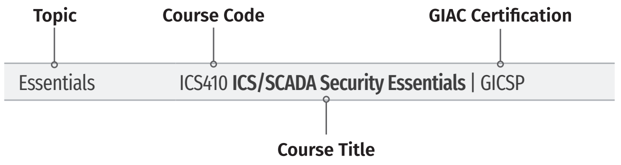
SANS Training Roadmap



Baseline Skills

NEW TO CYBERSECURITY | COMPUTERS, TECHNOLOGY, AND SECURITY

COMPUTER & IT FUNDAMENTALS	SEC275 **Foundations: Computers, Technology & Security** | GFACT
CYBERSECURITY FUNDAMENTALS	SEC301 **Introduction to Cyber Security** | GISF

These entry-level courses cover a wide spectrum of security topics and are liberally sprinkled with real-life examples. A balanced mix of technical and managerial issues makes these course appealing to attendees who need to understand the salient facets of information security basics and the basics of risk management.

CORE TECHNIQUES | PREVENT, DEFEND, MAINTAIN

Every Security Professional Should Know

SECURITY ESSENTIALS	SEC401 **Security Essentials: Network, Endpoint, and Cloud** | GSEC

Whether you are new to information security or a seasoned practitioner with a specialized focus, SEC401 will provide the essential information security skills and techniques you need to protect and secure your critical information and technology assets, whether on-premise or in the cloud.

BLUE TEAM	SEC450 **Blue Team Fundamentals: Security Operations and Analysis** | GSOC
ATTACKER TECHNIQUES	SEC504 **Hacker Tools, Techniques, and Incident Handling** | GCIH

All professionals entrusted with hands-on cybersecurity work should be trained to possess a common set of capabilities enabling them to secure systems, practice defense in depth, understand how attacks work, and manage incidents when they occur. To be secure, you should set a high bar for the baseline set of skills in your security organization.

TECHNICAL TRAINING FROM SANS SECURITY AWARENESS

Security Essentials for IT Administrators

Protecting your organization from cyber threats requires continuous investment in skills development to stay ahead of any emerging threats. This short-form computer based training provides technical teams with a deep understanding of evolving security concepts with a learning progression suited to their skillset.

FORENSICS ESSENTIALS

Every Forensics and IR Professional Should Know

FORENSICS ESSENTIALS	FOR308 **Digital Forensics Essentials**
BATTLEFIELD FORENSICS & DATA ACQUISITION	FOR498 **Battlefield Forensics & Data Acquisition** | GBFA

CLOUD SECURITY ESSENTIALS

Every Cloud Security Professional Should Know

ESSENTIALS	SEC488 **Cloud Security Essentials** | GCLD

If you are new to cybersecurity or looking to up-skill, cloud security essentials is a requirement for today's organizations. These courses provide the basic knowledge required to introduce students to the cloud security industry, as well as in-depth, hands-on practice in labs.

CLOUD FUNDAMENTALS

Built for professionals who need to be conversant in basic cloud security concepts, principles, and terms, but who are not responsible for hands-on cloud activities.

INTRODUCTION	SEC388 **Intro to Cloud Computing and Security**

TECHNICAL TRAINING FROM SANS SECURITY AWARENESS

Developer Secure Code Training

Educate everyone involved in the software development process including developers, architects, managers, testers, business owners, and partners with role-focused training that ensures your team can properly build defensible applications from the start.

INDUSTRIAL CONTROL SYSTEMS SECURITY

Every ICS Security Professional Should Know

ESSENTIALS	ICS410 **ICS/SCADA Security Essentials** | GICSP

INDUSTRIAL CONTROL SYSTEMS SECURITY

Every ICS Security Manager Should Know

ESSENTIALS	ICS418 **ICS Security Essentials for Managers**

FOUNDATIONAL LEADERSHIP

Every Cybersecurity Manager Should Know

CISSP® TRAINING	MGT414 **SANS Training Program for CISSP® Certification** | GISP
RISK MANAGEMENT	MGT415 **A Practical Introduction to Cyber Security Risk Management**
SECURITY AWARENESS	MGT433 **Managing Human Risk** | SSAP

With an increasing number of talented technologists, organizations require effective leaders to manage their teams and processes. Those leaders will not necessarily perform hands-on work, but they must know enough about the underlying technologies and frameworks to help set strategy, develop appropriate policies, interact with skilled practitioners, and measure outcomes.

CYBER RANGES

CTF & TRIVIA	Bootup CTF
SKILLS ASSESSMENT & PRACTICAL APPLICATION	Netwars Core

These cyber range offerings cover the broadest range of topics and are meant for all infosec professionals at all levels.

Focused Job Roles

DESIGN, DETECTION, AND DEFENSIVE CONTROLS

Focused Cyber Defense Skills

ADVANCED GENERALIST	SEC501 **Advanced Security Essentials – Enterprise Defender** | GCED
MONITORING & OPERATIONS	SEC511 **Continuous Monitoring and Security Operations** | GMON
SECURITY ARCHITECTURE	SEC530 **Defensible Security Architecture and Engineering: Implementing Zero Trust for the Hybrid Enterprise** | GDSA

The detection of what is happening in your environment requires an increasingly sophisticated set of skills and capabilities. Identifying security anomalies requires increased depth of understanding to deploy detection and monitoring tools and to interpret their output.

Open-Source Intelligence

OSINT	SEC497 **Practical Open-Source Intelligence (OSINT)** | GOSI

OFFENSIVE OPERATIONS | VULNERABILITY ANALYSIS, PENETRATION TESTING

Every Offensive Professional Should Know

NETWORK PEN TESTING	SEC560 **Enterprise Penetration Testing** | GPEN
WEB APPS	SEC542 **Web App Penetration Testing and Ethical Hacking** | GWAPT
VULNERABILITY ASSESSMENT	SEC460 **Enterprise and Cloud | Threat and Vulnerability Assessment** | GEVA

The professional who can find weakness is often a different breed than one focused exclusively on building defenses. A basic tenet of red team/blue team deployments is that finding vulnerabilities requires different ways of thinking and different tools. Offensive skills are essential for cybersecurity professionals to improve their defenses.

INCIDENT RESPONSE & THREAT HUNTING | HOST & NETWORK FORENSICS

Every Forensics and IR Professional Should Know

ENDPOINT FORENSICS	FOR500 **Windows Forensic Analysis** | GCFE FOR508 **Advanced Incident Response, Threat Hunting, and Digital Forensics** | GCFA FOR532 **Enterprise Memory Forensics In-Depth** FOR577: **LINUX Incident Response & Analysis** FOR608 **Enterprise-Class Incident Response & Threat Hunting**
NETWORK FORENSICS	FOR572 **Advanced Network Forensics: Threat Hunting, Analysis, and Incident Response** | GNFA

Whether you're seeking to maintain a trail of evidence on host or network systems, or hunting for threats using similar techniques, larger organizations need specialized professionals who can move beyond first-response incident handling in order to analyze an attack and develop an appropriate remediation and recovery plan.

CORE CLOUD SECURITY

Preparation for More Focused Job Functions

PUBLIC CLOUD	SEC510 **Public Cloud Security: AWS, Azure, and GCP** | GPCS
AUTOMATION & DEVSECOPS	SEC540 **Cloud Security and DevSecOps Automation** | GCSA
MONITORING & DETECTION	SEC541 **Cloud Security Attacker Techniques, Monitoring & Threat Detection** GCTD
ARCHITECTURE	SEC549 **Enterprise Cloud Security Architecture**

With the massive global shift to the cloud, it becomes more critical for every organization to have experts who understand the security risks and benefits that come with public cloud use, how to navigate and take full advantage of multicloud environments, and how to incorporate security from the start of all development projects.

INDUSTRIAL CONTROL SYSTEMS SECURITY

Every ICS Security Professional Should Know

ICS DEFENSE & RESPONSE	ICS515 **ICS Visibility, Detection, and Response** | GRID
ICS ADVANCED SECURITY	ICS612 **ICS Cybersecurity In-Depth**
NERC Protection	
NERC SECURITY ESSENTIALS	ICS456 **Essentials for NERC Critical Infrastructure Protection** | GCIP

CORE LEADERSHIP

Transformational Cybersecurity Leader

TECHNOLOGY LEADERSHIP	MGT512 **Security Leadership Essentials for Managers** | GSLC
SECURITY STRATEGY	MGT514 **Security Strategic Planning, Policy, and Leadership** | GSTRT
SECURITY CULTURE	MGT521 **Leading Cybersecurity Change: Building a Security-Based Culture**
Operational Cybersecurity Executive	
VULNERABILITY MANAGEMENT	MGT516 **Building and Leading Vulnerability Management Programs**
SOC	MGT551 **Building and Leading Security Operations Centers** | GSOM
FRAMEWORKS & CONTROLS	SEC566 **Implementing and Auditing Security Frameworks & Controls** | GCCC

CYBER RANGES

CYBER DEFENSE	Netwars Cyber Defense
DIGITAL FORENSICS & INCIDENT RESPONSE	Netwars DFIR
INDUSTRIAL CONTROL SYSTEMS	Netwars ICS
POWER GENERATION AND DISTRIBUTION	Netwars GRID

SANS offers specialized versions of Netwars for more specific job roles. These cyber ranges dive deeper into the respective topics and help advance your career with situation-based challenges and scenarios rooted in real-life events.

Specific Skills, Specialized Roles

ADVANCED CYBER DEFENSE | HARDEN SPECIFIC DEFENSES

Platform-Focused

WINDOWS/ POWERSHELL	SEC505 **Securing Windows and PowerShell Automation** | GCWN
Topic-Focused	
TRAFFIC ANALYSIS	SEC503 **Network Monitoring and Threat Detection In-Depth** | GCIA
SIEM	SEC555 **SIEM with Tactical Analytics** | GCDA
POWERSHELL	SEC586 **Security Automation with PowerShell**
PYTHON CODING	SEC573 **Automating Information Security with Python** | GPYC SEC673 **Advanced Information Security Automation with Python**
DATA SCIENCE	SEC595 **Applied Data Science and Machine Learning for Cybersecurity Professionals**

Open-Source Intelligence

OSINT	SEC587 **Advanced Open-Source Intelligence (OSINT) Gathering & Analysis**

SPECIALIZED OFFENSIVE OPERATIONS | FOCUSED TECHNIQUES & AREAS

Network, Web & Cloud

EXPLOIT DEVELOPMENT	SEC660 **Advanced Penetration Testing, Exploit Writing, and Ethical Hacking** | GXPN SEC661 **ARM Exploit Development** SEC760 **Advanced Exploit Development for Penetration Testers**
CLOUD PEN TEST	SEC588 **Cloud Penetration Testing** | GCPN
Specialized Penetration Testing	
SOCIAL ENGINEERING	SEC467 **Social Engineering for Security Professionals**
BLOCKCHAIN	SEC554 **Blockchain and Smart Contract Security**
RED TEAM	SEC565 **Red Team Operations and Adversary Emulation** SEC670 **Red Teaming Tools - Developing Windows Implants, Shellcode, Command and Control**
MOBILE	SEC575 **iOS and Android Application Security Analysis and Penetration Testing** | GMOB
PRODUCT SECURITY	SEC568 **Combating Supply Chain Attacks with Product Security Testing**
PEN TEST	SEC580 **Metasploit for Enterprise Penetration Testing**
WIRELESS	SEC556 **IoT Penetration Testing** SEC617 **Wireless Penetration Testing and Ethical Hacking** | GAWN
Purple Team	
ADVERSARY EMULATION	SEC598 **Security Automation for Offense, Defense, and Cloud** SEC599 **Defeating Advanced Adversaries – Purple Team Tactics and Kill Chain Defenses** | GDAT SEC699 **Purple Team Tactics – Adversary Emulation for Breach Prevention & Detection**

DIGITAL FORENSICS, MALWARE ANALYSIS, & THREAT INTELLIGENCE | SPECIALIZED INVESTIGATIVE SKILLS

Specialization

CLOUD FORENSICS	FOR509 **Enterprise Cloud Forensics & Incident Response** | GCFR
RANSOMWARE	FOR528 **Ransomware for Incident Responders**
MALWARE ANALYSIS	FOR610 **Reverse-Engineering Malware: Malware Analysis Tools and Techniques** | GREM FOR710 **Reverse-Engineering Malware: Advanced Code Analysis**
Threat Intelligence	
CYBER THREAT INTELLIGENCE	FOR578 **Cyber Threat Intelligence** | GCTI FOR589 **Cybercrime Intelligence**
Digital Forensics & Media Exploitation	
SMARTPHONES	FOR585 **Smartphone Forensic Analysis In-Depth** | GASF
MAC FORENSICS	FOR518 **Mac and iOS Forensic Analysis and Incident Response** | GIME

SPECIALIZATION IN CLOUD SECURITY

Specialization for Advanced Skills & Roles

APPLICATION SECURITY	SEC522 **Application Security: Securing Web Apps, APIs, and Microservices** | GWEB
CLOUD PEN TEST	SEC588 **Cloud Penetration Testing** | GCPN
CLOUD FORENSICS	FOR509 **Enterprise Cloud Forensics and Incident Response** | GCFR
DESIGN & IMPLEMENTATION	MGT520 **Leading Cloud Security Design and Implementation**

Learning how to convert traditional cybersecurity skills into the nuances of cloud security is a necessity for proper monitoring, detection, testing, and defense.

TECHNICAL TRAINING FROM SANS SECURITY AWARENESS

ICS Engineer Training

Help protect critical systems by reinforcing the behavior your engineers, system operators and others who interact with ICS environments require to prevent, identify and respond to cyber incidents.

LEADERSHIP SPECIALIZATIONS

Cloud Cybersecurity Leadership

VULNERABILITY MANAGEMENT	MGT516 **Building and Leading Vulnerability Management Programs**
Management Specialization	
AUDIT & MONITOR	AUD507 **Auditing Systems, Applications, and the Cloud** | GSNA
DESIGN & IMPLEMENTATION	MGT520 **Leading Cloud Security Design and Implementation**
LAW & INVESTIGATIONS	LEG523 **Law of Data Security and Investigations** | GLEG
PROJECT MANAGEMENT	MGT525 **Managing Cybersecurity Initiatives & Effective Communication** GCPM
INCIDENT RESPONSE	MGT553 **Cyber Incident Management**

MANAGE HUMAN RISK WITH TRAINING FROM SANS SECURITY AWARENESS

EndUser Awareness Training

Computer-based EndUser training is built from a curated selection of the most pressing risk and compliance topics to address employee security behaviors. This engaging, modular, and multilingual suite of content reduces training fatigue and increases comprehension by tailoring your security awareness training program to the role- and industry-based issues relevant to your organization.

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