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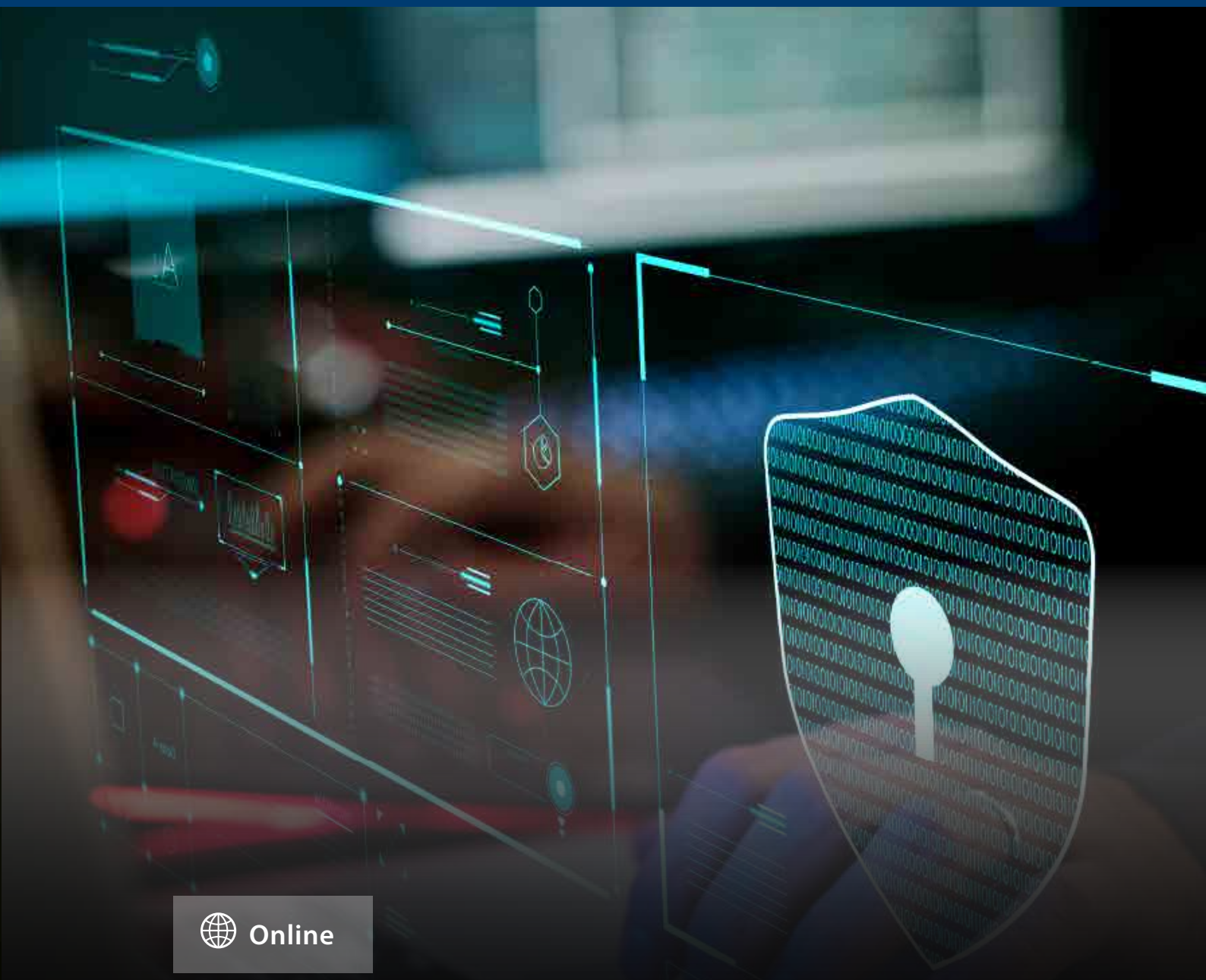

Online

MASTER OF SCIENCE IN CYBER SECURITY ENGINEERING

WASC Senior College and University Commission

University of San Diego®
SHILEY-MARCOS
SCHOOL OF ENGINEERING

ABOUT UNIVERSITY OF SAN DIEGO

The University of San Diego, established over 70 years ago, is home to over 9,000 students. Its diverse and vibrant student community comes from 85 countries and 50 states in the USA. We are proud to offer a suite of online programs in engineering and tech to Indian students. With this unique opportunity, you can earn a technical degree from a U.S. without having to leave home and without sacrificing quality.

The institution holds the distinction of being one of the youngest private universities to feature in U.S. News and World Report's top 100 universities in the USA. Moreover, the University has achieved accolades for its online programs. The University has also been ranked #1 for having the most beautiful campus and #22 for providing the best career services by the Princeton Review.

PROGRAM OVERVIEW

At a Glance

USD Online's Master of Science in Cyber Security Engineering (CSE) for students in India focuses on the engineering aspects of software and hardware security. This program delivers in-depth knowledge needed by cyber security professionals to tackle security challenges faced by businesses, communities, and governments.

The curriculum was developed in collaboration with industry, intelligence, and government stakeholders to deliver in-demand skill sets. Our CSE program has been designated by the U.S. federal government as a National Center of Academic Excellence in Cybersecurity, ensuring that it meets the rigorous requirements aligned with the NICE Cybersecurity Workforce Framework.

Led by expert instructors, students gain expertise in diverse, critical cyber security skills, with a focus on applied cryptography, secure network engineering, security test engineering, and incident detection. Graduates will be able to leverage the latest cyber tools and solutions to succeed in today's digital landscape.

Online

Program Length:	24 Months
Total Credits:	30-36

Quick Facts

Students have the opportunity to enroll in any of the three semesters: Spring, Summer, or Fall. Each semester holds two subjects lasting seven weeks each, allowing students to concentrate on one subject at a time.

Top 100	Universities in the Country U.S. News & World Report	#2	Most Beautiful Campus Princeton Review	#54	Best Value Schools Princeton Review

WHAT WILL YOU LEARN?

This program provides industry-relevant skills and prepares you for in-demand roles in the fast-growing cybersecurity domain. After completing the course, you will to:

- Gain expertise in the fundamental concepts and principles of cybersecurity engineering and leverage them to mitigate cyber threats to work towards a secure digital environment.
- Identify and analyze potential vulnerabilities, threats, and possible areas of improvement in the security system by leveraging skills such as security testing, incident response, cyber forensics, and other relevant techniques.
- Make informed decisions in the crucial area of an organization's cyber security by becoming familiar with legal rules, regulations, and ethical standards.

PROGRAM EXPECTATIONS

As postgraduate students at a top-tier US university, a rigorous curriculum, independent research, critical thinking and a high level of accountability are to be expected out of all of our programs. Students should expect and prepare for the following:

- 15-18 hours per week on average to commit to studying and completing assignments. This may vary by the student's personal background and the content of the weekly syllabus.
- Complete work independently on their schedule supplementented by the resources available in the online classroom.
- Look externally to find supplemental information to help them complete assignments and understand course content.

WHY CHOOSE USD ONLINE?

Equivalent Value and Same Curriculum as On-campus Degree

Online graduate students earn the same degree as campus-based students. The online mode provides students with the same industry-driven curriculum and academic rigor as the University of San Diego's on-campus degree programs.

Cutting Edge Tech-focused Curriculum

Join this opportunity to earn a tech degree from a U.S. university. Our innovative, practical curriculum introduces the latest concepts and trends from the global tech landscape, aligning it with industry requirements.

Attend Graduation Ceremony on Campus

All online students have the opportunity to attend their graduation ceremony at their own expense. Visit our state-of-the-art, historical California campus and join the excitement and celebrations alongside other USD graduates.

Advanced Learning Resources

Gain access to a robust digital ecosystem designed to enhance your learning experience. Utilize Canvas for coursework and engage with faculty and peers via Zoom. Collaborate seamlessly with industry-standard tools like Google Suite and Microsoft Office 365.

USD's Career Center & Handshake

Our Career Development Center is here to guide you through job and internship applications, offering mock interview preparation, resume-building tools, and personalized career advice. As a USD student, you'll also have access to Handshake, a platform designed to connect you directly with top employers and internship opportunities in your field, all with the support of our expert advisors.

Dedicated Support

Get access to academic advisors, engage with expert faculty for guidance, and receive dedicated assistance to help you stay on track. Our support system ensures that online students receive the same level of mentorship and engagement as on-campus learners.

WHY STUDY A MASTER OF SCIENCE IN CYBER SECURITY ENGINEERING?

Potential Careers

Organizations across all industries are equipping themselves with robust cybersecurity systems in response to the rise in cybercrime. This has led to a booming cybersecurity job market, with employers paying high salaries to cybersecurity professionals with impressive credentials across positions such as:

- Lead Cybersecurity Engineer
- Information Security Analyst
- Lead Cybersecurity Threat Hunter
- Lead Software Security Engineer
- Cybersecurity Architect

Industry Insights

1 Million	21%	US$ 15 Billion
Cybersecurity professionals are currently needed in India.	Growth expected of Cyber security services by 2025	The cyber security market's worth in India in 2023

Source: ET.com, Statista.com, Comptia

Where Our Graduates Work

Microsoft | SPAWAR | RSI | SENTEK GLOBAL | DEPARTMENT OF THE NAVY · UNITED STATES MARINE CORPS

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ALUMNI BENEFITS AT THE UNIVERSITY OF SAN DIEGO

At the University of San Diego, our commitment to alumni extends well beyond graduation. Explore the following diverse benefits designed to foster continuous connection, active engagement, and unwavering support within the esteemed Torero community.

- **Stay Updated with Monthly eNewsletter:**
  Receive our vibrant monthly eNewsletter, keeping you in the loop with the latest happenings, alumni stories, and upcoming events.
- **Connect Anytime with the Torrero Network**
  Explore our dynamic alumni website, your go-to hub for staying connected, accessing resources, and discovering opportunities within the USD community.
- **Local Torrero Clubs for Community Building:**
  Build or join local Torrero clubs to connect with alumni in your area, fostering a sense of community and shared Torero pride.
- **Networking Made Easy on Alumni Portal:**
  Engage in meaningful networking within our alumni portal, connecting with fellow alumni to share experiences, insights, and career opportunities.
- **Virtual Events for Continued Learning:**
  Attend our virtual events, including the ongoing personal finance series addressing navigating inflation. Stay informed, inspired, and connected from the comfort of your home.
- **Alumni Member Card Upon Graduation:**
  Upon graduation, sign up to receive your Alumni Member Card, unlocking exclusive privileges and access to various benefits on-campus and local benefits.
- **Explore Job Opportunities on Handshake:**
  Sign up for Handshake, our job listing platform, to explore a myriad of career opportunities tailored for USD alumni.
- **T.E.A.M. for Networking and Mentorship:**
  Join T.E.A.M., our exclusive private social networking site, to find mentors, explore job listings, share expertise, and make valuable connections within the USD community.
- **Access Online Library Resources:**
  Enjoy continued access to certain online library resources, supporting your intellectual curiosity and lifelong learning.
- **Discount on Professional Development Courses:**
  Benefit from a 25% discount on select professional development courses and continuing education courses, enhancing your skills and advancing your career.

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ADMISSIONS AND ELIGIBILITY

Admissions

Admissions are processed on a rolling basis in August, December and April. To see more information on start dates, please visit our website.

Eligibility

- Must be a resident of India.
- Must be proficient in English.
- Must submit an Aadhaar card or PAN card.
- Must hold an undergraduate degree:
  - 4-year undergraduate degree holders must have their degree issued from an accredited university (NAAC, UGC or AICTE) and earned a designation of Second Division or higher (45% or above).
  - 3- year undergraduate degree holders must have their degree issued from a NAAC accredited university with a letter grade of A or higher and earned a designation of First Division (60% or above).
- Proof of English proficiency if necessary*

*Applicants are required to provide evidence of English language proficiency to be considered for admission and can prove eligibility as follows:

- Successful completion of an undergraduate degree with the medium of instruction in English. Evidence must be provided on the marksheet/transcript or student must provide a medium of instruction letter from the university.

OR

- If the medium of instruction for the undergraduate degree is not English, student must submit evidence of completing an approved English language proficiency test. Score requirements listed below:

TEST NAME	SCORE REQUIRED
IELTS Acadmic	7.0
TOEFL iBT	83
Duolingo English Test	120

CURRICULUM

ORIENTATION COURSE
1 Term

CYBR 550

FOUNDATIONAL COURSES
1 Term

CYBR 505
CYBR 501
CYBR 502

CORE COURSES
3 Terms

CYBR 503
CYBR 504

CYBR 510
CYBR 512

CYBR 506
CYBR 508

CAPSTONE COURSES
1 Term

CYBR 514
CYBR 516

ORIENTATION COURSE

CYBR 550 - New Student Orientation

Besides introducing students to the University of San Diego, the orientation course provides vital information about the CSE program and all the technologies they will learn as part of the program.

During the course, students will learn to navigate the learning environment and successfully locate helpful resources. Students can use this course as a reference tool throughout the program tenure.

FOUNDATIONAL COURSES

CYBR 505: Computational Roots of Cybersecurity

The course gives an advanced introduction to software systems, focusing on computer programming, computer architecture, and operating systems. The course consists of six hours of combined lecture-lab sessions each week.

CYBR 501: Introduction to Cybersecurity Concepts and Tools

In this course, students will be introduced to the fundamentals of cyber security, including the notion of policy as the definition of "security" for a system. The course delves into threats, vulnerabilities, and risks while exploring potential cyber-attacks and countermeasures and critically assessing common contemporary cyber security models. Students will master several techniques of networking, operating systems, and security test tools with the assistance of computer virtualization and lab sessions. They will also get to assemble a penetration-testing Cyber security Sandbox with multiple virtual machines that they will use in subsequent courses.

CYBR 502: Cybersecurity Network Defense

During this course, students will be introduced to the concepts of computer network security and defense, including key aspects of planning, architecture, system design, deployment, risk assessment, and the identification of network security threats from a cyber security perspective. Moreover, students will conduct cyber security network testing in the virtualized Cyber security Sandbox during the CYBR 501 course.

CORE COURSES

CYBR 503: Cybersecurity Domain

Building upon the foundational concepts presented in CYBR 501, this course further explores threats, vulnerabilities, and risks.

It introduces and applies security risk frameworks to effectively implement security controls and manage risks. Students will engage in testing activities within their designated Cyber security Sandbox.

CYBR 504: Applied Cryptography

This course introduces the fundamentals of modern cryptography principles and their practical applications. It includes a description of prevalent cryptographic algorithms, pseudorandom generators, and encryption.

Students will also learn about the application and assessment of cryptographic systems, including defense against attacks and vulnerabilities. All the practical sessions, like the class labs and dedicated projects, will be conducted within Cyber security Sandbox.

CYBR 506: Secure System Life Cycle

This course familiarizes students with strategies for building confidence in a computer system's ability to enforce security policies throughout its development lifecycle effectively. Additionally, practical labs and projects will be conducted in the Cyber security SandBox.

CYBR 508: Secure Network Engineering

This course delves deeper into the designing of secure and sustainable network design. Topics encompass network hardening techniques, advanced security device configurations such as IPS, and secure Cloud Computing. Network configuration verification tests will be performed using the Cyber security Sandbox.

CYBR 510: Security Test Engineering

This course introduces diverse techniques for performing testing to ensure that a system adheres to security standards. It involves: 1) Establishing and configuring test environments based on security requirements. 2) Distinguishing between functional and security testing. 3) Introducing static, dynamic, vulnerability, and penetration testing. 3) Introducing static, dynamic, vulnerability, and penetration testing.

CYBR 512: Incident Detection and Handling

This course explores methods to ensure the operation of secure systems in contested environments. Students learn techniques for detecting, responding to, and recovering from security breaches through lectures, labs, and projects. Projects conducted during the course will make use of the Cyber security Sandbox.

CAPSTONE COURSES

CYBR 514: Cyber Engineering Research I

Research 1 introduces students to a multi-domain global enterprise in need of cyber security support to ensure that its security is up to date. Applying skills acquired from the Cyber security Engineering curriculum, students will work in a virtual environment with pre-designed enterprise systems that will be provided in accordance with the case study.

CYBR 516: Cyber Engineering Research II

Research II extends the implementation of the capstone case study introduced in Research I. Students continue their cyber security support for a multinational enterprise's security enhancement.

The students will use the knowledge and skills they learned throughout the entire Cyber security Engineering curriculum. As per the case study, the class will be provided with a digital environment with enterprise systems design.

UNIVERSITY ACCREDITATION

WASC | Senior College and University Commission

DEGREE CERTIFICATE

University of San Diego

To all to whom these Letters shall come, Greetings
The Trustees of the University on the recommendation of the Faculty
and by virtue of the Authority in Them vested have conferred on

SAMPLE STUDENT

the Degree of

Master of Science
Cyber Security Engineering

with all the Rights, Privileges and Honors thereunto appertaining.

Given at San Diego, in the State of California, this thirtieth day of June,
in the Year of our Lord, two thousand and twenty-three.

President

UNIVERSITY OF SAN DIEGO AD 1949

Dean, School of Engineering

* USD´s degree programs are validated by the U.S. Regional Accrediting body (WASC) and recognized in the U.S. by the U.S. Department of Education. These degree programs do not have official recognition by Ministries of Education outside the United States.

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APPLY NOW

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