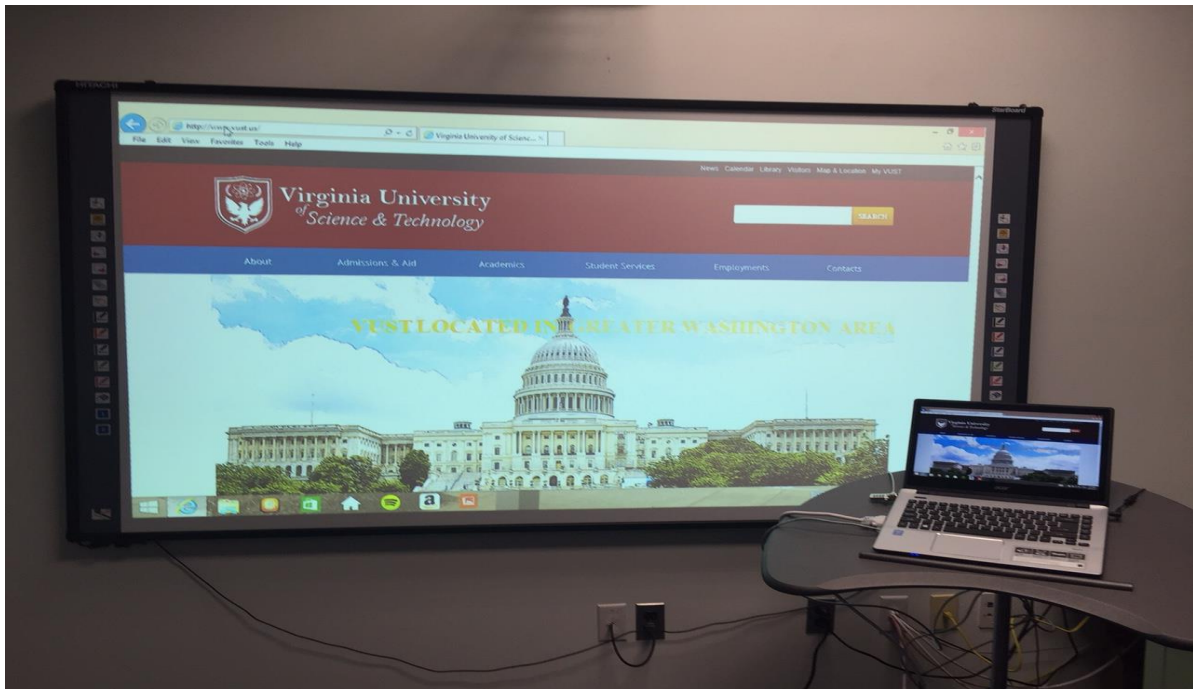


Figure 3. Interactive Smartboard in Classroom

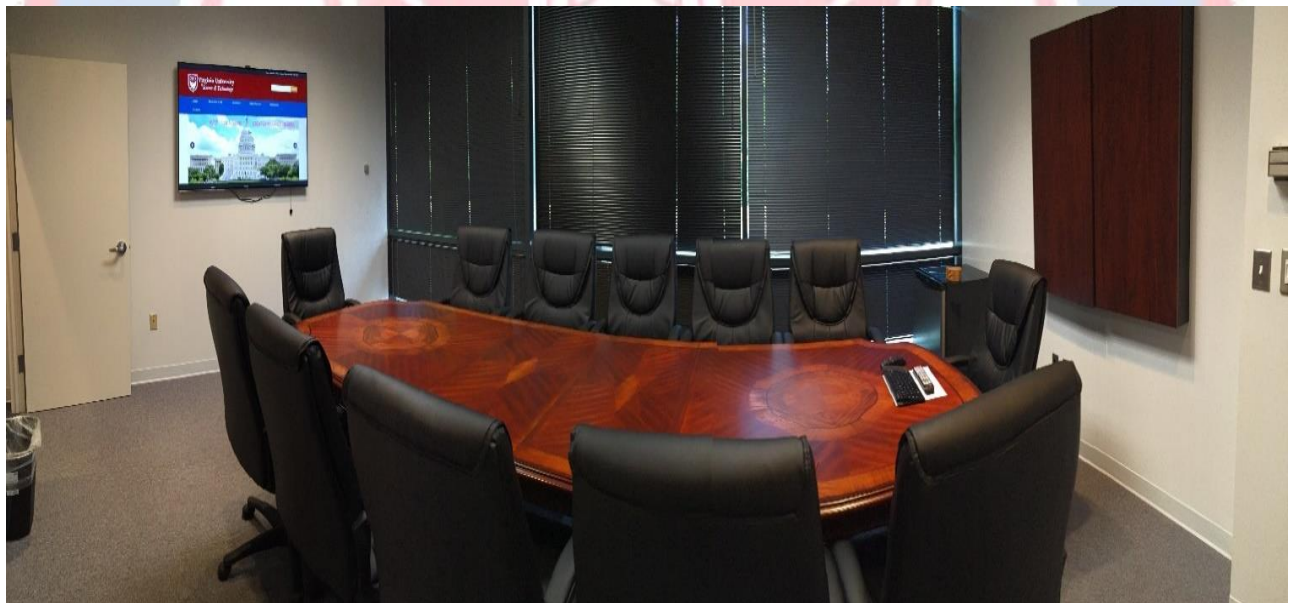


Figure 4. VUST Conference Room & Distance Learning Center

All the facilities and equipment create a state-of-the-art study environment with cutting-edge technology.

1.7 University's Library

VUST has its own library with approximately 1,000 books and magazines (Figure 5). This library contains an up-to-date collection of books, periodicals, newspapers and other instructional materials that are readily accessible to all VUST faculty and students. The library also boasts touch-screen and state-of-the-art computers that allow faculty and students to access VUST's Online Library (which utilizes the electronic Library and Information Resource Network [LIRN] and ACM Digital Library), which contains thousands of

periodicals and books in electronic format. In addition, students have access to the Online Librarian to assist with information search needs. Access to the Library and the Online Librarian is provided through a student access code provided by VUST. For more information regarding the online library, please contact librarian: Librarian@vust.us



Figure 5. VUST On-Campus Library

1.8 Approval to Operate & Accreditation Plan

VUST is certified to operate by the State Council for Higher Education in Virginia, whose official address is 101 N. 14TH St., 10TH Floor, James Monroe Bldg, Richmond, VA 23219. The telephone number is (804) 225-2600, and the fax number is (804) 225-2604.

VUST is a young and growing institution of higher education. VUST is preparing to seek regional accreditation from the **Southern Association of Colleges and Schools Committee of College (SACSCOC)**, it is one of six regional accrediting bodies recognized by both the U.S. Department of Education and the Council for Higher Education Accreditation (CHEA). At the meantime, VUST also seek national accreditation from **Accrediting Commission of Career Schools and Colleges (ACCSC)**, one of three national accrediting bodies recognized by both the U.S. Department of Education and the Council for Higher Education Accreditation (CHEA).

1.9 Academic Programs Offered at VUST

Our statement of purpose states that VUST's "initial purpose is to meet the growing need for highly-skilled, graduate-trained, job-ready men and women primarily in the computer and information technology industry, with particular emphasis on the security sector." Our first College is the College of Cybersecurity & Information Assurance (CIA), whose mission is to provide state-of-the-art graduate programs for the education of computing and telecommunications professionals, particularly in the area of cybersecurity in various industries.

The first program to be offered will be a Master of Science degree in Cybersecurity & Information Assurance (MSCIA). Courses in this 45-credit program have been designed by cybersecurity academic and industry professionals to prepare graduates with job-ready skills. The program includes a choice of two specialization tracks: System Cybersecurity and Operation Assurance along with an optional capstone independent study worth three credits. VUST also offers 18-credit certificate programs in Operation Assurance and System Cybersecurity.

Over the next several years, VUST plans to offer additional majors in the College of Artificial Intelligence (CAI) that will focus on Business Intelligence and Information Systems Technology. We also plan to add a College of Big Data (CBD), College of Advanced Business Management and Technology (CABMT) that will offer programs for people desiring to move into management positions within the Computer & Information Technology industries, with an emphasis remaining on the security sub-industry, such as Financial Information Assurance.

The location of the offering courses at VUST is 8400 Westpark Drive, Suite 118, McLean, VA 22102-3522. For more detailed information, please contact the VUST Academic Affair Office via email: academics@vust.us.

1.10 University Operation Hours

VUST Administration Office hours:
Monday – Friday: 8:30 a.m. to 5:30 p.m.
Saturday: 10:00 a.m. to 4:00 p.m.
Sunday: Closed

VUST Class hours:
Monday – Saturday: 9:00 a.m. to 4:00 p.m. (Fall, Winter, and Spring Semester)
8:00 a.m. to 5:00 p.m. (Summer Section)

Evening Class: 5:30 p.m. to 8:30 p.m. (Fall, Winter, and Spring Semester)
5:30 p.m. to 9:30 p.m. (Summer Section)

Sunday: Closed

1.11 School Calendar in 2016 - 2017

VUST operates on a quarter system, and each year is divided into four quarters: Fall, Winter, Spring, and Summer. Students may apply for acceptance into any one of these quarters.

Fall Quarter 2017	
September 12-29	Registration
September 27 (Wed)	First day of classes
November 23-25 (Wed-Fri)	Holiday – no classes
December 16 (Sat)	Last day of classes

Winter Quarter 2018	
January 2-9	Registration
January 10 (Wed)	First day of classes
March 24 (Sat)	Last day of classes

Spring Quarter 2018	
March 25 – April 6	Registration
April 7 (Sat)	First day of classes
June 20 (Wed)	Last day of classes

Summer Quarter 2018	
June 21 – July 6	Registration
July 7 (Sat)	First day of classes
September 5 (Wed)	Last day of classes

1.12 Campus Security Act Information

VUST is located in a safe, suburban environment. Nevertheless, students are urged to take appropriate precautions to remain safe and to avoid potential problematic situations. Students are to report all known

or suspected crimes that occur on campus to the Dean of Student Services. In a written report, students are asked to include the following information: the name of the person reporting the crime, the nature of the crime, the time and place of its occurrence, and the victim(s), if any, of the crime. Information regarding crimes in the area surrounding VUST's campus is available through the General Counsel. All crimes involving university students are to be reported to the General Counsel as well as to the Fairfax County Police Department.



2. Admission and Entrance Requirements

2.1 Admission Procedures and Policies

A prospective student's acceptance is not finalized until all documents are received to the satisfaction of the Admissions Office. Until a student's admission is finalized, he or she has not completed the admissions process. A student's VUST acceptance may be denied any time during the admissions process.

VUST is an equal opportunity educational institution. VUST does not discriminate on the basis of race, color, religion, national origin, age, political views, sex, height, weight, sexual orientation, marital status, or physical disability in the administration of its admissions policies, educational policies, scholarships, loan programs or other school administrated programs.

2.2 Graduate Admission Policy and Entrance Requirements

A prospective graduate applicant must meet the following policies and requirements:

1. Have a bachelor's degree from an accredited institution or the equivalent from a foreign college or university.
2. Provide a personal statement that demonstrates writing skills at a level consistent with that expected of graduate-level candidates and career objectives consistent with the objectives of the program for which the prospective student is applying.
3. Have a 3.0 GPA or above. If an applicant's undergraduate GPA is less than 3.0, approval from the Admissions Office is required. The Admissions Office may issue a provisional admission for a student with a GPA of less than 3.0. Students with a Provisional Admission must take specific required course(s) to improve his/her academic capability in one quarter.
4. Provide two recommendation letters from his/her college professors or employers/or supervisors.
5. Fill out VUST's Application Form for Graduate Program, the application form with support documents must be submitted before application deadline – one weeks before the quarter start day.
6. Application Fee of \$60.00. This is non-refundable fee.

The administration of VUST reserves the right to waive certain admission standards in exceptional cases and to provide conditional admission to such students.

- If a student has Associate Degree with GPA of 3.0 and 5-year working experience in Information Technology field or related fields, it is equivalent as a baccalaureate applicant. But the applicant may require a personal review by a member of Academic Committee to determine the applicant whether or not qualify to be admitted as graduate student at VUST.
- If a student has Bachelor Degree in Library-arts with GPA of 3.0 and less than 5-year working experience in Information Technology field or related fields, Students with a Provisional Admission must take specific required course(s) to improve his/her academic capability in one quarter.

In addition to completing the general application, the prospective student must arrange for the Admissions Office to receive the following:

- Official transcripts of all undergraduate and graduate work completed. The official transcript should be sent directly to VUST from institutions previously attended and affixed with the institution's seal(s). Transcripts submitted by a student need to be in a sealed envelope bearing the institution's official seal.
- Two letters of recommendation from the applicant's professors, employers or graduate counselors.

International Applicants: At such time as VUST is eligible to enroll international students, the following additional admission requirements will apply:

VUST welcomes applications from citizens with distinguished credentials from countries outside the United States. Students will have met the English proficiency requirement if they have completed four years at institutions where English is the primary language of instruction. For visa purposes, international students staying in the U.S. are required to enter a degree-seeking, full-time program of study. If the official transcripts are not in English, notarized translations are required.

Evidence of English proficiency must be presented. This may include a minimum TOEFL score of 79 or 6.0 on IELTS for graduate students or equivalent scores from PTE or iTEP. English programs are available for those who do not have the required scores. Consult with the Admissions Director for further information and procedures.

A personal interview, as well as a visit to the campus, is recommended for all students. For students who cannot come to the VUST campus, electronic options will be considered.

Admission Letter: Acceptance of a student for admission into VUST as a regular graduate student will be based on all of the aforementioned items and will be made by the Vice President for Admission Office. Written notification of the admission decision will be made to the student by mail or through electronic communication within fifteen (15) business days of receipt of 100% of the required documents.

Accepted Notification from Student: A prospective student who is admitted by VUST must formally note the Admission Office via email or letter to clarify that he/she accepts VUST's offer within two weeks. Otherwise, it is considered that student rejected VUST's offer.

Registration Deadline: A student who decides to enroll VUST must register at least one course one week before class start day with writing approval of academic advisor.

GMAT/GRE Requirements: If potential graduate students have taken the GMAT or GRE and submit their scores, this will enhance their admissions candidacy, especially for those who fail to meet the minimum undergraduate GPA requirement.

Conditional Admission Status: Conditional Admission is a classification for students who have completed an official application and submitted all required documents, but whose English proficiency does not yet meet the minimum required by VUST.

Provisional Enrollment Status: Students who have not completed prerequisite courses for the program in which they seek to enroll will be required to complete such courses or pass equivalency exam(s) before entering the degree program. A student's academic progress will be measured according to the following standards described in the section of student academic satisfaction.

2.3 Admission Policies for Prior Learning and Working Experience

In addition to VUST's general admission policies and minimum requirements stated above in section 2.2, VUST policy for awarding credit for prior learning is that VUST will consider prior learning acquired through an applicant's workshops, training programs, examinations, actual work experience and the like and award up to nine (9) credits in a relevant academic degree program. Credit determination will be based on submission by a student of a portfolio documenting the learning for which the student is seeking credit, with determination of credit will be made by the Dean of the appropriate College.

2.4 Policies for Transfer Students

A transfer student seeking a Master degree is defined as a graduate student who has attended the US Accredited University or College. The students are willing to transfer to Virginia University of Science & Technology to complete their master degree program.

2.4.1 Maximum of credits can be transferred to VUST

A maximum of 12 semester-credits (or 18 quarter-credits) of high-quality graduate work done at an accredited U.S. institution or an officially recognized degree-granting international institution may be applied toward the requirements for a master's degree. However, credits earned to complete a previous master's degree, whether at VUST or elsewhere, may not be applied to a second master's degree at VUST.

Approval to apply any transferred credits toward a degree program must be granted by the student's academic advisor, or the program head or graduate officer.

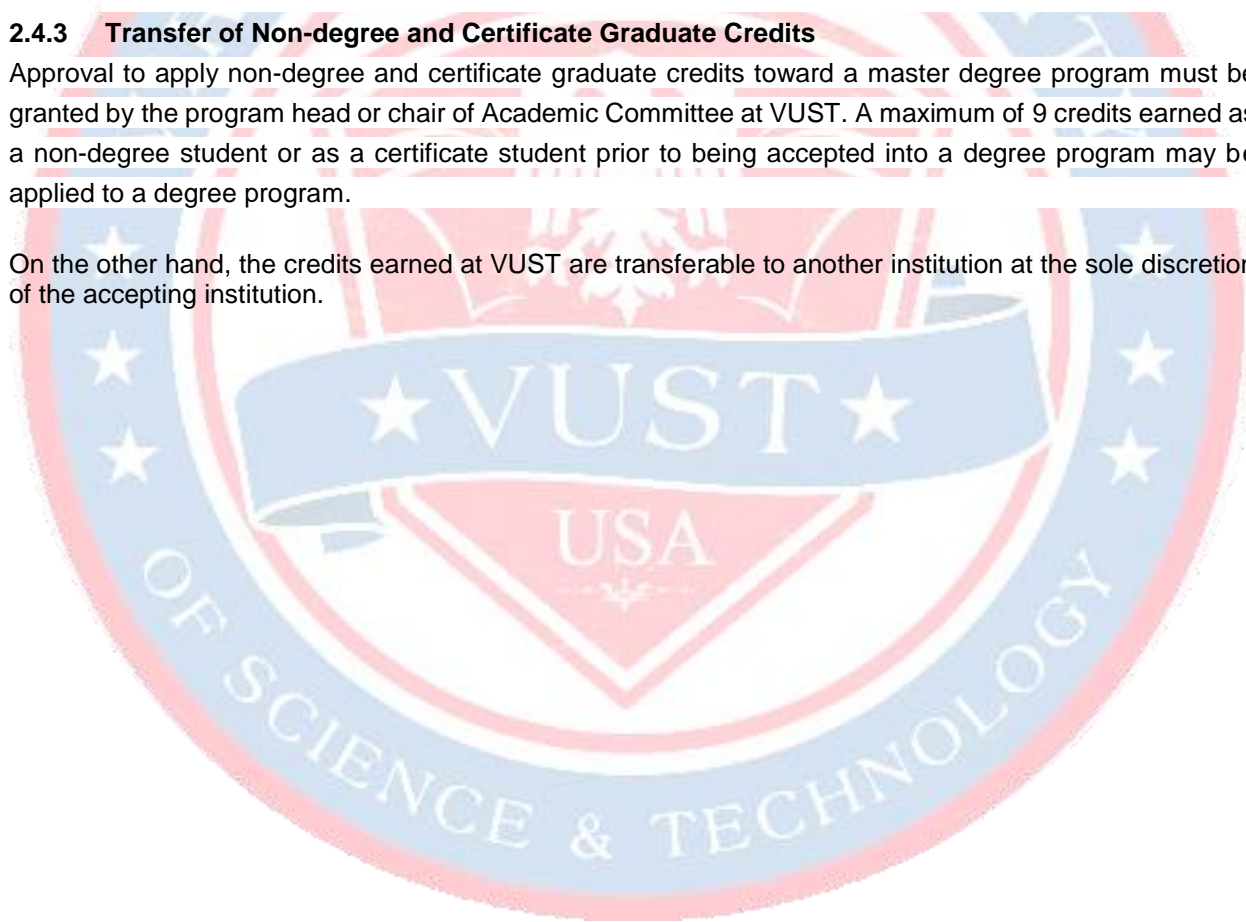
2.4.2 Transfer credits must meet the following criteria:

- Must have been earned at an accredited U.S. institution or an officially recognized degree-granting international institution;
- Must be of "A" or "B" grade value ("B-" grades are not acceptable; pass-fail grades are not transferable unless substantiated by the former institution as having at least "B" quality);
- Must appear on an official graduate transcript;
- Must be earned within the seven years prior to the date of registration to a degree program at VUST.

2.4.3 Transfer of Non-degree and Certificate Graduate Credits

Approval to apply non-degree and certificate graduate credits toward a master degree program must be granted by the program head or chair of Academic Committee at VUST. A maximum of 9 credits earned as a non-degree student or as a certificate student prior to being accepted into a degree program may be applied to a degree program.

On the other hand, the credits earned at VUST are transferable to another institution at the sole discretion of the accepting institution.



3. Students Disclosure Information

3.1 VUST Grading System

A grade is reported for each course in which a student has enrolled to indicate the quality of performance in that course. A student's academic progress will be measured according to the following scale at VUST. Normally, the course grades are assigned as:

90 – 100%	– A
80 – 89%	– B
70 – 79%	– C
60 – 69%	– D
Below 60%	– F

The grading system used at Virginia University of Science & Technology is as follows:

<u>Grade</u>	<u>Quality Points</u>	<u>Percent Grade/Significance</u>
A+	4.00	97 - 100
A	4.00	93 - 96
A-	3.75	90 - 92
B+	3.50	87 - 89
B	3.25	83 - 86
B-	3.00	80 - 82
C	2.00	70 - 79
F	0.0	Failure
AU	0.0	Audit
I	0.0	Incomplete
R	0.0	Repeat
S	0.0	Satisfactory
U	0.0	Unsatisfactory
W	0.0	Withdrawn

Notes regarding grades:

- Graduate level courses do not recognize a D (or lesser) grade for a student enrolled in any course carrying graduate level credit. According to the regulations of any graduate level program or higher, grades lower than C are recorded as F. Any combination of two or more C or F grades will mandate an academic review by the Academic Affairs Office. Please see Repetition of Courses above for details.
- An incomplete (I) may be given in lieu of a grade when circumstances beyond a student's control have prevented completing a significant portion of the work of a course within the allotted time. The student's performance in the course must otherwise be satisfactory. An incomplete must be removed in a manner and within the time determined by the instructor. It may not be continued beyond one quarter from the end of the quarter in which the (I) is given. Failure of the student to remove the (I) by that date will result in an automatic grade of F being placed on the student's permanent transcript. An (I) cannot become a withdrawal (W).
- Satisfactory and Unsatisfactory grades will be given only for classes using the Satisfactory/Unsatisfactory Grading Option.

3.2 Grade Point Average (GPA)

The total quarter hours in which grades of A, B, C, D, and F have been received at this institution divided into the corresponding total quality points earned constitute the student's cumulative grade point average (CGPA). Likewise, the student's GPA for any time period is found by dividing the credit hours in which grades other than S and U were received into the total quality points earned during that period. For example:

3 credit hours x A (4.0) = 12.0 quality points
3 credit hours x B (3.0) = 9.0 quality points
3 credit hours x C (2.0) = 6.0 quality points
9 credit hours = 27.0 quality points
27.0 total quality points/9 hours = 3.0 GPA

The student's GPA indicates scholastic standing. Factors like effort, self-esteem, or placement prospects will be regarded as extraneous to the determination of grades.

3.3 Grade Distribution

Grades will be distributed to students electronically within 72 hours of the final day of classes in a quarter.

Dean's List: An Honor Roll of graduate students who carried at least 9 credit hours with a 3.5 or higher CGPA is released at the end of each quarter. At least half of those credit hours must have been assigned letter grades.

Graduate students who earn a CGPA of 3.75 or better while carrying at least 9 hours will be named to the Dean's List.

3.4 Student Grade Appeals

If a student believes that non-academic criteria have been used in determining his or her grade in a course, he or she may follow the procedures described in this regulation to appeal. Non-academic criteria mean criteria not directly reflective of academic performance in the specified course. It includes discrimination on political grounds or for reasons of race, religion, sex, or ethnic origin.

Students may send written appeals to the Academic Council. Appeals to this council shall be considered confidential unless both the complainant and the instructor agree otherwise.

The student shall attempt to resolve the grievance with the instructor within the first month of the following quarter.

If the grievance is not resolved to the student's satisfaction, he or she may then attempt to resolve the grievance through written appeal to the Department Chair, who shall attempt to adjudicate the case with the instructor and the student within two weeks.

If the grievance still is not resolved to the student's satisfaction, he or she may then attempt to resolve the grievance through written appeal to the Academic Dean who shall attempt to adjudicate the case with the instructor, the Department Chair, and the student within two weeks. The decision that is made by the Academic Dean is the final decision regarding the dispute.

3.5 Student Performance Criteria, Evaluating Standards & Dismissal Policy

VUST is and will be primarily a graduate and professional development university in its first few years and will always focus on preparing students with job-ready skills to obtain professional positions in their chosen fields and to advance in those fields. As such, student academic work will focus heavily on projects, and evaluations will be based primarily on satisfactory completion of those projects. Individual professors will be responsible for constructing student evaluation systems for each course. In addition, each degree program may include the option of an end-of-program internship. However, VUST will not offer Internship program in its first 2 years. In future, VUST may develop the Internships program of which VUST will follow the regulations and guidelines of the 8VAC40-31-160(P) of the Virginia Administrative Code.

VUST requires students to maintain satisfactory academic progress toward the completion of their degree. Academic progress is defined using both quantitative and qualitative measures. Minimum cumulative grade point averages of 3.0 are required for graduate degree students.

In addition to GPA requirements, students demonstrate academic progress by completing their programs within a prescribed time frame. Students must complete their program within 1.5 times the normal length of the program. Sixteen Incompletes (I), withdrawals from a class (W), and failing grades (D, F) do not reflect satisfactory academic progress. Progress is reviewed at the end of each quarter. Any deviation from the academic progress policy must be approved by VUST's Dean for Academic Affairs. If a drop below minimum CGPA (Cumulative Grade Point Average) requirements or a perceived downward trend is noticed, VUST will issue an Academic Warning letter to the student.

In this situation, the student will be informed that he/she is in danger of or has already fallen below the minimum academic standard of 3.0 CGPA and will be sent an official Academic Warning notice from VUST and told that during the following quarter he/she must achieve a minimum 3.5 quarter GPA (Grade Point Average) or be placed on Academic Probation (AP). Once placed on AP, students will be restricted from the following activities:

- Registering for more courses beyond the minimum full-time course load.
- Removal and/or ineligibility to hold office in any VUST sanctioned organization.

Students in a state of academic probation have one quarter to return to good academic standing or be subject to one of the following actions taken by the VP for Academic Affairs: continuation on AP an additional quarter under the same restrictions; suspension from VUST for a minimum of one quarter; or termination by VUST. A student on suspension must sit out a minimum of one quarter before being eligible to be considered for reinstatement by the Academic Review Committee. A student who is terminated is not eligible to reapply to VUST for enrollment in any program for a minimum of two years.

3.6 VUST's Evaluation Procedures for Academic Program Qualification & Achievement

VUST is committed to preparing its graduates with job-ready skills for professional advancement in their chosen academic area. Accordingly, VUST has developed a five-level program for evaluating the strength and currency of its programs. This program is administered by the VP for Academic Affairs (VPAA) office through the College Dean's office where present.

Level 1 – Student course evaluations

Level 2 – Instructor program development summary of each course taught

Level 3 – Dean or Department Head annual program review

Level 4 – Recent program graduates provide written program evaluations

Level 5 – External industry expert program review on an annual basis

Level 1 evaluations are done through a written questionnaire that students will complete at the end of each course. While the student questionnaire will address instructor effectiveness, the focus will be on the student's evaluation of the extent to which the courses objectives were met and necessary job skills obtained.

Level 2 includes written summaries by each instructor of their assessment of each course's effectiveness in preparing students, as well as suggestions and plans for improving the course. This summary will be provided by each instructor, whether full-time or adjunct and whether the instructor will be teaching the course another term or not.

Level 3 brings an internal colleague/supervisor into the review process. While the review process will include evaluation of the instructor's effectiveness and plans for improvement, a key component will be directed to strengthening course offerings.

Level 4 involves recent program graduates who are asked to complete a written review and evaluation of the program they completed. The focus of these evaluations is primarily on graduates' perceptions of the quality, relevance and applicability to their initial job placements and career progressions. It is not intended to be a faculty evaluation except to the extent that any particular faculty member might have been extraordinarily helpful in the students' knowledge and skill development. Because of VUST's emphasis job-

ready skill development, the evaluations also will seek to shed light on how well these aspects of the program are working and what improvements might be made.

Level 5 brings external industry experts into the review process. Once a year the College Dean or Department Head will consult with the VPAA to identify 5 to 10 people who are experts in the appropriate academic program area either through their work as industry practitioners or as educators. That group will meet annually for approximately 90 to 120 minutes to review the curriculum in a particular program area in light of knowledge and skill trends required by industry.

3.7 Students' Rights, Privileges and Responsibilities

Students who enroll at VUST should do so with the realization that they are presumed to be serious and committed to academic purposes, and they are expected to conduct themselves as good citizens of VUST community.

An effective guardianship of the health, general safety, and welfare of all students must be maintained.

The final responsibility for the accomplishment of these purposes must rest upon the administration and faculty of the institution who may prescribe certain rules and enforcement procedures for guidance toward these ends. Information concerning such rules and additional procedures is contained in the VUST Student Handbook and in supplementary bulletins that may be published from time to time.

VUST is committed to the full support of the rights of its students, including due process in student disciplinary matters. Detailed procedures designed to safeguard student rights and to guarantee fair and impartial treatment of any and all disciplinary cases are published in the VUST Student Handbook. Methods developed to provide due process in student disciplinary matters are based on the 1967 joint recommendations of the American Association of University Professors, the National Association of Students, and the National Association of Student Personnel Administrators; they conform to Title IX-Educational Amendments of 1972.

3.8 Academic Complaint and Grievance Policies and Procedures

Our hope is that most students will complete their education at VUST without feeling the need to register a complaint against a faculty or staff member. However, if a student believes that he or she has a reason to file a complaint, VUST is obligated to listen. VUST has established procedures to respond to student complaints in a fair and equitable manner. For complaints of a non-academic nature, students should refer to the Student Handbook.

When considering academic matters, however, if VUST finds that a faculty or staff member's disputed action conflicts with federal or state laws/regulations, university, school, or department policy, or with the instructor's own stated policy, then a decision will be made in the student's favor. If the dispute is of an academic nature and is determined to be based upon a faculty member's professional judgment, such as the evaluation of a test or performance in a class, the student is entitled to have an opportunity to provide a statement as to why the faculty member's judgment is flawed. In turn, the designated University official forms an opinion about the dispute and advises the instructor of their opinion. But the faculty member, after considering the advice of the administrators, shall retain complete academic freedom to change or to retain his/her judgment.

These steps are to be followed when making an academic complaint:

- In the case of course-related complaints or disputes, the student must first appeal to the instructor for a resolution of the matter and must do so within six weeks from the end of the quarter.
- If a complaint or dispute is not satisfactorily resolved, the student may appeal to the chair of the academics department in which the complaint or dispute is centered. If a formal complaint is to be registered, it should be made in writing stating the specific charges.

- If the complaint or dispute is still unresolved after appeal to the Department Chair, the student may appeal in writing to the Academic Dean. The Academic Dean will notify the faculty member of the complaint and the faculty member will provide a written explanation of the circumstances to the Academic Dean and to the student within a reasonable time, as specified by the Academic Dean.
- If a resolution of the matter is not reached, the student or the faculty member may appeal to the Academic Council. The Academic Council will evaluate the oral and written statements of the student and the faculty member. If the Academic Council does not have at least one student member, the Academic Dean will be asked to appoint a student representative to serve for each case. The Academic Council will then submit its recommendation to the Academic Dean. The decision from the Academic Dean is final by VUST.
- However, if the student(s) believe the decision made by VUST's Academic Dean is unfair, he or she should understand that State Council of Higher Education for Virginia (SCHEV) is the agency of last resort in the grievance process. The student may contact the State Council of Higher Education as follows:

State Council of Higher Education for Virginia (SCHEV)
Private and Out-of-State Postsecondary Education
101 N. 14th Street
Richmond, VA 23219

Finally, students will not be subjected to adverse actions by any school officials as a result of initiating a complaint.

3.9 Graduation Requirements

All Master degree programs require the successful completion of a minimum of 45 credit hours with a minimum 3.0 CGPA, with the following exceptions:

- Student who has bachelor degree in Computer Science, Computing Engineering, Information Technology, Information System Management, Networking Engineering, Cybersecurity, Electronic Engineering or IT related major with 5+ years working experience in the IT field are qualified to waive 9 credit hours of total required 45 credit hours for graduation.
- Student who has bachelor degree in Computer Science, Computing Engineering, Information Technology, Information System Management, Networking Engineering, Cybersecurity, Electronic Engineering or IT related major with 3+ years working experience in the IT field as Senior Engineer or Technical leader, or have one of following top professional certifications: CISSP, CCISO, CSMO, CCSP, CNDA, CHE, CCSS, are also qualified to waive 9 credit hours of total required 45 credit hours for graduation.
- Student who has bachelor degree in non-Computer-Science/IT related major, but Sh/e has 8+ years working experience in the IT field as Computer Engineer/Programmer/ IT Specialist or Technical leader, or has one of following top professional certifications: CISSP, CCISO, CSMO, CCSP, CNDA, CHE, CCSS, are also qualified to waive 9 credit hours of total required 45 credit hours for graduation.
- Student who has bachelor degree in Computer Science, Computing Engineering, Information Technology, Information System Management, Networking Engineering, Cybersecurity, Electronic Engineering or IT related major with 3+ years working experience in the IT field are qualified to waive 3 – 5 credit hours of total required 45 credit hours for graduation.
- Student who has bachelor degree in Computer Science, Computing Engineering, Information Technology, Information System Management, Networking Engineering, Cybersecurity, Electronic Engineering or IT related major with 2+ years working experience in the IT field as Senior Engineer or Technical leader, or have one of following top professional certifications: CISSP, CCISO, CSMO, CCSP, CNDA, CHE, CCSS, are also qualified to waive 3 - 5 credit hours of total required 45 credit hours for graduation.

4. Probation, Dismissal and Readmission

4.1 Academic Unsatisfactory and Warnings

Academic Regulations: Academic regulations have a two-fold purpose:

- To prevent the dissipation of VUST resources and time to students who fail to make reasonable academic progress.
- To facilitate the maintenance of high academic standards at VUST.

Satisfactory Academic Progress

Students at VUST are required to maintain satisfactory academic progress toward the completion of their degree. Academic progress is defined using both quantitative and qualitative measures. Minimum cumulative grade point averages of 3.0 are required for graduate degree students.

In addition to GPA requirements, students demonstrate academic progress by completing their programs within a prescribed time frame (refer to the next table). Students must complete their program within 1.5 times the normal length of the program. Sixteen incompletes (I), withdrawals from a class (W), and failing grades (D, F) do not reflect satisfactory academic progress. Progress is reviewed at the end of each quarter. Any deviation from the academic progress policy must be approved by VUST's Vice President for Academic Affairs.

Degree Level	Credits to Complete	Typical Completion Time	Maximum Completion Time
Master	45	2.0 years or 8 quarters	5.0 years or 20 quarters

Unsatisfactory Academic Progress

VUST understands that certain circumstances will cause a student to fall behind in academic progress or below established academic standards. Seeking assistance from school counselors and officials is highly advised once a student suspects that factors that will cause a decline in their academic progress are imminent.

Academic progress of each student is tracked and monitored at the end of each quarter by the Registrar's office. If a drop below minimum CGPA requirements or perceived downward trend is noticed, VUST will issue an Academic Warning letter to the student.

Academic Warning: At this time, the student is informed that he/she is in danger of or has already fallen below the minimum academic standard of 3.0 CGPA. The student in this condition is sent an official Academic Warning notice from VUST and told that during the following quarter he/she must achieve a minimum 2.5 GPA for the quarter or be placed on Academic Probation.

4.2 Academic Probation (AP) & Suspension

Once placed on AP, students will be restricted from the following activities:

- Registering for more courses beyond the minimum full time course load
- Removal and/or ineligibility to hold office in any VUST sanctioned organization

In addition to the above actions, students participating in any cooperative education programs will have their employers notified of their academic progress and that withdrawal from the program will occur if there continues to be lack of improvement

Students in a state of academic probation have one quarter to return to good academic standing or be subject to one of the following actions taken by the Academic Dean: 1) continuation on AP an additional quarter under the same restrictions, 2) suspension from VUST for a minimum of one quarter, or 3) termination by VUST. A student on suspension must sit out a minimum of one quarter before being eligible for reinstatement consideration by the Academic Review Committee. A student who is terminated is not eligible to reapply to VUST for enrollment in any program for a minimum of two years.

4.3 Readmission Policy & Procedures

A student will be permitted to re-enter the program at the beginning of the next term if the student petitions VUST's admission committee with an explanation of how the student has resolved the problems causing the unsatisfactory progress or conduct. For readmission, student must follow the steps:

- Fill out the Application of Readmission Form.
- Get clearance from Registration Office, Finance Office, or whatever agency or department where he/she was failed.
- Attend a 4-hour Readmission Seminar.
- Receive Readmission Approval from Vice Present for Academic Affairs.

4.4 Non-Readmission

VUST reserves the right to remove immediately from the campus any student who engages in any threatening conduct toward any person, who carries a weapon, or who otherwise exhibits conduct that poses a danger to other persons. VUST will call the police if necessary. Students who are expelled for violations of this policy will incur grades of "F" in their current courses and are not eligible to be readmitted. Students who are expelled for violations of this policy will be treated as having withdrawn pursuant to Section 8.2 for the purpose of determining a tuition reimbursement.



5. Student Records

5.1 What Student Records will be Retained in VUST Database

VUST will retain permanently a transcript of a student's academic and course work. This record will include the academic and course progress at VUST including programs of study, dates of enrollment, courses taken and completed, grades, and indications of the student's states (graduated, probation, etc.). The admission records for each student will be maintained by VUST for three years after the student's last date of attendance. The financial records for each student will be maintained by VUST for three years after the student's last date of attendance.

5.2 Student Rights for Their Educational and Personal Records

VUST will afford students certain rights with respect to their education records. In compliance with The Family Educational Rights and Privacy Act of 1974 (FERPA), VUST has established policies to protect the accuracy and privacy of student educational records. FERPA affords students certain rights with respect to their educational records. They are:

1. The right to inspect and review the student's education records within 45 days of the day VUST receives the written request. Students should submit a written request to the registrar that clearly identifies the record(s) they wish to inspect. The registrar will make arrangements for access and notify the student of the time and place where the record(s) may be inspected.
2. The right to request the amendment of education records that the student believes are inaccurate or misleading. Students may request that VUST amend a record by writing a letter to the registrar clearly identifying the part of the record they want changed and specify why it is inaccurate or misleading.
3. The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent. Disclosures can be made without student consent to the following: school officials with legitimate educational interests; accrediting agencies or organizations conducting educational studies; personnel in connection student applications for, or receipt of, financial aid; public authorities with a judicial order or subpoena for such information; those involved in an emergency situation if the information is necessary to protect the health or safety of students or other persons; and directory information services.
4. Virginia University of Science & Technology has designated the following as directory information:
 - a. Name of student
 - b. Address of a currently enrolled student
 - c. Major field of study
 - d. Dates of enrollment
 - e. Degrees and dates conferred
 - f. Academic honors and awards received
5. If a student does not wish that VUST release their directory information, they must submit a request in writing to VUST Registrar for non-disclosure of directory information. Once VUST Registrar receives student's non-disclosure letter or email, the student's information and student records will immediately place into the list of non-disclosure that nobody can access the records without student's writing permission.

6. Student Conduct

As a guide to community norms, VUST has established this general code of student conduct to define the broad parameters of behaviors and actions that are prohibited and will incur penalties up to and including dismissal from VUST.

Note: A violation of the Code of Conduct may also constitute a violation of city, state, or federal law and vice versa. If so, simultaneous resolution through the student conduct system and prosecution through the criminal justice system may result. Students should be aware that student status does not insulate them from awareness of and compliance with other laws.

6.1 Academic Honesty Statement of Policy

All students must be honest and forthright in their academic studies. To falsify the results of one's research, to steal the words or ideas of another, to cheat on an assignment, or to allow or assist another to commit these acts corrupts the educational process. Students are expected to do their own work and neither give nor receive unauthorized assistance.

Academic misconduct is any other act that disrupts the educational process or provides a student with an academic advantage over another student. Academic misconduct includes, but is not limited to:

The unauthorized possession, copying, distribution, sale, or other transfer of all or any part of an academic exercise, or the answers or solutions to an academic exercise, whether or not the exercise has been administered;

Changing, altering, attempting to change or alter, or assisting another in changing or altering any grade or other academic record, including grades or records contained in a grade book or computer file, that is received for or in any way attributed to academic work;

Posting of notes or other materials from a class (whether the student is enrolled in the class or not) on the Internet, whether or not for a fee, if the faculty member has expressly prohibited the posting of such materials.

6.2 Medical Amnesty/Good Samaritan Protocol Statement of Policy

Student health and safety are of primary concern at VUST. As such, in cases of intoxication and/or alcohol poisoning, VUST encourages individuals to seek medical assistance for themselves or others. If an individual seeks medical attention due to his/her level of intoxication, VUST may not pursue conduct sanctions against the student for violations of the Alcohol Policy. In lieu of student conduct sanctions, the intoxicated student (and possibly the referring student) will be required to meet with a member of the VUST Academics staff who may issue educational requirements such as an alcohol education class and/or an alcohol and substance abuse assessment.

6.3 Drugs Statement of Policy

VUST prohibits the illegal possession, use, consumption, manufacture, sale, or distribution of drugs and drug paraphernalia. Any violations of this drug policy may be subject to sanctions by the VUST Conduct System and may be reported to all appropriate law enforcement authorities. The claim that the use of marijuana was for medicinal purposes will not automatically be sufficient for dismissal of any pending charges nor for a determination that the student is not responsible for violating this policy. All University buildings, including residence halls, are designated as smoke-free for all substances.

6.4 Sexual Assault Statement of Policy

VUST will not tolerate sexual assault. Sexual assault occurs when consent is not received; a person is physically forced, intimidated or coerced into a sexual act; or when a person is physically or mentally unable to give consent. Assault may be committed by anyone, including, but not limited to, an intimate partner, an

acquaintance, or a stranger. Violations will be adjudicated by VUST and may be reported to appropriate law enforcement authorities.

6.5 Theft Statement of Policy

Theft is defined as taking or possessing the property of another without right or permission. Students shall respect the property of VUST, its guests, and all members of VUST community.

6.6 The Academic Unsatisfactory of Policy

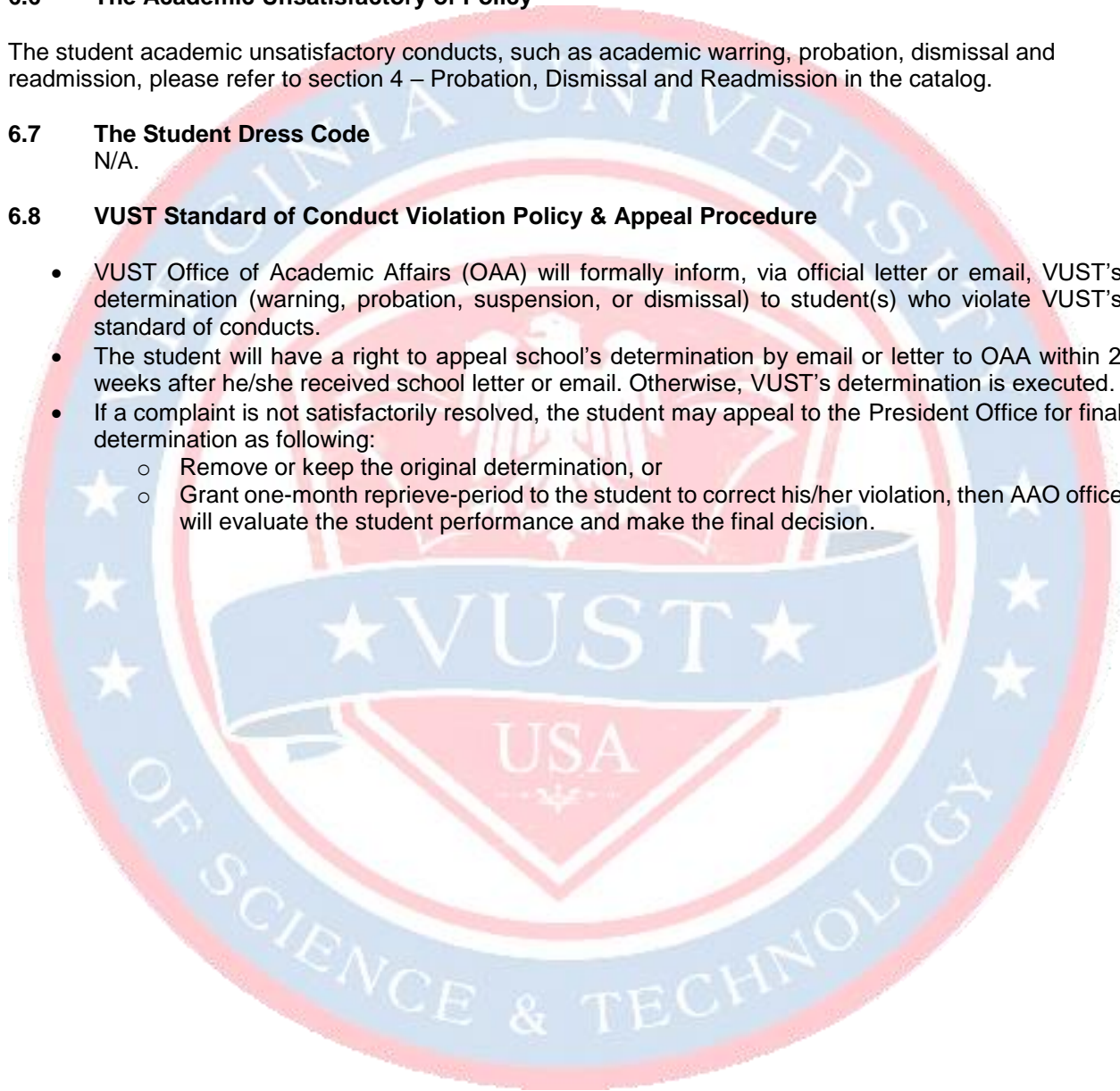
The student academic unsatisfactory conducts, such as academic warning, probation, dismissal and readmission, please refer to section 4 – Probation, Dismissal and Readmission in the catalog.

6.7 The Student Dress Code

N/A.

6.8 VUST Standard of Conduct Violation Policy & Appeal Procedure

- VUST Office of Academic Affairs (OAA) will formally inform, via official letter or email, VUST's determination (warning, probation, suspension, or dismissal) to student(s) who violate VUST's standard of conducts.
- The student will have a right to appeal school's determination by email or letter to OAA within 2 weeks after he/she received school letter or email. Otherwise, VUST's determination is executed.
- If a complaint is not satisfactorily resolved, the student may appeal to the President Office for final determination as following:
 - Remove or keep the original determination, or
 - Grant one-month reprieve-period to the student to correct his/her violation, then AAO office will evaluate the student performance and make the final decision.



7. Attendance/Leave of Absence Information

7.1 Policy Statement

This policy describes the terms by which enrolled graduate students within their program may be eligible for a leave of absence. The policy outlines the timing of leaves, ways to return from a leave, and conditions surrounding involuntary leaves.

7.2 Who Is Affected by This Policy

This policy applies to all enrolled graduate students within their regular program length.

7.3 Definition

In absentia graduate students

Degree-seeking Master students who are pursuing degree-related work but not in residence for greater than half the term.

Leave of absence

The regular defined program length has been interrupted because the student is not pursuing degree-related work.

7.4 Leaves of Absence

In the case of a prolonged illness or accident, death in the family, or other special circumstances that makes attendance impossible or impractical, VUST may grant a leave of absence to the student if requested in writing by the student or the student's designee. No monetary charges or accumulated absences shall be assessed to the student during a leave of absence. A leave of absence is an approved leave of absence if:

- a. The student requests the leave of absence and submits a signed, dated request with the reasons for the leave of absence;
- b. VUST determines that there is a reasonable expectation that the student will return to the school; and
- c. The leave of absence does not exceed 180 days in any 12-month period.

Upon the student's return from the leave of absence, the student is permitted to complete the coursework he/she began prior to the leave of absence. If a student does not resume attendance at VUST on or before the end of an approved leave of absence, VUST shall treat the student as a withdrawal and the date that the leave of absence was approved should be considered the last date of attendance for refund purposes.

7.5 Length of Absence

If a student's absences exceed 180 clock hours of the scheduled hours in a program, VUST will withdraw the student from the program.

7.6 Attendance

Students have the obligation to attend every class on the schedule, to arrive on time, to be prepared for the class including fulfillment of all assignments, and to participate actively in the learning process that occurs in the classroom. Students also have an obligation to take the classroom environment seriously, to follow the directions of the faculty member, and to refrain from conduct that is disorderly, disrespectful or disruptive of the learning environment.

Faculty members have a right and obligation to take attendance and to use class attendance as a basis for part of a student's grades. At the start of each semester and in the course syllabus, faculty members will establish the procedures for a student to notify a faculty member when the student cannot attend class.

Unexcused absences or repeated absences may be a basis for lowering grades or failing the course entirely, and such behavior repeated over several courses may incur dismissal from VUST.

Make-up Work Policy: Each instructor has sole discretion in assigning and grading make-up work due to absences.

Tardiness: Each instructor has the right to determine a policy of tardiness for her/his course(s) and how tardiness affects course attendance. In addition, a student reporting over 20 minutes late for a scheduled one-hour-length class will be considered one absent. In addition, school's policy on the consequences of unsatisfactory attendance (e.g. probation, dismissal) and policy on readmittance can be found Section 4.1 - 4.2 in this catalog.



8. Tuition, Fees and Refunds

8.1 Tuition & Fees

The following tuition and fees are in effect for academic year 2016-2017. They have been set at the minimum permissible levels for financially responsible operation by the VUST Board of Directors & Trustees. Gifts and grants received through the generosity of alumni, industry, foundations, government and friends play an important part in keeping the cost of tuition as low as possible.

Non-Refundable Application Fee:	\$100.00
English Placement Test Fee:	\$25.00
<u>Tuition Per Credit Hour Graduate:</u>	\$575.00
Audit Tuition Per Credit:	\$287.50
Registration Fee Per Course:	\$60.00
Late Registration Fee:	\$60.00
Add/Drop Fee:	\$60.00
Replacement Diploma:	\$100.00
Registrar's Affidavit for Diploma:	\$50.00
Replacement ID Card:	\$25.00
Challenge Exam Fee:	\$250.00
Transcripts per Copy:	\$10.00
Add \$20.00 for Express Transcript (Processed within 48 hours)	
Returned Check Fee:	\$50.00
University Notary Service:	\$5.00
Overnight/Express Shipping:	Varies
Apostille Fee:	\$150.00

Payment

Students are responsible for payment in full of all tuition and fees on or before the due dates set forth by VUST. While VUST does not offer payment plans, it will assist students with information on financial institutions that might provide such plans. Contact VUST business office for more information on requirements. No grade reports, transcripts or diplomas will be issued to a student so long as an unpaid balance exists in his or her account.

Add/Drop Fees

If a student decides to either drop, add, or both drop and add a class after the first day of the quarter and before the end of the late registration period, an add/drop fee will be charged.

Late Registration Fees

If a student initially registers for a class either on or after the first day of the quarter, a late registration fee will be charged.

8.2 Policies for Refund, Withdraw, and Cancellation

Rejection: An applicant rejected by VUST is entitled to a refund of all monies paid.

Three-Day Cancellation: An applicant who provides written notice of cancellation within three (3) business days, excluding weekends and holidays, of executing the enrollment agreement is entitled to a refund of all monies paid, excluding the \$100 non-refundable application fee.

Other Cancellations: An applicant requesting cancellation more than three (3) days after executing the enrollment agreement and making an initial payment, but prior to the first day of class, is entitled to a refund of all monies paid, less a maximum tuition fee of 15% of the stated cost of the course or \$100, whichever is less.

Withdrawal Procedure:

1. A student choosing to withdraw from VUST after the commencement of classes is to provide a written notice to the Director of VUST. The notice must include the expected last date of attendance and be signed and dated by the student.
2. If special circumstances arise, a student may request, in writing, a leave of absence, which should include the date the student anticipates the leave beginning and ending. The withdrawal date will be the date the student is scheduled to return to from the leave of absence but fails to do so.
3. A student will be determined to be withdrawn from the institution if the student misses seven consecutive instructional days and all of the days are unexcused.
4. VUST will submit refunds to individuals who have terminated their status as students within 45 days after receipt of a written request or the date the student last attended classes, whichever is sooner.

Proportion of Total Program Taught by Withdrawal Date	Tuition Refund
Less than 25%	75% of program cost
25% up to but less than 50%	50% of program cost
50% up to but less than 75%	25% of program cost
75% or more	No Refund

8.3 Scholarship and Qualifications

The Board of Directors & Trustees at Virginia University of Science & Technology is determined to fund two types of scholarships to attract academic outstanding students come to VUST to study.

President Fellowship: Students are eligible if they receive a bachelor's degree from accredited university or college with GPA of 3.75 or above, and enroll at VUST as full-time students with 9 credit hours per semester. Students also must keep their GPA of 3.75 or above in order to continue to receive this fellowship award. Students who receive a President Fellowship award will be granted \$5,000 per year. VUST will fund 2 -3 President Fellowships annually.

Dean Scholarship: Students are eligible if they receive a bachelor's degree from accredited university or college with GPA of 3.5 or above, and enroll at VUST as full-time students with 9 credit hours per semester. Students also must keep their GPA of 3.5 or above in order to continue to receive this scholarship award. Students who receive a Dean Scholarship award will be granted \$3,000 per year. VUST will fund 2 -3 Dean Fellowships annually.

8.4 Financial Aid

Financial aid is not available at VUST until VUST receives U.S. Department of Education recognized accreditation in future. However, the Student Service Office at VUST would provide professional advice and help students who need financial aid to get personal loans from VUST's business bank. All university's funds and student tuition will be deposited in this bank.

9. Program Curriculums

9.1 Master Degree of Science in Cybersecurity & Information Assurance (MSCIA)

Our statement of purpose states that our “initial purpose is to meet the growing need for highly-skilled, graduate-trained, job-ready men and women primarily in the computer and information technology industry, with particular emphasis on the security sector.” Our first College is the College of Cybersecurity & Information Assurance (CIA), whose mission is to provide state-of-the-art graduate programs for the education of computing and telecommunications professionals, particularly in the area of cybersecurity in various industries.

The first program to be offered will be a Master of Science degree in Cybersecurity & Information Assurance. Courses in this 45-credit program, which are described below, have been designed by cybersecurity academic and industry professionals to prepare graduates with job-ready skills. The program includes a choice of two specialization tracks: System Cybersecurity and Operation Assurance along with an optional capstone independent study worth three credits.

Students in the Master of Science degree in Cybersecurity & Information Assurance must complete 45 quarter credit hours, including:

University Requirements: 3 credit hours (each course is 1 credit hour) (These course may be waived if students have 5+ year working experiences in the IT field)

VUST 500 – Leadership & Change Management
VUST 510 – Communication Skills and Technical Writing
VUST 520 – Understanding American Corporation Culture

Core Courses: 15 credit hours (each course is 3 credit hours)

CSIS 500 - Principles of Security in Computing
CSIS 512 – Cybersecurity Infrastructures
CSIS 518 – Cryptography & Network Security
CSIS 520 – Strategies and Practices for Cyberspace Threats and Defense
CSIS 594 – Legal and Ethical Aspects of Cybersecurity

Specialization Tracks: 12 credit hours (choose 4 courses)

Track 1: System Cybersecurity (each course is 3 credit hours)

CSIS 510 – Trusted Computing
CSIS 530 – System Assessment & Security Risk Analysis
CSIS 570 – Enterprise Security Technologies
CSIS 580 – Cybersecurity Intelligence/Counter Intelligence

Track 2: Operation Assurance (each course is 3 credit hours)

CSIS 585 – Malware Analysis and Defense
CSIS 592 – Forensic Evaluation and Incident Response Management
CSIS 595 – Information System Auditing and Monitoring
CSIS 665 – Disaster Recovery & High Availability

Electives: 12 credit hours - Choose 4 courses (each course is 3 credit hours)

In addition to the following courses, any of the specialization area courses may be used as electives:

CSIS 528 – Network Principles

CSIS 536 – Computing Operation Systems
CSIS 560 – Introduction to Mobile Computing
CSIS 590 – Introduction to Cloud Computing
CSIS 636 – Database System Management & Assurance
CSIS 650 – System Architect and Cybersecurity

Capstone Requirement: 3 Hours (Choose 1 course) (each course is 3 credit hours)

CSIS 630 – Independent Project Study in Cybersecurity
CSIS 631 – Practical Research in Cybersecurity I
CSIS 641 – Practical Research in Cybersecurity II

9.2 Certification of Operation Assurance Program

VUST will offer a Certificate Program for Operation Assurance, which is an 18-credit program consisting of the following six courses (described below) offered to students pursuing a Master of Science degree in Cybersecurity & Information Assurance:

CSIS 500 - Principles of Security in Computing
CSIS 594 – Legal and Ethical Aspects of Cybersecurity
CSIS 585 – Malware Analysis and Defense
CSIS 592 – Forensic Evaluation and Incident Response Management
CSIS 595 – Information System Auditing and Monitoring
CSIS 665 – Disaster Recovery & High Availability

The course curriculum and instruction for certificate candidates will be identical to the curriculum and instruction for Masters degree candidates.

9.3 Certification of System Cybersecurity Program

VUST will offer a Certificate Program for System Cybersecurity, which is an 18-credit program consisting of the following six courses (described below) offered to students pursuing a Master of Science degree in Cybersecurity & Information Assurance:

CSIS 500 - Principles of Security in Computing
CSIS 594 – Legal and Ethical Aspects of Cybersecurity
CSIS 510 – Trusted Computing
CSIS 530 – System Assessment & Security Risk Analysis
CSIS 570 – Enterprise Security Technologies
CSIS 580 – Cybersecurity Intelligence/Counter Intelligence

The course curriculum and instruction for certificate candidates will be identical to the curriculum and instruction for Masters degree candidates.

9.4 English as Second Language (ESL) Program

This ESL Program is designed for VUST students with a strong academic background that have immigrated to the United States from non-English speaking countries. The program is designed to improve the English capability and proficiency of these students in the areas of reading, speaking, writing, listening, and general communication, so that the students may succeed in VUST's other program offerings. Fluency and accuracy in both spoken and written English are emphasized. After a student has completed all program courses with a satisfactory grade, VUST will admit the student into the other academic program of his/her choice.

This ESL Program is divided into two sections (Level I and Level II). Prior to enrollment, students will take the VUST English Proficiency Test (EPT). Students that score lower than 80 on the EPT, that do not have a TOFL iBT Test score, or that have a TOEFL iBT Test score lower than 70, must enroll in Level I courses.

Students that score higher than 80 on the EPT or that have a TOEFL iBT Test score of 70 or above may enroll in the Level II courses. Students that complete the Level I courses must then enroll in and complete the Level II courses prior to enrolling in VUST's other academic programs.

Each section (Level I and Level II) is nine weeks long and consists of four courses with 20 hours of class per week, as follows:

ESL 101 - Advanced English Reading (I, II)
ESL 102 - Advanced English Listening (I, II)
ESL 103 - Advanced English Writing and Grammar (I, II)
ESL 104 - Advanced English Speaking & Communication Skills (I, II)

9.5 Course Descriptions

VUST 500 – Leadership & Change Management (1 credit hour)

This course is required for all Masters degree students at VUST. The common weakness of most senior scientists and engineers is lack of leadership or difficulty in changing their management styles. These weaknesses can seriously impact their potential for promotion and development in their careers. Therefore, this course is designed to enhance our students' leadership and improve their capability for changing management in future. This courses will be taught by inviting who are successful in the industrial corporations and governmental agencies as top leaders.

Course Objectives:

- Understand what is leadership
- Understand what is management
- Understand the difference between leadership and management
- How to play a leadership role in your team, department, and organization
- How to manage a team, department, and organization
- Enhance your leadership and improve management skills
- Balance leadership and management styles
- The course includes a project.
- This course is 1 credit.
- Prerequisites: None.

VUST 510 – Communication Skills and Technical Writing (1 credit hours)

This course is required for all Masters degree students at VUST. Another common weakness of many senior engineers is the lack of necessary communication skills and excellent technical writing capability. These weaknesses can seriously impact these outstanding engineers to present their strengths and abilities, as well as critically impact their potential for promotion and development in their careers. Therefore, this course is designed to improve our students' communication skills, enhance their technical writing capability, ameliorate their leadership, and increase chance of promotion. This course will be taught by inviting those who are well-known speakers and senior technical writers in high-tech fields.

Course Objectives:

- Understand principles of communication
- Master main communication skills
- How to communicate with co-workers, supervisors, and customers
- How to avoid common mistakes while communicating
- Understand the principles of technical writing

- Understand the difference between technical writing and general writing
- How to write technical reports, project plans and contract proposals for government projects
- The course includes a project.
- This course is 1 credits.
- Prerequisites: None.

VUST 520 – Understanding American Corporation Culture (1 credit hour)

This course is required for all Masters degree students at VUST. Every American corporation is an independent kingdom with its own specific corporation culture. If one cannot understand the corporation culture where he or she is working, he or she could not survive in that corporation. If one cannot figure out how to acclimate into the corporation culture, he or she may never get promotion in that firm. Having that understanding is even more important to new employees, foreign-born employees, or employees who grow up in a different culture. In many cases, the key factor to determining whether employees will be promoted is not their outstanding professional skills, but, that their understanding of the corporation culture. This courses will be taught by inviting those who are American corporations' CEOs, COOs, CTOs, CFOs, and other high ranking executives.

Course Objectives:

- General American corporation cultures
- Key factors of a corporation culture
- How to understand a corporation culture
- How to acclimate to your corporation culture
- How to contribute to your corporation culture
- The course includes a project.
- This course is 1 credit.
- Prerequisites: None.

CSIS 500 – Principles of Security in Computing (3 Credit Hours)

This course is the core course of the cybersecurity program. It will provide an overview of the introductory topics in cybersecurity, which will be the basis for the other security-related courses in the CSIS. Topics include basic concepts on **CIA (confidentiality, integrity, and availability)**, risk management, disaster recovery, access control, database security, and basic cryptography and software application vulnerabilities.

This course will also study the security models for cyber space (Bell-LaPadula, Clark-Wilson, Biba, and Gligor models). It analyzes and compares, with respect to formal and pragmatic criteria, the properties of various models for hardware, software, and database security. Formal specification and verification of security properties, operating system security, telecommunication security, trust management, multi-level security, security labeling, security auditing and intrusion detection, security policy, safeguards and countermeasures, risk mitigation, covert channels, identification and authentication, password schemes, access control lists, and data fusion techniques, configuration and troubleshooting, etc. will be covered in this course.

Course Objectives:

- Understand the core cyber security/information assurance (IA) principles
- Describe the concepts of **CIA (confidentiality, integrity, and availability)**
- Describe basic risk management processes and practices
- Identify security tools and hardening techniques

- Understand OS, database and application security threats and vulnerabilities
- Safety measure methods and technology of telecommunication
- Describe different classes of attacks
- Define types of incidents, including categories, responses and timelines for response
- Analyze threats and risks within context of the cybersecurity architecture
- Ensure allocate enough system memory and disk space, as well as traffic load status
- Access additional external resources to supplement knowledge of cybersecurity
- Configuration & Troubleshooting _____
- The course includes a project.
- This course is 3 credits.
- Prerequisites: None.

CSIS 512 – Enterprise Cybersecurity Architecture and Infrastructures (3 Credit Hours)

This course will provide a structured approach that can be followed step by step, so as to design and build enterprise security architecture and infrastructure that meets the needs of modern business. It is intensively practical but theoretical works and background are also covered in how to make cybersecurity work. The topics covered will include Introduction, Strategy and Planning, (including financial budget and management), Enterprise Security Design, Implementation and Operations, and also the concept of ISO 27000:2013, the Information Security Management System (ISMS) framework, and NIST's SP800-30 publication about risk management.

Course Objectives:

- Understand and apply cybersecurity architecture principles
- Understand security domains, trust level and tiered networks
- Understand the concepts of user awareness, guidance, administration, monitor, respond, & audit
- Develop strategy and planning (including financial budget and management, as well as contingency planning, etc.)
- Conduct risk assessments, set up monitoring systems and metrics based on the infrastructure and architecture
- Develop enterprise security policies, standards, and guidelines
- Understand what composes an information security team and their required experiences
- The course includes a project.
- This course is 3 credits.
- Prerequisites: CSIS 510

CSIS 518 - Cryptography & Network Security (3 Credit Hours)

This course will provide a comprehensive introduction to network security concepts and problems and the mechanisms and tools to secure networks. It will focus on the Internet, discuss the threats to and from the Internet and examine existing Internet security techniques and protocols and their limitations. Topics also include secret key and public key cryptography, Hash algorithms, authentication, IPSEC/VPN, IPSEC key exchange, SSL/TLS, firewall, anonymous communication, and VoIP security.

The design and analysis of security protocols, and different attacks and defenses against them will be discussed within the course. Related topics about this include: signature and authentication protocols; privacy; digital rights management; security protocols for wired, wireless and distributed networks; electronic voting; payment and micropayment protocols; anonymity; broadcast encryption and traitor tracing; quantum cryptography; and visual cryptography.

In the cryptography section, this course deals with conventional, symmetric encryption and the various methods of attacking it. It will cover the historical substitution and transposition ciphers and symmetric block ciphers as well, which will be illustrated by an explanation of DES (Data Encryption Standard). The additional conventional algorithms of triple DES, IDEA (International Data Encryption Algorithm), and RC5 are discussed.

Course Objectives:

- Understand the network security concepts and problems and the mechanisms and tools to secure networks
- Describe foundational principles of modern cryptography
- Discuss how cryptographic models relate to real-world security
- Describe common complexity assumptions for cryptography
- Deploy firewalls and data encryption to minimize threats
- Install security software, and monitor networks for security breaches
- Plan, coordinate and implement network security measures
- Maintain network hardware and software
- Analyze problems and monitor networks to ensure availability for system users
- Identify customer needs and use information to design, interpret and evaluate network requirements
- Use cybersecurity measures to protect data and manage personnel conduct in relation to safeguarding data
- The course includes a project.
- This course is 3 credits.
- Prerequisites: CSIS 500

CSIS 520 – Strategies and Practices for Cyberspace Threats and Defense (3 Credit Hours)

Effective cybersecurity is more important than ever as attacks become stealthier, have a greater financial impact, and cause broad damage to company reputations. This course is designed for defenders to develop a solid foundation of core strategies and practices to enable security teams to defend their enterprise.

It has been said of security that "prevention is ideal, but detection is a must." However, detection without response has little value. In this course, a series of scenarios of many attacks and swift detections and appropriate responses to any breach that does occur will be discussed. This PREVENT - DETECT - RESPONSE strategy must be in place both externally and internally. As data become more portable and networks continue to be porous, there needs to be an increased focus on data protection. Critical information must be secured regardless of whether it resides on a server, in a robust network architecture, or on a portable device.

Not only to prevent network attacks and protect critical data, it is increasing important for any organization to be able to detect attacks in a timely fashion. For this purpose, at the end of this course students will also understand the traffic that is flowing on networks, how to look for indications of an attack, and how to perform penetration testing and vulnerability analysis against organizations to identify problems and issues before a compromise occurs.

Finally, once an attack is detected we must react quickly and effectively and perform the forensics required. Through this course, students will gain the knowledge by understanding how the attacker broke in can be fed back into more effective and robust preventive and detective measures, and completing the security lifecycle.

Course Objectives:

- Understand how to prevent network attacks and protect critical data

- Understand PREVENT - DETECT - RESPONSE security strategy
- Understand the enterprise network traffic, attack indications, penetration testing and vulnerability analysis
- Develop a solid foundation of core strategies and practices to defend an enterprise
- How to perform the forensics and develop more effective and robust preventive and detective measures
- The course includes a project.
- This course is 3 credits.
- Prerequisites: CSIS 500

CSIS 594 – Legal and Ethical Aspects of Cybersecurity (3 Credit Hours)

This course is designed to bridge the gap between the legal department and the IT department caused by new laws on privacy, e-discovery and data security. This course covers the laws of business, contracts, fraud, crime, IT security, liability and policy - all with a focus on electronically stored and transmitted records. It also teaches students how to prepare credible, defensible reports, whether for cyber-crimes, forensics, incident response, human resource issues or other investigations.

This course also provides training for students for many compliance programs under information security and privacy mandates such as GLBA, HIPAA, FISMA, and PCI-DSS. This will strengthen the credibility of forensics investigators as witnesses in court and can help a forensics consultant win more business. This course will strengthen students' abilities to help enterprise (public or private sector) cope with illegal hackers, botnets, malware, phishing, unruly vendors, data leakage, industrial spies, rogue or uncooperative employees, or bad publicity connected with IT security. Some breaking stories ranging from Home Depot's legal and public statements about payment card breaches to the lawsuit by credit card issuers against Target's QSA and security vendor will be examined within the course.

Course Objectives:

- Understand, identify and articulate the legal issues in the information assurance field
- Understand compliance programs under information security and privacy mandates such as GLBA, HIPAA, FISMA, and PCI-DSS
- Analyze and interpret how relevant case and statutory law has been applied to legal problems in information assurance
- Formulate how proposed legislation can be applied to solve legal problems with information systems
- How to develop and implement the legal compliance standards and processes
- How to reduce risk in a world of vague laws on cyber-crime and technology compliance
- How to carry out investigations so that they will be judged as ethical and credible
- How to choose words for better legal results in policies, contracts, and incidents
- How to respond to information security, privacy and forensic challenges
- The course includes a project.
- This course is 3 credits.
- Prerequisites: CSIS 500

CSIS 510 - Trusted Computing (3 Credit Hours)

This course is an introduction to the fundamental technologies behind Trusted Computing. Students will learn what Trusted Platform Modules (TPMs) are and what capabilities they can provide both at an in-depth technical level and in an enterprise context. Students will also learn about how other

technologies such as the Dynamic Root of Trust for Measurement (DRTM) and virtualization can both take advantage of TPMs and be used to enhance the TPM's capabilities.

This course will cover major use cases for trusted computing, including machine authentication, data protection, attestation, data backup and system maintenance, etc. This course will also introduce students to the various software resources that exist today to support TPMs, give a high-level overview of related research and development projects, and briefly discuss other trusted computing standards such as Trusted Network Connect which may be relevant to enterprise deployment of TPMs and trusted computing.

Course Objectives:

- Understand both basic and advanced TPM capabilities, as well as other trusted computing standards and technologies
- Understand concepts of trusted computing, including variations created by the Trusted Computing Group, Microsoft, and Intel
- Apply trusted computing concepts to design simple applications
- Understand how TPMs and related technologies can be used in enterprise environments and for cutting-edge research
- Familiar technologies of data backup, maintenance and troubleshooting
- Know the necessary tools and information to design and build systems that take advantage of trusted computing
- The course includes a project.
- This course is 3 credits.
- Prerequisites: CSIS 500

CSIS 530 – System Assessment & Security Risk Analysis (3 Credit Hours)

This course is designed for students to learn to identify Threat, Risk and Vulnerability, as applied to enterprise IT systems. It incorporates the physical safeguards and policies necessary to meet the requirements for the protection of data in a fixed site. Students will conduct a Site Security Analysis of a given facility, based on skills and information learned in class. Gap Analysis, Gap Closure and Countermeasures will be discussed and documented, in an effort to counter identified Vulnerabilities.

In this course, students will also learn the practical skills necessary to perform regular risk assessments for their organizations. The ability to perform risk management is crucial for organizations hoping to defend their systems. Risk management should be the foundational tool used to facilitate thoughtful and purposeful defense strategies.

Course Objectives:

- Understand the elements of risk assessment and the data necessary for performing an effective risk assessment
- How to map an organization's business requirements to implement security controls
- Develop risk management models for implementing a deeper risk management program in their organization
- Demonstrate proper risk management and risk analysis technique and methodology
- Demonstrate vulnerability assessment and threat analysis techniques
- Plan vulnerability assessment, threat assessment and risk analysis projects as it relates to physical security
- Prepare and present business-based recommendations for expenditure of security funds
- Develop administrative policies and procedures required to administer a physical security requirement in a secure environment

- Develop plans that address facility access and the protection of structures and components that contain the automated information system and network equipment
- Develop a Physical Security awareness program
- Facilitate physical safeguards that meet established requirements for data storage
- Illustrate risk analysis and protection of telecommunication
- Demonstrate the requirements for a Physical Security Site Security Analysis
- The course includes a project.
- This course is 3 credits.
- Prerequisites: CSIS 500

CSIS 570 – Advanced Security Topics – Penetration Testing and Ethical Hacking (3 Credit Hours)

This course is designed to give students the ability to use advanced security technologies to perform penetration testing and ethical hacking to identify vulnerabilities within a network or website and properly secure it from hackers.

CSIS 570 is the must-have course for every well-rounded security professional. In this course, students will learn proper planning, scoping and recon, then dive into advanced techniques for scanning, target exploitation, password attacks and wireless and web apps. Students will be exposed to comprehensive penetration testing and ethical hacking know-how and various real-world network penetration test scenarios. Students will conduct an end-to-end penetration test, applying the knowledge, tools and principles from throughout the course and discover and exploit vulnerabilities in a realistic sample target organization.

Course Objectives:

- Understand how to secure and protect any network from hackers and loss of data
- How to do penetration testing and ethical hacking by building a virtual hacking environment, attacking wireless networks, routers, and websites, and breaking encryptions and passwords
- Hands-on skills to use the most powerful ethical hacking tools, including Nmap, Nessus, Metasploit, John the Ripper, Rainbow Tables, web application attack tools
- Hands-on skills to utilize built-in operating system tools on Windows and Linux in a weaponized fashion
- How to perform a detailed, end-to-end professional penetration test using the best methodologies in the industry
- The course includes a project.
- This course is 3 credits.
- Prerequisites: CSIS 500

CSIS 580 – Cybersecurity Intelligence/Counter Intelligence (3 Credit Hours)

This course is designed to help students who will take the role of network defenders and incident responders to construct and exploit threat intelligence to detect, respond, and defeat advanced persistent threats (APTs); to fully analyze successful and unsuccessful intrusions by advanced attackers; to piece together intrusion campaigns, threat actors, and nation-state organizations; to manage, share, and receive intelligence on APT adversary groups; to generate intelligence from their own data sources and share it accordingly; to identify, extract, and leverage intelligence from APT intrusions; to expand upon existing intelligence to build profiles of adversary groups; and to leverage intelligence to better defend against and respond to future intrusions.

Through the collection, classification, and exploitation of knowledge about adversaries, students will be given the information superiority that can be used to reduce the adversary's likelihood of

success with each subsequent intrusion attempt. Accurate, timely, and detailed information can be used to monitor new and evolving attacks, as well as methods to exploit this information to put in place an improved defensive posture. This course will train students to detect, scope, and select resilient courses of action in response to such intrusions and data breaches.

Course Objectives:

- Understand the concepts of cybersecurity intelligence/counter intelligence
- How to construct and exploit threat intelligence to detect, respond, and defeat advanced persistent threats (APTs)
- How to analyze successful and unsuccessful intrusions by advanced attackers
- How to generate intelligence from attacking and security data sources
- How to identify, extract, and leverage intelligence from APT intrusions
- How to detect, scope, and select resilient courses of action in response to any intrusions and data breaches
- The course includes a project.
- This course is 3 credits.

CSIS 585 - Malware Analysis and Defense (3 Credit Hours)

This course will explore malware analysis tools and techniques in depth. It will help students acquire the practical skills to examine malicious programs that target and infect Windows systems and other operating systems. This course will cover malware analysis, and students will learn to determine how malware operates, what functionality is built in and what attacker-controlled domains or Internet Protocol (IP) addresses it communicates with. Failing to understand the malware functionality threatens all remediation efforts. This course will provide an introduction to the tools and methodologies used to perform dynamic and static analysis on portable executable programs found on Windows systems as well.

As malware authors continue to improve in their efforts to prevent the reverse engineering of their tools, students must learn to combat sophisticated malware by studying anti-analysis techniques. Advanced topics related to combating malware defense mechanisms will be discussed in this course. Additional topics covered will include malware stealth techniques such as process injection and rootkit technology, along with tools and techniques to aid in their analysis. All concepts and material presented are reinforced with demonstrations, real-world case studies, follow-along exercises and student labs to allow students to practice what they have learned.

Course Objectives:

- Understand the primary types of malware
- How to create a safe malware analysis environment
- Malware analysis shortcuts and the malware analysis and reporting process
- Legal issues involving malware analysis and reverse engineering
- Methodology differences between static and dynamic analysis
- Binary, decimal, hexadecimal conversion, and code, compilers and compilation
- The tools used to identify obfuscation methods and the tools used by analysts to recover the "hidden" or obfuscated data
- How to perform dynamic analysis with virtual machines and monitoring tools to capture system, registry and network activity generated during malware analysis
- The course includes a project.
- This course is 3 credits.
- Prerequisites: CSIS 500

CSIS 592 - Forensic Analysis and Risk Management (3 Credit Hours)

This course is designed from the ground up to cover the most critical skills needed to mount efficient and effective post-incident response investigations. It focuses on the knowledge necessary to expand the forensic mindset from residual data on the storage media from a system or device to the transient communications that occurred in the past or continue to occur.

This course will cover the tools, technology, and processes required to integrate network evidence sources into investigations, with a focus on efficiency and effectiveness. It will encompass the skills of not only capturing suspicious data, but also the ability to discern unusual patterns hidden within seemingly normal network traffic. This course offers hands-on experience with real-world scenarios that will help take students' work to the next level. Real-world examples will be utilized throughout the course in conjunction with numerous hands-on exercises to provide field proven, practical Forensics Analysis skills.

Course Objectives:

- Understand the principles of forensics analysis and risk management and how to apply them
- Select and configure various Open-Source tools for forensics analysis to capture and recognize traffic patterns associated with suspicious network behavior
- Reconstruct suspicious activities such as e-mails, file transfer or web browsing for detailed analysis and evidentiary purposes
- Understand and recognize potential network security infrastructure misconfigurations
- The course includes a project.
- This course is 3 credits.
- Prerequisites: CSIS 500

CSIS 595 - Information System Auditing and Monitoring (3 Credit Hours)

This course is designed to provide a risk-driven method for tackling the enormous task of designing an enterprise security validation program. After covering a variety of high-level audit issues and general audit and real-time monitoring best practices, the students will have the opportunity to dive deep into the technical "how to" for determining the key controls that can be used to provide a level of assurance to an organization. Tips on how to repeatedly verify these controls and techniques for continuous monitoring and automatic compliance validation will be given from real world examples.

The course contents will cover audit planning and techniques, more effective risk assessment for control specification, firewall and perimeter auditing, a proven six-step audit process, time-based auditing, effective network population auditing, how to perform useful vulnerability assessments, uncovering "Back Doors," building an audit toolkit, detailed router auditing, technical validation of network controls, web application auditing, and audit and real-time monitoring tools.

Course Objectives:

- Understanding IT audit risks and defining audit scope
- Internal control concepts and the role of computer control standards
- General controls protecting the IT environment
- Business process controls covering specific financial systems
- Communicating audit findings
- Real-time system monitoring and technologies
- The course includes a project.
- This course is 3 credits.
- Prerequisites: CSIS 500

CSIS 665 – Disaster Recovery & High Availability (3 Credit Hours)

Knowledge of Disaster Recovery and Business Continuity provides a strategic imperative and a competitive advantage in an environment where students must plan for the unexpected, maintain operations, and meet regulatory demands. This course covers recovery time and recovery point objectives (RTO and RPO). Built upon the concepts of risk analysis and business impact planning, this course is designed to provide a foundation and guide to coordinated organizational emergency response and event management during and after a disruptive occurrence.

This course begins by examining in depth the events of the past 20 years, including the lessons learned about the interdependencies of the critical infrastructures following the Oklahoma City bombing and the terrorist attacks against the World Trade Center and what we learned in the aftermath of hurricanes Katrina and Rita in the summer of 2005. While there are many cross-sector interdependencies to consider, this course will focus on the dependence of the various infrastructure sectors on the Internet, business continuity, and the impact of highly complex computer controlled systems. This course will also give the student a full examination of the scope of critical infrastructure vulnerabilities; the dependence of critical infrastructures on the Internet, and Internet security problems; elementary concepts of business continuity; high availability architecture; system design and solution roadmap; data center design and disaster recovery; and data center operations. The subject material requires at least a working knowledge of computer networks and business decision making.

Course Objectives:

- Understand the concepts of business continuity, high availability (HA) and disaster recovery (DR)
- Identify the core pieces and functions of an integrated, effective, corporate business continuity program
- Develop plans for Business Continuity/Disaster Recovery and Incident Response.
- Describe key Business Continuity terms and concepts, such as determining critical business functions, the "MARC" (minimum acceptable recovery configuration), Recovery Time Objectives, Recovery Point Objectives, Recovery Time Capabilities, information technology disaster recovery technical solution designs standards and practices
- Understand how to effectively determine business unit resumption requirements for loss of workspace, loss of information technology, and loss of personnel.
- Understand how to approach crafting effective information technology recovery time capabilities for key systems that will meet business units' stated needs, and how to address "the gap" which may be discovered between business units' information technology recovery requirements and available money or capabilities
- Understand the core quality control concepts surrounding the development and use of scorecards in evaluating business resumption and disaster recovery plans, and standardized objective metrics in information technology testing
- The course includes a project.
- This course is 3 credits.
- Prerequisites: CSIS 500, CSIS 512

CSIS 528 – Network Principles

This course provides students with the instruction necessary to install, configure, and troubleshoot a computer network. This course introduces current networking standards, the OSI Model, various protocols and topologies, the interconnections between various hardware components, network operating systems, DNS, DHCP, TCP/ IP, Ethernet, wired and wireless transmission, and security.

In this course, students will also study security issues in Information Technology and Networking. Students are introduced to practical solutions for identifying, assessing, and preventing external and internal threats to networks. Key components include authentication methods, communication security, infrastructure security, cryptography basics, and security implementation.

Course Objectives:

- Understand computer networks and their purpose
- Understand network media and data transmissions
- Explain network design and describe the various network topologies
- Discuss local area network architectures
- Discuss network protocols and network software
- Describe the features of Windows servers
- Describe the features of NetWare and Linux servers
- Describe the issues involved in managing a local area network
- Discuss wide area networks
- Discuss the Internet and its tools
- The course includes a project.
- This course is 3 credits.
- Prerequisites: None

CSIS 536 – Computing Operation Systems (3 Credit Hours)

Operating systems are an essential part of any computer system. Operating systems vary significantly, but their fundamental principles remain the same. This course examines operating system design concepts, data structures and algorithms, and systems programming basics. In this course, students will be introduced to the basic concepts of operating systems, see how they manage resources such as memory, peripherals, and schedule CPU time, learn how to use the system call interface and how to create processes and synchronize them, learn how applications communicate, understand the memory hierarchy and see how virtual memory is managed, understand how files are managed and stored, and much more.

The topics to be covered (tentatively) include: computer and operating system structures; process and thread management; process synchronization and communication; memory management; virtual memory; file system; I/O subsystem and device management; and selected examples in networking, protection and security.

Course Objectives:

- Gain extensive knowledge on principles and modules of operating systems
- Understand key mechanisms in the design of operating systems modules
- Understand process management, concurrent processes and threads, memory management, virtual memory concepts, and deadlocks
- Compare performance of processor scheduling algorithms
- Produce algorithmic solutions to process synchronization problems
- Use modern operating system calls such as Linux process and synchronization libraries
- Practice with operating system concepts such as process management, synchronization, networked processes and file systems
- The course includes a project.
- This course is 3 credits.
- Prerequisites: None

CSIS 560 - Introduction to Mobil Computing (3 credit hours)

This course is offered for those who are interested in understanding and building systems support mechanisms for mobile computing systems including client-server web/database/file systems, and mobile ad hoc and sensor networks for achieving the goal of anytime, anywhere computing in wireless mobile environments. The technologies involved to realize such a system will be covered, and the fundamental concepts of mobile computing will be introduced. These include mobility and service management, data management, routing in mobile ad hoc and sensor networks, and security issues for mobile systems. While mobile computing covers many topics, in this course our main focus will be on mobility, data and service management, and security issues in mobile computing environments. Students are expected to be familiar with basic concepts in Operating Systems and Networks in this class.

Topics to be covered (tentatively) include mobility and location management, data and resource management, mobile ad hoc and sensor networks, security for mobile and wireless computing, and paper presentation and discussion.

Course Objectives:

- Understand wireless communication technologies and the proliferation of portable computing devices
- Understand the characteristics and limitations of mobile hardware devices, including their user-interface modalities
- Methodologies to access mobile network services and resources, from anywhere at any time.
- Understand security issues for mobile computing
- The challenges faced to efficiently enable such access along with state-of-the-art solutions
- The course includes a project.
- This course is 3 credits.
- Prerequisites: None

CSIS 590 – Introduction to Cloud Computing (3 credit hours)

Cloud Computing has emerged in recent years as a new paradigm for hosting and delivering services over the Internet. This course is designed to introduce the concepts of Cloud Computing as a new computing paradigm. The students will have an opportunity to explore Cloud Computing's various terminology, principles and applications. The course will expose students to different views of understanding Cloud Computing such as theoretical, technical and commercial aspects. A variety of real case studies and existing in market cloud-based tools will be identified and studied in order to provide students with a close overview of Cloud Computing applications.

This course provides a hands-on comprehensive study of Cloud concepts and capabilities across the various Cloud service models including Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS), and Business Process as a Service (BPaaS). The course also covers the Cloud security model and associated challenges and delves into the implementation and support of High Performance Computing and Big Data support capabilities on the Cloud. Through hands-on assignments and projects, students will learn how to configure and program IaaS services. They will also learn how to develop Cloud-based software applications on top of various Cloud platforms, how to integrate application-level services built on heterogeneous Cloud platforms, and how to leverage SaaS and BPaaS solutions to build comprehensive end-to-end business solutions on the Cloud.

Course Objectives:

- Understand the fundamentals and essentials of Cloud Computing

- Understand various Cloud service models including Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS), and Business Process as a Service (BPaaS)
- Understand the foundation of the Cloud computing so that students are able to start using and adopting Cloud Computing services and tools in their real-life scenarios Explore some important Cloud Computing driven commercial systems such as GoogleApps, Microsoft Azure and Amazon Web Services and other businesses cloud applications
- The course includes a project.
- This course is 3 credits.
- Prerequisites: None

CSIS 636 - Database System Management & Assurance (3 credit hours)

This course provides a managerial understanding and approach to the technical subject of database management. The course will illustrate the important role that database systems play in an organization and provide students with a background to understand the subject, and a foundation upon which to build management decisions. This course is designed to investigate how database management system techniques are used to design, develop, implement and maintain modern database applications in organizations.

Upon completion of this course, the student will be able to define essential database vocabulary, effectively apply data relationships and normalization techniques, describe the transformation of database design from a conceptual user model (e.g., an ERD) to a normalized relational model, explain and apply Structured Query Language (SQL) in a database environment, describe the methods available for minimizing DBMS risks and security failures, characterize the roles and responsibilities of the Database Administrator (DBA), and apply fundamental database concepts to an information systems problem.

Course Objectives:

- Understand the concepts of RDBMS
- Understand solid theoretical foundation in relational database technology
- Create basic data and process models
- Create a basic relational database model based on the data and process models
- Understand and discuss the concepts and principals of database security
- Understand the concepts and principals of personal privacy relative to database systems
- The course includes a project.
- This course is 3 credits.
- Prerequisites: None

CSIS 650 – System Architect and Cybersecurity (3 credit hours)

This course covers the issues in designing and engineering large enterprise software systems. Technologies such as Web Services and Cloud Computing provide platforms for building such systems, and architectures such as service-oriented architecture (SOA), event-driven architecture (EDA) and representational state transfer (REST) are idioms for structuring such systems.

This course will focus on the development of high-assurance software systems via the secure system development life cycle process. This course will foster the design and implementation as well as verification/validation of secure software systems and architectures. A key coverage area will include principles and practices of secure and high assurance software development processes, including security development lifecycle models, and design/verification/validation using languages and tools such as UML. Tools and techniques for code analysis and testing, and evaluation and

certification of software will also be emphasized. The course will also cover secure programming principles using different languages, with particular focus in secure software development.

Key topics within this course include secure development methodologies/models; assurance techniques (certification, validation, etc.); secure programming issues/practices and tools; software assurance and Security analysis - tools and techniques; secure design, testing and systems security engineering (e.g., protocol verification, model-based techniques, etc.); and supply chain security, life-cycle security, security risk analysis.

Course Objectives:

- Understand the principles and methodologies for designing and implementing secure systems and establishing software assurance
- Understand and analyze code for vulnerabilities and learn secure programming practices
- Use of tools for code analysis and security property verifications
- Apply secure design principles to build a real system
- The course includes a project.
- This course is 3 credits.
- Prerequisites: None

CSIS 630 – Independent Project Study in Cybersecurity (3 credit hours)

Approval by faculty member and program director is required prior to registration. Students will gain real-world industrial experience in the Cybersecurity field.

Prerequisites: Admission to the MS in Cybersecurity

CSIS 631 - Practical Research in Cybersecurity I (3 credit hours)

Approval by faculty member and program director is required prior to registration. Under the direction of a faculty advisor, the student will conduct specialized research in the cybersecurity field.

Prerequisites: Admission to the MS in Cybersecurity

CSIS 641 - Practical Research in Cybersecurity II (3 credit hours)

Approval by faculty member and program director is required prior to registration. Under the direction of a faculty advisor, the student will conduct specialized research in an advanced cybersecurity field.

Prerequisites: Admission to the MS in Cybersecurity

**In selecting Concentration courses, students are advised to consult with both the Chair of the Computer Science Department and their Academic Advisor.

ESL 101 - Advanced English Reading (I, II)

ESL 101 I-Level: A course in which students use the extensive reading approach to language learning. Course will include background theory of the method, reading strategies and vocabulary development, and bridges between reading and other language skills.

ESL 101 II-Level: A content course for students, whose English proficiency is at the appropriate reading level, focuses on increasing the student's reading speed. Students will read, discuss, listen to lectures and write about the assigned literature.

ESL 102 - Advanced English Listening (I, II)

ESL 102 I-Level: Students practice listening skills needed in a non-academic conversation and can watch TV shows. Emphasis is on correctly listening people conversation with capability to understanding;

ESL 102 II-Level: Students practice listening and speaking skills needed in an academic setting. Emphasis is on listening for academic content and participating in classroom discussion

ESL 103 - Advanced English Writing and Grammar (I, II)

ESL 103 I-Level: Course provides high beginners to low intermediate students with guided and free practice writing grammatically correct sentences within simple paragraphs. Students will learn the basic parts of a sentence and elements of a paragraph and practice combining sentences, using adjective clauses and writing in the simple past, present, future and present continuous tenses.

ESL 103 II-Level: Course engages students in advanced English grammar concepts and skills to be applied in writing, speaking, listening and reading. It also addresses increasingly complex sentence structure patterns and principles of paragraph construction. So in order students have capability to do their homework and projects.

ESL 104 - Advanced English Speaking & Communication Skills (I, II)

ESL 104 I-Level: Students practice speaking skills with right pronunciations and appropriate words needed for communication with English speakers. Emphasis is on listening for academic content and participating in classroom discussion.

ESL 104 II-Level: Focusing on the mechanics of the American English spoken language, students learn to form their mouths to make American English sounds and learn common patterns or rhythm, intonation, reduction and linking in speech. Students will use play scripts to improve their public speaking, oral language skills and appropriate response patterns.

9.6 Academic Program Evaluation and Improvement

VUST is committed to preparing its graduates with job-ready skills for professional advancement in their chosen academic area. Accordingly, VUST has developed a five-level program for evaluation the strength and currency of its programs. This program is administered by the VP for Academic Affairs (VPAA) office through the College Dean's office where present.

Level 1 – Student course evaluations

Level 2 – Instructor program development summary of each course taught

Level 3 – Dean or Department Head annual program review

Level 4 – Recent program graduates provide written program evaluations

Level 5 – External industry expert program review on an annual basis

Level 1 evaluations are done through a written questionnaire that students will complete at the end of each course. While the student questionnaire will address instructor effectiveness, the focus will be on the student's evaluation of the extent to which the courses objectives were met and necessary job skills obtained.

Level 2 includes written summaries by each instructor of their assessment of each course's effectiveness in preparing students, as well as suggestions and plans for improving the course. This summary will be provided by each instructor, whether full-time or adjunct and whether the instructor will be teaching the course another term or not.

Level 3 brings an internal colleague/supervisor into the review process. While the review process will include evaluation of the instructor's effectiveness and plans for improvement, a key component will be directed to strengthening course offerings.

Level 4 involves recent program graduates who are asked to complete a written review and evaluation of the program they completed. The focus of these evaluations is primarily on graduates' perceptions of the quality, relevance and applicability to their initial job placements and career progressions. It is not intended to be a faculty evaluation except to the extent that any particular faculty member might have been extraordinarily helpful in the students' knowledge and skill development. Because of VUST's emphasis job-ready skill development, the evaluations also will seek to shed light on how well these aspects of the program are working and what improvements might be made.

Level 5 brings external industry experts into the review process. Once a year the College Dean or Department Head will consult with the VPAA to identify 5 to 10 people who are experts in the appropriate academic program area either through their work as industry practitioners or as educators. That group will meet annually for approximately 90 to 120 minutes to review the curriculum in a particular program area in light of knowledge and skill trends required by industry.

9.7 Academic Support and Career Advisory Services

Faculty Office Hours

VUST requires all faculty must schedule their office hours outside a course's regular scheduled class hours so that students who take the course can reach the professor and get academic advising if they have any questions regarding the course.

Academic Advisory Service

As a graduate institution, all of our students will be assigned a faculty advisor who is responsible not only for assisting in course planning, but also in guiding the student in the choice and expectations of an internship and in job placement after graduation. In addition to the faculty advisor, VUST will have a Job Placement Office that will work to identify employment opportunities for which our students are being prepared with job-ready skills. Our institutional goal is to achieve 100% placement in the field in which the student has been qualified. While 100% is our goal and commitment, we will not guarantee or promote that we guarantee that all graduates will find a job in a relevant field. For more information regarding academic advisory service, please contact the Academic Affairs Office: academic@vust.us

Student Services

VUST Student Service Office will provide many services for our students, such as tutoring services, seminars, library services, career advisory and placement services. For detail formation, please see Student Services Section.

Career Advisory Services

VUST's programs prepare graduates for productive professional careers. To supplement the academic foundations provided by the curriculum, assistance with career guidance and job placement is available to all students. Students are encouraged to meet with their respective academic advisor to discuss their career plans and provide a copy of their latest resume to the Director of Student Services Office. Students seeking employment while enrolled are directed to meet with the Director of Student Career Services with respect to available job opportunities.

Career Services organizes a number of career events throughout the year. These include job fairs, seminars, on-campus interviews and networking sessions. Jobs are posted on announcement boards and on VUST website. Companies and organizations interested in participating in VUST career events are welcome to contact us.

Services of the Job Placement program include, but are not limited to:

- On-Campus Recruiting: Job development within each curriculum is promoted at VUST on an ongoing basis. Employers from business, industry, government, and education are interested to recruit at VUST. The Job Placement Office offers employers a centralized location for contacting qualified students for employment. Employers may contact the Corporate Outreach Manager to schedule recruiting times on campus.

- **Résumé Assistance:** Résumé assistance is offered through workshops and by appointment. Regularly, the Job Placement Office sponsors résumé building workshops and job fairs. All students and alumni are urged to attend.
- **Job Opportunity Listings:** Employers may e-mail, fax, or mail any employment opportunities to the Job Placement Office. These openings will remain active until the position is filled or until the employer is no longer interested. Students may find job listing posted at the Job Placement Office or online. This information is shared with alumni and department heads upon receipt.
- **Employer Resource Library:** The Job Placement Office maintains an employment resource library that contains information on many of the local companies. Employers are encouraged to send information to be included in this library. Also, many of the employer applications are maintained within these files.
- **Career Search Counseling:** The Job Placement Office maintains alumni and salary information for statistical purposes. The office is also available to do limited career search testing. Students are encouraged to contact their academic advisor for the most current developments within their field of study.

Students can get more information by visiting the Career Services page or contact us via email: careerservices@vust.us

9.8 Graduation Requirements

A student must satisfy the requirements for the degree that are in force at the time the degree is to be awarded.

- All Masters degree programs require the successful completion of a minimum of 45 credit hours.
- Students must take three university required courses (500, 510, 520) except students who have been manager for more than 3+ years.
- Students must complete 15 credit hours of core courses.
- Students must select of three Capstone courses except students who have 5+ years working experience in IT field.
- A minimum cumulative GPA (grade point average) of 3.00 is required for a graduate degree at VUST.
- The Masters Degree Request must be filed according to posted quarterly dates and deadlines.
- Must complete all degree requirements within six years.
- Must maintain registration through the end of the quarter in which the degree is conferred or, if eligible, pay the Graduate Registration Waiver Fee within 14 days following the last day of the quarter in which all degree requirements were met.

9.9 Distance Education

The Master of Science in Cybersecurity and Information Assurance offered at VUST will teach all its program courses in the traditional way of face-to-face in classroom.

Even though VUST has the facility, equipment and technology to conduct distance learning, the VUST doesn't offer any distance education program at this time. However, VUST may offer hybrid format for new programs in future. VUST may also invite the well-known professors or expert in the specific field of computer science and Cybersecurity, but who are living outside of Northern Virginia, to give our students the special seminars via VUST's state-of-the-art distance education facilities and cutting-edge technology.

10. Ownership and Faculty Information

10.1 University Governance

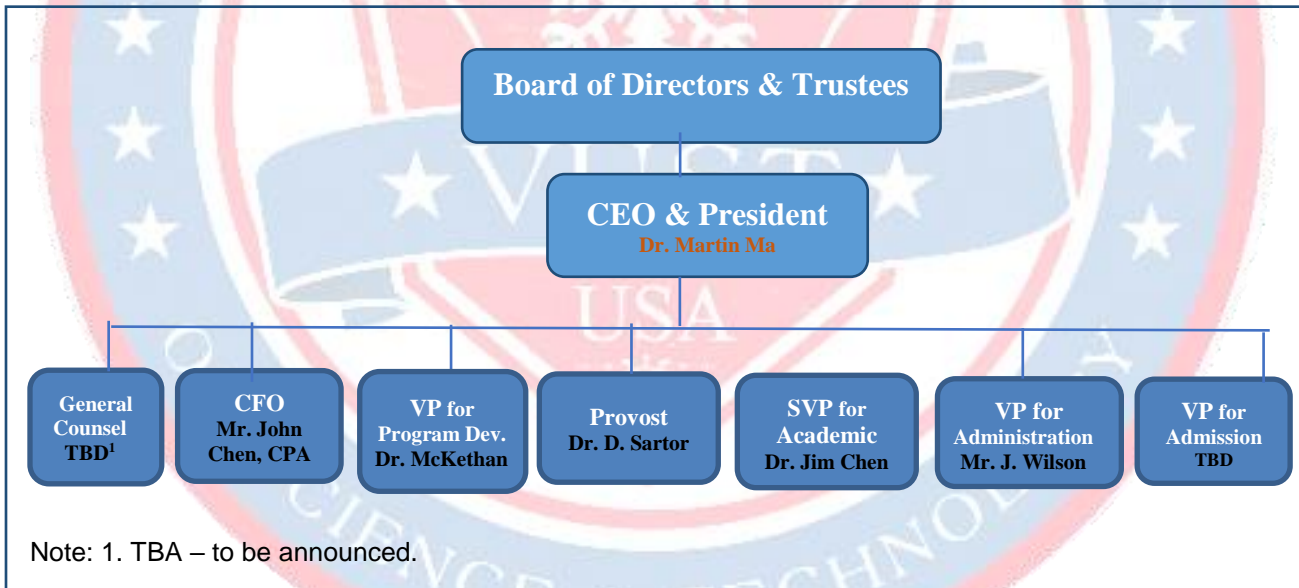
VUST is an independent institution governed by a self-perpetuating Board of Directors & Trustees who have the ultimate fiduciary responsibility for VUST, its finances, its human resource policies, its ethical and honest behavior and its commitment to equal opportunity regardless of race, color, religion, national origin, age, political views, physical disabilities or sexual orientation.

The Chairman of the Board of Directors & Trustees is appointed by the Board and has the authority to carry out the decisions of the Board, to maintain open communication among Board members and to serve as the direct supervisor of the VUST President.

The President is the Chief Executive Officer of VUST and is responsible to the Board of Directors & Trustees through its Chairman. The President has the authority and responsibility to manage the affairs of the institution in such a manner that ensures its stated Goals & Objectives are met and its vision advanced. The Chairman shall be responsible for annual evaluations of the President and for seeking input from Board members and other key constituencies.

The primary function of VUST is teaching and learning, and VUST's faculty are recognized and rewarded for good teaching and mentoring. VUST instructors are also expected to be active practitioners within their professional fields and to be adept at developing student engagement in real-life job situations.

The governance and organization structure at Virginia University of Science & Technology is designed as follows:



Organization Chart of Virginia University of Science & Technology

10.2 Board of Directors & Trustees (BOD)

VUST is a Corporation duly organized under the laws of the Commonwealth of Virginia. The Board of Directors & Trustees the ("BOD") is the governing and policy-making body for VUST. VUST's BOD will play an active controlling role in the governance of VUST's operations. The BOD has seven members: a Chairman, a Secretary, two (2) Trustee members (of which one shall be an investor and one shall be an original shareholder), a representative of the faculty, an alumni member (one-year term, vacant in first 3 years) and a student representative (one-year term, non-voting member, vacant in the first year). The Trustee members of VUST's BOD shall be appointed upon recommendation by the Chairman and President of VUST.

All members of BOD have 3-year terms, except student, faculty and alumni members. The roles of the BOD are described as, but not limited to, the following tasks:

- Make final decisions, policies and regulations for VUST.
- Give final approval to VUST's budget, business plans, university development strategy, campus selection, etc.
- Hire or terminate VUST's President.
- Hire or terminate Provost, and Senior VPs.
- Approve University's executives, senior staff members and faculty's salaries and benefits.
- Approve University's consultants and contractors' compensation, bonus and commissions.
- Give approval to grant shares to un-original members and investors.
- Approve the addition or removal of VUST academic major(s), department(s), and college(s) that proposed by Academic Committee and recommended by President.
- Review and approve proposed degrees, certification and professional programs.
- Approve changes to VUST tuition and fees.
- Approve whether students meet all required academic standards and agree to grant degrees to the students.
- Approve the VUST's honorary degrees.

BOD Members:

- Chairman & CEO: Dr. Martin Ma
- Co-Chair: Mr. Hank Chao
- Secretary & Director: Dr. Rui (Mary) Ma
- Director: Mr. James Wilson
- Trustee: Dr. Jim Chen

10.3 President & Executive Team

The president of VUST is selected and recommended by the BOD, approved during VUST's BOD meeting, then appointed by Chairman of the BOD.

The President is the chief executive officer of VUST and as such is responsible for the general direction of all its affairs. The president is fully empowered by the VUST BOD with responsibilities to operate VUST. The President reports directly to the VUST BOD through its Chairman. The President's main responsibilities are defined as the following:

- Oversee the operation of VUST.
- Develop a short- and long-term business strategy.
- Develop marketing and recruiting tactics and strategies.
- Ensure enrollment meets VUST's development plan.
- Ensure VUST successfully get/maintains and renews SCHEV certification and operation license.
- Ensure VUST successfully obtain/maintains and renews its regional accreditation.
- Conduct finance development and guarantee VUST is financially sound.
- Recommend candidates for Associate/Assistant VPs, Deans and Directors, etc. and appoint them after approval by Chairman of BOD.
- Other duties related to University operation.

Executive Team Members:

The Executive Team is made up of the CEO, President, Provost, Senior VPs, and Deans, and operates VUST.

- VUST CEO & President: Dr. ST Martin Ma, Expert in Information Assurance and Technology with more than 25 years of experience as Chief Scientist, Project Chief Engineer, General Technical Manager, Vice President, CTO, COO, President and CEO in large and small corporation, as well

as Lecture, assistant Professor, Adjunct Professor, Visiting Professor and Honorable Professor in six American and International universities.

Dr. Martin Ma attended the Harvard University Institute of Higher Education (IHE) Seminar of the Advancement Leadership for University Presidents in June 2016, IHE Seminar of New University Presidents in July 2017, and Harvard University Kennedy School Executive Education Seminar of Cybersecurity Polices and Technology in 2017.

- Provost and Vice President for Academic Affairs: Dr. Doris P. Sartor, who has more than 25 years of experience as Senior Director and Commander in the US Airforce University.
- Senior Vice President for Academic and University Partnership: Dr. Jim Chen, who is a full professor in Department of Computer Science at George Mason University for 20 years and served as Head of Department of CS for 11 years and Associate Dean for 4 years. Dr. Chen is serving as the Editor-in-Chief (EIC) of AIP/IEEE Computing in Science & Engineering (CiSE). He is a senior Member of IEEE and ACM.
- Vice President Curriculum Development: Dr. Vera McKethan, who has more than 15 years of experience as Chief of AF Learning Integration Branch in Department of Defense and Air University.
- Vice President for Administration: Mr. James Wilson, who has more than 30 years of Experience as Senior Administrator, Senior Director of Finance, Director of Staffs in Federal agency and non-profit organizations.
- Chief Financial Officer (CFO): Mr. Zhihua (John) Chen, CPA, who has more than twenty (20) years of experience serving as an accountant, auditor, chief accountant and principal in large and small corporations.

10.4 Academic Expert Board (AEB)

The Academic Expert Board is a volunteer and advisory group at VUST.

Selected Key Members:

The AEB members consist of external experts who are Presidents, VPs, Deans, and professors in accredited American universities or well-known international universities, senior faculty at VUST, and student representatives (nonvoting delegates). They are committed to helping VUST maintain a standard of excellence in education.

- The Co-Chair of AEB is Dr. Jim Chen. Dr. Chen is full professor of Computer Science at George Mason University (GMU). He is currently director of the [Computer Graphics Lab](#) at GMU and associate editor-in-chief (EIC) of [AIP/IEEE Computing in Science & Engineering \(CiSE\)](#). He served as general co-chair of IEEE VR2006, program co-chair for IEEE VR (2002, 2003, and 2004), and guest editors for IEEE Computational Science & Engineering, CiSE, and PRESENCE. Jim's research interests include computer graphics, virtual reality, visualization, networking, and simulation. He authored 2 books and 2 book chapters, edited 2 conference proceedings, published over 80 research papers, and acquired 3 patents. Jim guided 11 Ph.D. dissertations. Six of his former Ph.D. students are currently professors. Jim received honorary professorships at Fudan University, Southwest Jiaotong University, Beijing Jiaotong University, Hoseo University, Sichuan Normal University, and Xihua University.
- Dr. Doris Sartor, AEB member, Ed.D. in Education, Auburn University
- Dr. Ronald Pan, AEB member, Ph.D. in Computing Chemistry Engineering, Oklahoma State University
- Dr. Harry Wechsler, AEB member, Ph.D. in Computing Engineering, University of California, Irvine. Full Professor at George Mason University for more than 35 years.

Term: Each member will serve for three years except student members (one year term) and can be renewed for additional terms.

Functions:

- The Academic Advisory Committee oversees the academic quality for degree and non-degree programs at VUST.
- The committee reviews and approves curriculums for each course and ensure requirements of the Regional Accreditation Committee or ACICS are met.
- This committee is under the supervision and direction of the President and reports to the VUST Board of Directors & Trustees through the President, to ensure that all programs meet the requirement of SCHEV, Accreditation Organization, and U.S. Department of Education, to meet with the needs of the community of students.
- The committee reviews and recommends all candidates for VUST degrees to be approved by the BOD.
- The AEB considers and recommends the addition or removal of academic programs, departments, and colleges to be approved by the BOD.

10.5 VUST Ownership & Shareholders

VUST is a for-profit private university.

VUST's Ownership:

The Virginia Universities of Science & Technology (VUST) is 100% owned by Virginia University of Science & Technology, Inc., which was founded on January 18, 2013.

Majority Owners:

The shareholder who has 15% or more of VUST's shares is Dr. Martin Ma.

Other Owners who have shares in VUST of less than 5%:

- Dr. Rui (Mary) Ma, Secretary of BOD
- Ms. Lisa Wang, Investor
- Mr. Dong Tian, Investor
- Ms. Ying Su, Investor
- Mr. James Wilson, Member of BOD

10.6 Selected Faculty at VUST

- Dr. Paul Tiao, J.D. in School Law, Columbia University, 1995
- Dr. Yuan (John) Jiang, Ph.D. in Electrical & Computing Engineering, Columbia University, 1991
- Dr. Harry Wechsler, Ph.D. in Computing Engineering, University of California, Irvine, 1975
- Dr. George Zhang, Ph.D. in Electrical & Computing Engineering, University of Utah, 1994
- Dr. Jim Chen, Ph.D. in Computer Science, University of Central Florida, 1995
- Dr. Yunming Song, Ph.D. in Electrical Engineering, Shanghai Jiao Tong University, 1995
- Dr. Martin Ma, Ph.D. in GIS & Remote Sensing, University of Oklahoma, 1993
- Dr. Paul Wang, Ph. D. in Computer Science, George Mason University, 2004
- Dr. Sean Wang, Ph. D. in Computer Science, George Mason University, 2003
- Dr. Xiaoliang (Leon) Zhao, Ph.D. in Computer Science, North Carolina State University, 2002
- Dr. Doris Sartor, Ed.D. in Counseling & Psychology, Auburn University, 1992
- Dr. Ronald Pan, Ph.D. in Computational Chemistry Engineering, Oklahoma State Univ., 1996
- Dr. Jiuyi (Joe) Hua, Ph.D. in Transportation Engineering with emphasis on Computing Artificial Intelligence, University of Delaware, 1995