



Monograph: June 2019

Education and Training Courses on IT Security in India

India is seen as a preferred outsourcing destination globally and key global brands such as Apple, Sapien, Citi Bank, etc., have set their global delivery centers, shared services & support services in India.

According to industry estimates, the increasing incidents of cyber-attacks and data protection efforts globally, would create USD 35 Billion revenue opportunity and would provide employment for about a million professionals in India by 2025.

With this background, the monograph covers landscape of Education and Training Courses on IT Security in India

In this monograph, we have given an overview of IT Security in India comprising key drivers of growth & opportunities and major challenges in India

Further, we have researched the major domains, specialty areas and work roles on the basis of which training courses in India and around the world are designed.

Next, we have compared the content of training courses and their prices offered by top companies in India.

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For more information, please contact:

Bharat Parmar

T: +91 (124) 4119162, 4229162 Extn. 106

M: +91 98117 99162

E: bharat@eduvisors.org

To unsubscribe, please write to unsubscribe@eduvisors.org

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IT Security: Overview

- IT security is related to securing and preventing unauthorized access of any enterprise asset in which digital data can reside or transcend
- Technological development is changing the way organisations do business and cyber security is transforming to keep pace with it. The heightened and increasingly complex threat landscape is pushing organisations to change the security paradigm.

Key Principles on which IT security operates

Secure

- Securing and Reducing the risk of the asset*

Vigilant

- Monitoring the enterprise and the assets continuously to ensure that there are no threats

Resilient

- Ensuring the resilience of the asset, to self-heal or be able to recover to original state in case of a compromise

*Note

- The Assets can fall into the area of
 - Information technology
 - Communication Infrastructure
 - Internet of Things (IoT)
 - Physical access
 - Other digital assets through which Digital Information can transcend

Types of IT Security... (1/4)

- The more links in the network chain – databases, cloud based servers, API's and mobile applications, the more the potential vulnerabilities.
- Each component requires it's own subsequent measures, hence the evolution of different types of IT Security.

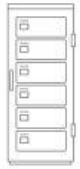


Types of IT Security... (2/4)

- The more links in the network chain – databases, cloud based servers, API's and mobile applications, the more the potential vulnerabilities.
- Each component requires it's own subsequent measures, hence the evolution of different types of IT Security.

Types of IT Security

Network Security



Servers



API



Application Security



Database Security

This also includes

- Security Engineering
- Vulnerability Testing
- Penetration Testing
- Network Intrusions Detection Systems (NIDS)
- Firewalls

Network Security is used to prevent unauthorized or malicious users from getting inside the network

Weakness in a network can be achieved through

- I. Security Engineering:** the practice of protecting against these threats by building networks to be safe, dependable, and secure against malicious attacks
- II. Vulnerability assessment:** Engineers identify the worst case scenarios and set up proactive plans. With security analysis software, vulnerabilities in a computer, network, or communications infrastructure are identified and addressed
- III. Penetration testing:** This entails deliberately probing a network or system for weaknesses
- IV. Network intrusion detection systems (NIDS):** This type of software monitors a system for suspicious or malicious activity

Other methods of protecting network also include:

- **IT Security Frameworks** - like COBIT, ISO 27000 and NIST SP's 800
- **Password “salt and peppering”**
- **Authorization, authentication, and two-factor authentication**
- **Virtual Private Networks (VPNs)**
- **Firewalls**
- **Honeypots**
- **Application Whisteling**

This also includes

- VPN's
- Encryption
- Anti Malwares

Types of IT Security... (3/4)

- The more links in the network chain – databases, cloud based servers, API's and mobile applications, the more the potential vulnerabilities.
- Each component requires it's own subsequent measures, hence the evolution of different types of IT Security.

Internet Security

There are few ways to block intrusions with firewall, anti malware and anti spy ware

The next level includes secure communication channels TCP/IP protocols and encryption protocols like a Secure Socket Layer (SSL) and Transport Layer Security (TLS)

Other forms include:

- SSL certificates
- WebSockets
- OAuth2.0
- End to End Encryption

This also includes

- Security Engineering
- Vulnerability Testing
- Penetration Testing
- Network Intrusions Detection Systems (NIDS)
- Firewalls

Types of IT Security

Internet Security



HTTPS
SSL Certificates

Cloud Security



OAuth 2.0
Web Sockets

Wireless Security



End Point Security

Cloud Security

- Applications, data, and identities are moving to the cloud, meaning users are connecting directly to the Internet and are not protected by the traditional security stack.
- Cloud security can help secure the usage of software-as-a-service (SaaS) applications and the public cloud.
- A cloud-access security broker (CASB), secure Internet gateway (SIG), and cloud-based unified threat management (UTM) can be used for cloud security.



User Security

This also includes

- VPNs
- Encryption
- Anti Malwares

Types of IT Security... (4/4)

- The more links in the network chain – databases, cloud based servers, API's and mobile applications, the more the potential vulnerabilities.
- Each component requires it's own subsequent measures, hence the evolution of different types of IT Security.

Types of IT Security

Key Highlights:

- End Point Security provides protection at the device level
- It is generally the weakest link in the security chain because the end users are not properly educated about phishing campaigns, give credentials to unauthorised users and download malwares.
- Virtual Private Network is the way to protect the devices
- Malware is one of the core threats addressed by end point security including Remote access Trojans (RAT's) which can hack into a laptop and allow hackers to watch through webcam

End Point Security



Computer Security



Mobile Security



Email Security



User Security

This also includes

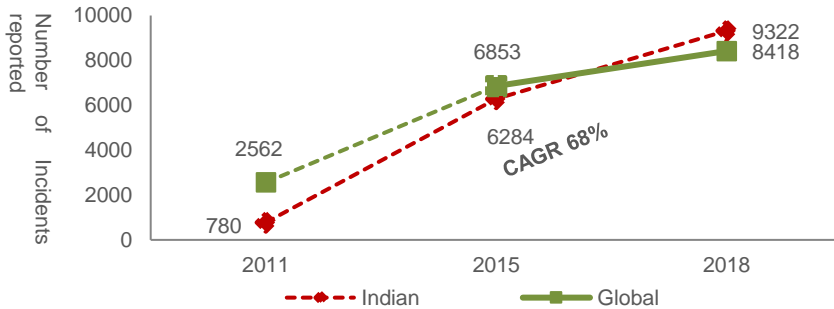
- VPN's
- Encryption
- Anti Malwares

IT Security: Key drivers for growth and opportunities in India

- The current dispensation's focus on cyber security is opportune
- Cyber security in India has come a long way in the past few years and has gained huge importance in recent times with the thrust on Digital India, e-commerce and mobile payments

Key Drivers

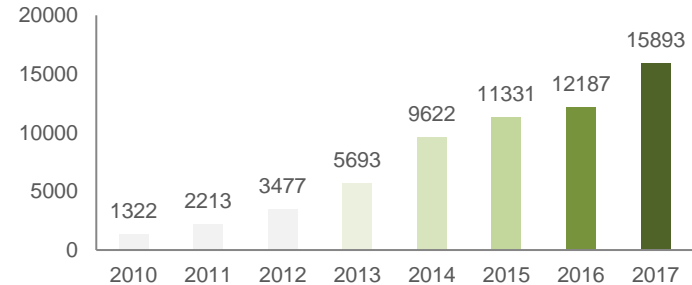
▪ Cybercrimes push Indian companies to invest in security



Key Highlights:

- In the recent years, the number of cyber crime incidents reported in India have grown from 30% of global average to 92% of global average till 2015 and has exceeded the global average in 2018
- It presents a need for more advanced cyber security systems in India

▪ Cases reported under cybercrimes under the IT Act

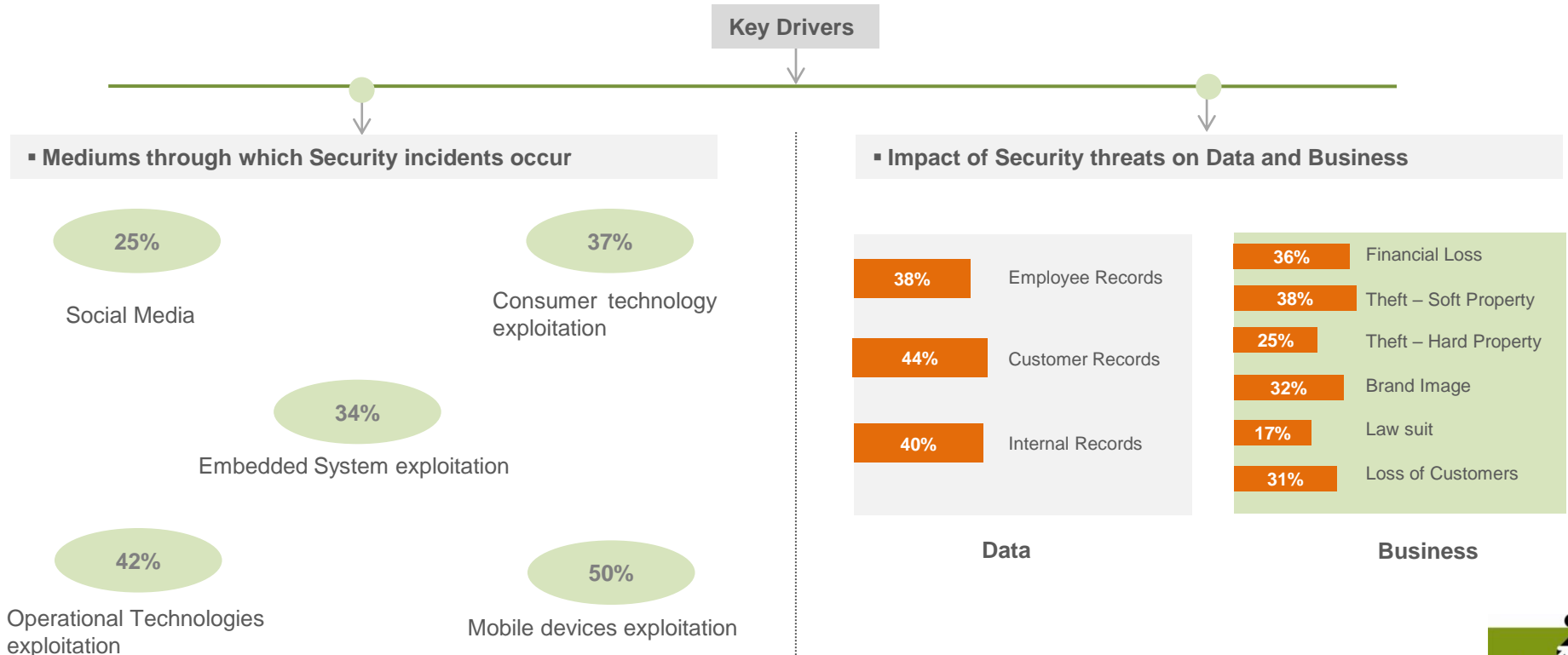


Key Highlights:

- The number of cases reported under the IT Act has risen considerably (82%) when compared to 2014 and 2010 Data
- Phishing, Malicious Code, Website Intrusions are the major issues

IT Security: Key drivers for growth and opportunities in India

- The current dispensation's focus on cyber security is opportune
- Cyber security in India has come a long way in the past few years and has gained huge importance in recent times with the thrust on Digital India, e-commerce and mobile payments



IT Security: Main Challenges in India

Key Challenges

Lack of National level architecture in IT Security

- Critical Infrastructure is owned by both Public and Private Sector, both operating at their own norms
- No National Security Architecture that unifies the efforts in both sectors

Shortage of trained workforce

- India is rife with a young workforce with considerable IT prowess, there is a dearth of talent when it comes to specific niches, such as IT security
- The demand for talented and skilled labour far outgrows supply. With the market poised to grow further, the gap is expected to widen

Lack of Co-operation

- In Cyber space there are no boundaries, thus making the various facets and valuable resources to cohort a co-operation themes for the smooth fighting with the threats from cyber world.

Lack of awareness

- There is no national regulation policy in place in India for Cyber Security.
- Observed lack of awareness about cyber laws and regulations at both corporate and individual level

Lack of uniformity in devices used for internet access

- Only 1% of users have mobile phones with higher security norms

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Domains and Work Roles...(1/3)

- In order to understand the various domains of IT Security, we have defined a certain frame work which is closely aligned with the *National Institute of Cyber security Education (NICE) , USA*

The IT Security landscape is divided into 7 categories which are mapped to the work roles and the Knowledge and the skills gathered after the end of the training

Domains of IT Security

Categories	Speciality Areas	Work Role
Securely Provision	Risk Management	<ul style="list-style-type: none"> ▪ Authorizing Official ▪ Software Developer ▪ Enterprise Architect ▪ System Testing and Evaluation Specialist ▪ Security Control Assessor ▪ Secure Software Assessor ▪ Security Architect
	Software Development	
	Systems Architecture	
	Test and Evaluation	
	Systems Requirements Planning	
	Technology R&D (TRD)	
Operate and Maintain	Systems Development	<ul style="list-style-type: none"> ▪ Database Administrator ▪ Knowledge Manager ▪ Technical Support Specialist ▪ Network Operations Specialist ▪ Systems Administrator ▪ Systems Security Analyst ▪ Data Analyst
	Data Administration	
	Knowledge Management	
	Customer Service and Technical Support	
	Network Services	
	Systems Administration	
Systems Analysis		

Training Programs are provided on all the work roles defined

Domains and Work Roles...(2/3)

Domains of IT Security

Categories	Speciality Areas	Work Role
Oversee and Govern	Legal Advice and Advocacy	<ul style="list-style-type: none"> ▪ Cyber Legal Advisor ▪ Privacy Compliance Manager ▪ Cyber Instructional Curriculum Developer ▪ Communications Security Manager ▪ Cyber Workforce Developer ▪ Executive Cyber Leadership
	Training and Awareness	
	Cyber Security Management	
	Strategic Planning and Policy	
	Executive Cyber Leadership	
	Project Management & Acquisition	
Protect and Defence	Cyber Defence Analysis	<ul style="list-style-type: none"> ▪ Cyber Defense Analyst ▪ Cyber Defense Infrastructure Support Analyst ▪ Cyber Defense Incident Responder ▪ Vulnerability Assessment Analyst
	Cyber Defence Infrastructure Support	
	Incident Response	
	Vulnerability Assessment and Management	

Training Programs are provided on all the work roles defined

Domains and Work Roles...(3/3)

Domains of IT Security

Categories	Speciality Areas	Work Role
Analyse	Threat Analysis Exploitation Analysis All – Source Analysis Targets Language Analysis	<ul style="list-style-type: none"> ▪ Threat Analyst ▪ Exploitation Analyst ▪ All Source Analyst ▪ Target Developer ▪ Multi Disciplined Language Analyst ▪ Mission Assessment Specialist ▪ Target Network Analyst
Collect and Operate	Collection Operations Cyber Operational Planning Cyber Operations	<ul style="list-style-type: none"> ▪ All Source Collection Manager ▪ Cyber Intel Planner ▪ Cyber Operator ▪ Cyber Ops Planner
Investigate	Cyber Investigation Digital Forensics	<ul style="list-style-type: none"> ▪ Cyber Crime Investigator ▪ Cyber Defence Forensics Analyst

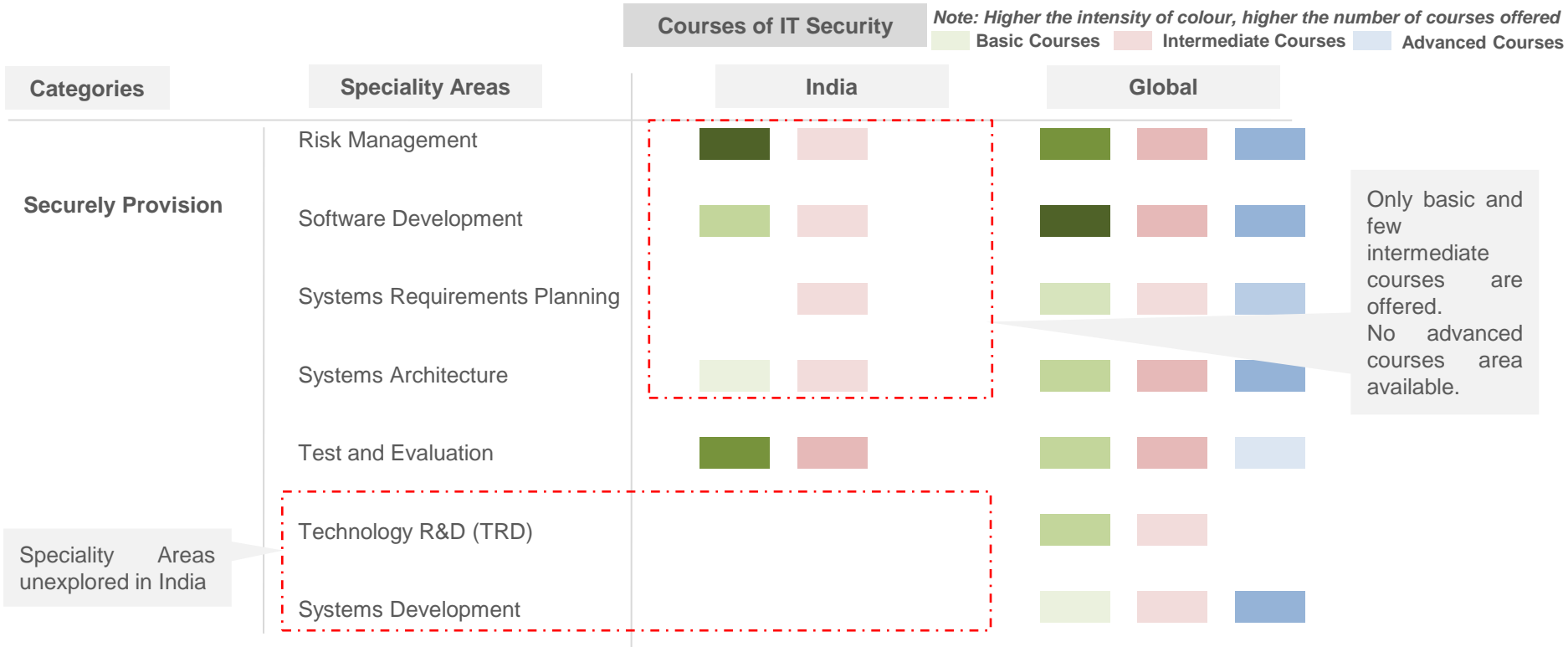
Training Programs are provided on all the work roles defined

Key Highlight:

- There are training programs on IT Security at all levels to fulfil the requirements of the mentioned work roles

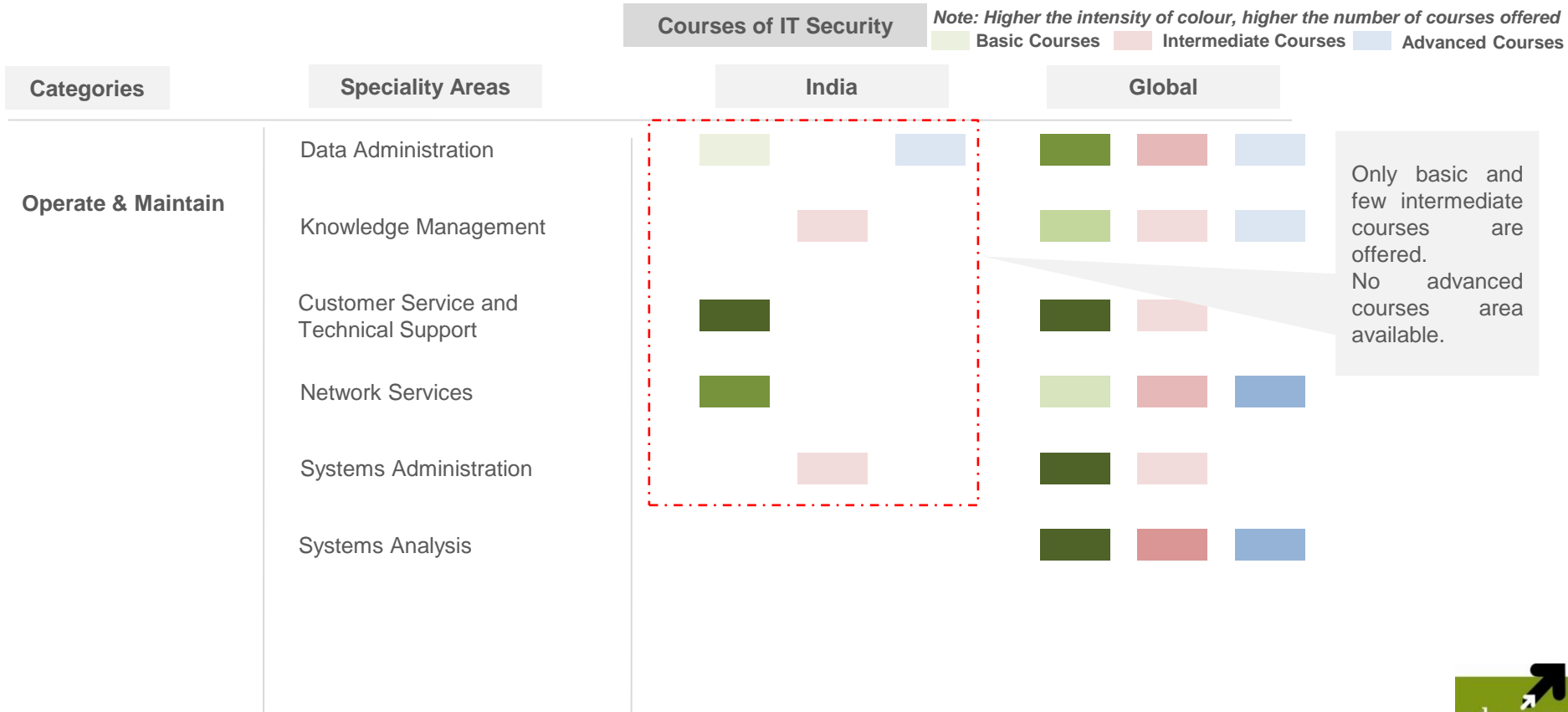
Course Category in India and Abroad...(1/4)

- IT Security landscape is divided into 7 categories and speciality areas which are mapped to courses offered in India and abroad.



Course Category in India and Abroad...(2/4)

- IT Security landscape is divided into 7 categories and speciality areas which are mapped to courses offered in India and abroad.



Course Category in India and Abroad...(3/4)

- IT Security landscape is divided into 7 categories and speciality areas which are mapped to courses offered in India and abroad.

Courses of IT Security

Note: Higher the intensity of colour, higher the number of courses offered

■ Basic Courses
 ■ Intermediate Courses
 ■ Advanced Courses

Categories	Speciality Areas	India	Global
Oversee and Govern <ul style="list-style-type: none"> Speciality Areas unexplored in India Managerial and leadership training is not provided in India 	Legal Advice and Advocacy	■ ■	■ ■
	Training and Awareness		■ ■ ■
	Cyber Security Management		■ ■ ■
	Strategic Planning and Policy		■ ■ ■
	Executive Cyber Leadership		■ ■ ■
	Project Management & Acquisition	■	■ ■ ■
Protect and Defence	Cyber Defence Analysis	■	■ ■ ■
	Cyber Defence Infrastructure Support	■	■ ■ ■
	Incident Response	■	■ ■ ■
	Vulnerability Assessment and Management	■	■ ■ ■

Course Category in India and Abroad...(4/4)

- IT Security landscape is divided into 7 categories and speciality areas which are mapped to courses offered in India and abroad.

Courses of IT Security

Note: Higher the intensity of colour, higher the number of courses offered

■ Basic Courses
 ■ Intermediate Courses
 ■ Advanced Courses

Categories	Speciality Areas	India		Global		
Analyse	Threat Analysis					
	Exploitation Analysis					
	All – Source Analysis					
	Targets					
	Language Analysis					
Collect and Operate	Collection Operations					
	Cyber Operational Planning					
	Cyber Operations					
Investigate	Cyber Investigation					
	Digital Forensics					

▪ Cyber Operations training is yet to be explored in India

Summary

#	Particulars	Key Observations in India
1	Focus Areas	<ul style="list-style-type: none">▪ Risk Management▪ Software Development▪ Test & Evaluation▪ Customer Service & Technical Support▪ Network Services▪ Threat Analysis▪ Digital Forensics
2	Non-focus areas	<ul style="list-style-type: none">▪ Technology R&D▪ System Development▪ Training & Awareness▪ Cyber Security Management▪ Strategic Planning & Policy▪ Executive Cyber Leadership▪ Cyber Operational Planning
3	Type of Course (Basic/Intermediate/Advanced)	<ul style="list-style-type: none">▪ 67% of the courses offered in India are beginners (basic) level courses as compared to 44% globally▪ 30% of the courses offered in India are intermediate level courses as compared to 31% globally▪ Advance and niche courses are very rare in India. Only 2% of the courses offered in India are advance level as compared to 25% globally

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Comparison of top Indian Training Companies... (1/3)

- On the basis of our secondary research, we have shortlisted five companies which are leaders in providing training programs in India
- The top companies are Byte Code, Cryptus, IIS, ISOEH and Indian Cyber security Solutions

Key Comparison

Parameters	Byte Code	Cryptus	IIS	ISOEH	ICS
Speciality Areas	<ul style="list-style-type: none"> ▪ Risk Management ▪ Digital Forensics ▪ Cyber security Defense Analysis ▪ Cyber Security Management ▪ Network Services ▪ Vulnerability Assessment and Management 	<ul style="list-style-type: none"> ▪ Risk Management ▪ Digital Forensics ▪ Cyber Investigation ▪ Cyber Security Management ▪ Threat Analysis ▪ Vulnerability Assessment and Management 	<ul style="list-style-type: none"> ▪ Risk Management ▪ Software Development ▪ Data Administration ▪ Customer Service and Technical Support ▪ Vulnerability Assessment and Management ▪ Compliances (ISO) 	<ul style="list-style-type: none"> ▪ Risk Management ▪ Software Development ▪ Data Administration ▪ Threat Analysis ▪ Cyber Operations ▪ Digital Forensics 	<ul style="list-style-type: none"> ▪ Risk Management ▪ Vulnerability Assessment and Management ▪ Digital Forensics

Note: *Basic Courses*; *Intermediate Courses*; *Advanced Courses*

Key Highlights:

- Most courses offered in India are focussed on the above named speciality areas.
- Only Indian Institute of Security(IIS) offers Certifications on Compliances
- Majority courses offered in India are Basic Courses and very few segments touch Intermediate courses
- Training on Leaderships, Advanced Cyber Operations, Technology and Knowledge are not offered by the top companies in India

Comparison of top Indian Training Companies... (2/3)

Key Comparison

Parameters	Byte Code	Cryptus	IIS	ISOEH	ICS
Mode of Training	<ul style="list-style-type: none"> ▪ Online ▪ Offline 	<ul style="list-style-type: none"> ▪ Online ▪ Offline 	<ul style="list-style-type: none"> ▪ Online ▪ Offline 	<ul style="list-style-type: none"> ▪ Online ▪ Offline 	<ul style="list-style-type: none"> ▪ Online ▪ Offline
Course Type	<ul style="list-style-type: none"> ▪ Certifications ▪ Diploma Courses 	<ul style="list-style-type: none"> ▪ Certifications ▪ Diploma Courses 	<ul style="list-style-type: none"> ▪ Certifications ▪ Crash Courses 	<ul style="list-style-type: none"> ▪ Certifications ▪ Diploma Courses 	<ul style="list-style-type: none"> ▪ Certifications ▪ Diploma Courses
Course Duration	<ul style="list-style-type: none"> ▪ Certifications: 45 days ▪ Diploma Courses: 6 months 	<ul style="list-style-type: none"> ▪ Certifications: 45 days ▪ Diploma Courses: 12 months 	<ul style="list-style-type: none"> ▪ Certifications: 4 months ▪ Crash Courses: 3.3 days 	<ul style="list-style-type: none"> ▪ Certifications: 13 months ▪ Diploma Courses: 15 months 	<ul style="list-style-type: none"> ▪ Certifications: 3 months ▪ Diploma Courses: 9 months

Key Highlights:

- The mode of training is both Online and Offline offered by all companies in India
- Crash Courses i.e. training lasting for less than a month is focussed by Indian Institute of Security (IIS)
- The average duration of Certification courses range from 1.5 – 13 months) whereas the diploma courses range from (6 – 15 months)
- IIS has much more advanced courses and are focussed on people who are working in the corporate sector and have expertise in IT security
- However, other companies have their target audience as +2 and UG students who want to excel in the IT security boom in jobs

Comparison of top Indian Training Companies... (3/3)

Key Comparison					
Parameters	Byte Code	Cryptus	IIS	ISOEH	ICS
Courses Eligibility	<ul style="list-style-type: none"> ▪ 10 +2 ▪ Under Graduate ▪ Corporate 	<ul style="list-style-type: none"> ▪ 10 +2 ▪ Under Graduate ▪ Corporate 	<ul style="list-style-type: none"> ▪ 10 +2 ▪ Under Graduate ▪ Corporate (Major) 	<ul style="list-style-type: none"> ▪ 10 +2 ▪ Under Graduate ▪ Corporate 	<ul style="list-style-type: none"> ▪ 10 +2 ▪ Under Graduate ▪ Corporate
Tie Ups	<ul style="list-style-type: none"> ▪ CISCO ▪ CompTIA 	<ul style="list-style-type: none"> ▪ CISCO 	<ul style="list-style-type: none"> ▪ CISCO ▪ ISO Certifications 	<ul style="list-style-type: none"> ▪ CISCO 	<ul style="list-style-type: none"> ▪ CISCO ▪ Red Hat Certifications

Key Takeaways:

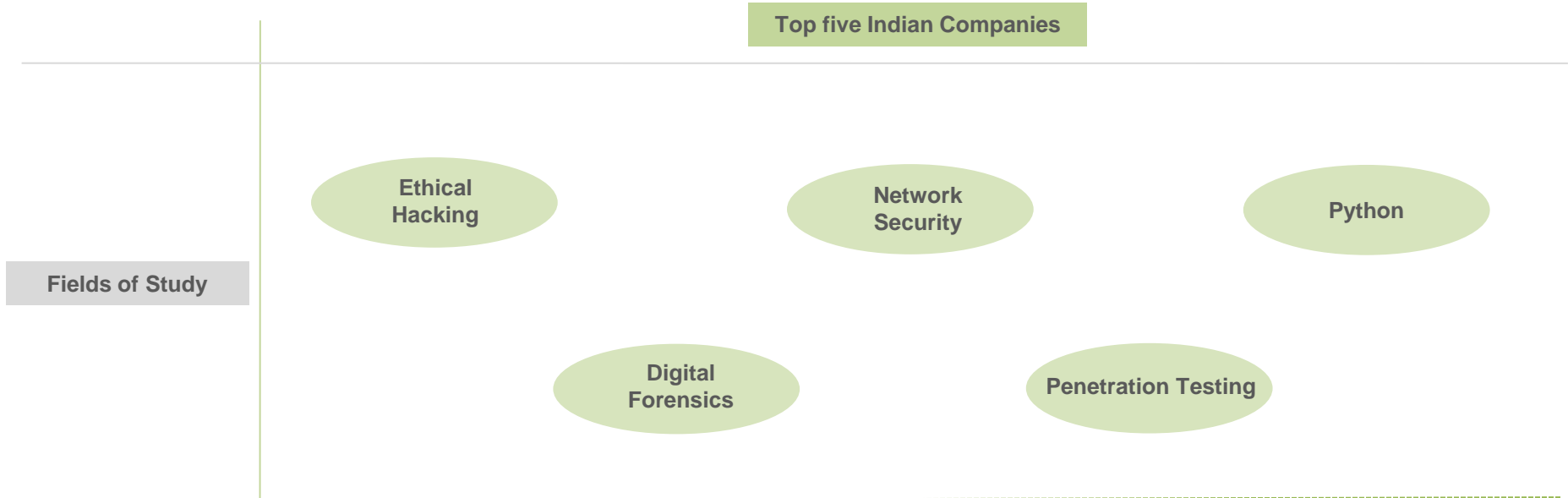
- There has been a trend of only general courses on IT Securities in India
- The Advanced courses are not still present in India
- The courses on Cyber Leadership Excellence, Cyber Management and all the remaining courses in the speciality area of Oversee and Govern totally portrays the lack of leaders in IT securities in India
- Certifications on Compliances and Legal aspects are offered by few training institutes in India
- There is a need of specific programs on the basis of the various work roles in IT securities which would cater the corporate professionals to improve their knowledge in the particular domain they are working in.
- There should be introduction of fast track crash courses focussing on the corporate

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Overview

- On the basis of our secondary research, we have shortlisted five companies which are leaders in providing training programs in India
- The top Indian companies are **Byte Code, Cryptus, IIS, ISOEH and Indian Cyber Security Solutions**
- The top Indian companies offer courses in the following fields of study.
- In the subsequent slides, we have compared the content/topics of each field of study.



Source: <http://bytecode.in>
<https://www.isoeh.com>
<http://indiancybersecuritysolutions.com>
<https://www.iisecurity.in>
<https://www.cryptus.in>

Fields of Study: Ethical Hacking

- Courses on ethical hacking are the most common of all the IT security courses in India.

Companies	Topics				
	Common		Specialized		
ByteCode	Penetration Testing Concepts	■	Hacking Web Applications	■	Tools: Open VaS; Nessus; Netsparker etc
	Footprinting	■	SQL Injection	■	
	Enumeration	■	Hacking Wireless Networks	■	
Indian School Of Ethical Hacking	System Hacking	■	Hacking Mobile Platforms	■	Vulnerability Analysis
	Sniffing	■	IoT Hacking	■	
	Social Engineering	■	Cloud Computing	■	
Cryptus	Denial of Service	■	Cryptography	■	<ul style="list-style-type: none"> ▪ Network Hacking ▪ Cryptocurrencies ▪ Ransomware
	Session Hijacking	■	Metasploit	■	
	IDS*	■	Trojans	■	
Indian Cyber Security Solutions	Hacking Web Servers	■	Buffer Overflows	■	<ul style="list-style-type: none"> ▪ WAP2 Encryption ▪ OWASP Top 10 ▪ Cross Site Scripting ▪ Data Tampering ▪ E-mail Hijacking ▪ Steganography
	Password Cracking	■	Firewall	■	
	Malware Threats	■			
Institute of Information Security					<ul style="list-style-type: none"> ▪ Reconnaissance ▪ Hacking WLANs ▪ Crypto ▪ Espionage

Note: Higher the intensity of colour, higher the number of companies offering the topic in their modules

Fields of Study: Penetration Testing

- After Ethical Hacking, Penetration Testing is the most popular of all the IT security courses in India.

Companies	Topics		
	Common	Specialized	
ByteCode	Vulnerability	Burp Suite	Tools: Open VaS; Nessus; Netsparker etc
Indian School Of Ethical Hacking	Penetration Testing Basics	Reverse Engineering	Vulnerability Analysis
Cryptus	Exploitation	SQL Injection	<ul style="list-style-type: none"> Snort IDS Analysis Bug Bounty Programs Legal Agreement with Companies
Indian Cyber Security Solutions	Firewall	Cross Site Scripting	<ul style="list-style-type: none"> OWASP HTTP basics Attacking Wifi Network Anonymity Click Jacking
Institute of Information Security	Source Code	Password Cracking	<ul style="list-style-type: none"> Jailbreaking iOS Security Jailbreaking Digital Forensics Compliance Auditing in Database

Note: Higher the intensity of colour, higher the number of companies offering the topic in their modules

Fields of Study: Cyber Forensics

- Courses on Cyber Digital Forensics (Expert and Analyst) are the common of all the IT security courses in India.

Companies	Topics				
	Common		Specialized		
Byte Code	Cyber Concepts and Process	■	Enterprise theory of Investigation	■	<ul style="list-style-type: none"> ▪ Mobile Forensics: Cellebrite Tool
	Investigation using FTK	■	Forensic Laws	■	
Indian School Of Ethical Hacking	Investigation using Encase	■	MD5 Hash calculator	■	<ul style="list-style-type: none"> ▪ Daubert and Fry Standard ▪ Paeaben Mobile Kit ▪ UME 36 Pro ▪ XACT System
	Types of Crimes	■	Data Imaging Techniques	■	
Cryptus	Recovering Files	■	File Systems Analysis	■	<ul style="list-style-type: none"> ▪ RSA Security ▪ Advanced Encryption Standard ▪ Kerberos and X.509 ▪ Dumpit and Volatility Framework
	Application Password Crackers	■	Data Acquisition Tools	■	
Indian Cyber Security Solutions	Log Capturing	■	Deleted Partitions Recovery Technique	■	<ul style="list-style-type: none"> ▪ Malware Forensics
	Email Crimes Reporting	■	Principals of key crypto systems	■	
Institute of Information Security	Password Cracking	■	Mobile Forensics	■	<ul style="list-style-type: none"> ▪ Detailed Steganography
	Workstation Requirements	■	Cloud Forensics	■	

Note: Higher the intensity of colour, higher the number of companies offering the topic in their modules

Fields of Study: Network Security

- Network Courses like Advanced in Depth Network Security, Security Analyst and Security Auditor are the most common courses

Companies	Topics			
	Common		Specialized	
ByteCode	Layered Models	■	Network Security Auditing	■
	TCP/IP	■	DHCP	■
Indian School Of Ethical Hacking	Switch and Route	■	Topology	■
	Virtual LANS	■	Network Mapping	■
	EIGRP Implementation	■	Troubleshooting	■
Cryptus	Scalable OSPF+	■	CISCO firewall Technologies	■
	Network Based Management	■	Endpoint Security	■
	Networking Protocols	■	Load Balancing	■
Indian Cyber Security Solutions	TCP and UDP Ports	■	Concept of Lyers	■
	Routing Protocols (BGP, EIGRP)	■		
Institute of Information Security	Wireless Security	■		
	Insecurities Identification	■		

Note: Higher the intensity of colour, higher the number of companies offering the topic in their modules

Fields of Study: Python

- Python language is prerequisite for majority of IT security courses in India. However, only 2 out of the top 5 IT security companies in India offer them.

Companies	Topics			
	Common		Specialized	
ByteCode	Variable and Data Types	Files and Directories	Regular Expressions	
Indian School Of Ethical Hacking	Decision Making and Loops	Class Objects	<ul style="list-style-type: none"> Creating port scanner Creating an HTTP banner grabber Creating packet sniffer under Linux Polymorphism 	
Cryptus	Functions	Socket Programming	<ul style="list-style-type: none"> Project: Client Server Chatting Application 	
	Modules	Exception Handling		
Indian Cyber Security Solutions	Tuples		<ul style="list-style-type: none"> Utility Scripting and System Administration Python GUI Programming 	

Note: Higher the intensity of colour, higher the number of companies offering the topic in their modules

Summary: Comparison of Training Courses

#	Particulars	Key Observations
1	Ethical Hacking	<ul style="list-style-type: none">▪ Most common course among all IT securities companies in India▪ Majority content is overlapping
2	Penetration Testing	<ul style="list-style-type: none">▪ Most Common Course after Ethical Hacking▪ IIS and ISOEH offer more specialised courses on Penetration Testing (<i>Anonymity, OWASP, Jail breaking, iOS security</i>)
3	Cyber Forensics	<ul style="list-style-type: none">▪ All companies provide a similar curriculum on Cyber Forensics▪ However, ISOEH provide a deeper insights on filing, Reporting and US cyber laws along with fundamentals of Daulbert and Fry Standard, XACT and ZRT▪ Moreover, there are specialised courses offered by ISOEH and IIS on Digital Forensics
4	Network Security	<ul style="list-style-type: none">▪ All follow Cisco Certification Curriculum▪ In addition, Cryptus also have their own curriculum which is highly diverse on Network Certifications covering the facets of AAA+ , Network Address Translation and BYOD+
5	Python	<ul style="list-style-type: none">▪ Advanced knowledge of Python is the pre requisite for many advanced professional courses▪ IIS doesn't offer Python training as they are more into specialised courses

Other Key Observation:

- The target market of IIS is corporate (working professionals) taking specialised courses having a duration of 3 – 5 days which is similar to the target market of Koenig Solutions, the global leader in IT Security Training.

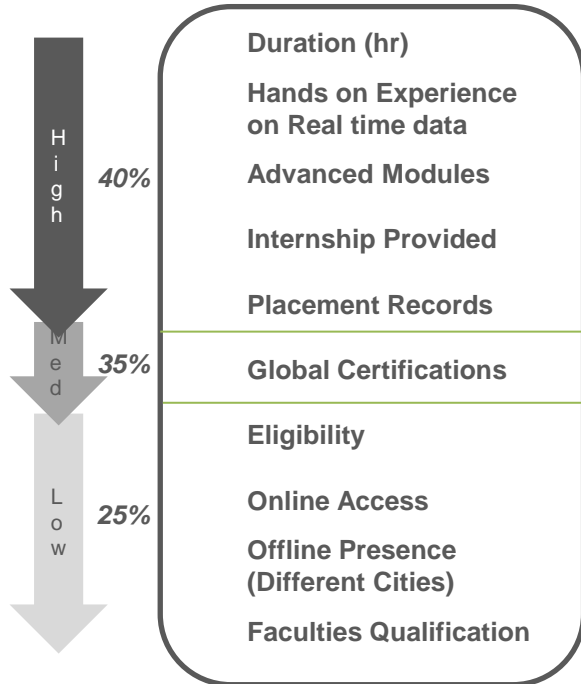
Table of Content

#	Particulars	Page No.	#	Particulars	Page No.
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I.	Overview		I.	Methodology	
II.	Types of IT Security		II.	Fields of Study:	
III.	Key Drivers of Growth & Opportunities in India			<ul style="list-style-type: none">Ethical HackingPenetration TestingCyber ForensicsNetwork SecurityPython	
IV.	Main Challenges		III.	Summary	
B.	Design of IT Security Courses	12-20			
I.	Domains and Work Roles				
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D.	Course Comparison of Top Indian Training Companies	25-32			
I.	Overview				
II.	Fields of Study:				
	<ul style="list-style-type: none">Ethical HackingPenetration TestingCyber ForensicsNetwork SecurityPython				
III.	Summary				

Methodology

- Price comparison of any course is done in the light of the quality of the course offered.
- In order to compare the price of the training courses, we first evaluated the quality of courses based on certain key parameters
- The key parameters were identified and given weightage in accordance with the impact they have on the quality of course

Key Parameters Identification



Evaluation of Courses on key Parameters

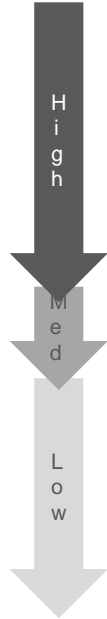
- Each course offered by the top companies was ranked under each parameter on a scale of 1 – 3 (with 3 being the best)
- The high impact parameters were given weightage of 40%
- The medium impact parameter were given weightage of 35%
- The low impact parameter were given weightage of 25%

- Cumulative course score was calculated in accordance with the weightage given to each key parameter

- *Price of the training courses were evaluated against the cumulative course score achieved by each course*

Fields of Study: Ethical Hacking

Parameters	ISOEH	Cryptus	ICS
Duration (hr)	40	80 - 90	120
Hands on Experience on Real time data	Yes	Yes	Yes
Advanced Modules	10%	25%	40%
Internship Provided	None	None	Yes (3 months)
Placement Records	MNC placement	MNC Placement	MNC Placement
Global Certifications	None	Yes	Yes
Eligibility	Basic knowledge	No basic	No Basic
Online Access	Yes	Yes	Yes
Offline Presence (Different Cities)	1	5	1
Faculties Qualification	Certified; 10 -20 yrs of Industry exp.	Globally Certified; partner - IIT KGP	Globally Certified
Target Segment	Any Graduate	Any Graduate	Any Graduate
Fee (₹)*	37,000	35,000	35,400



Parameter Ranking:

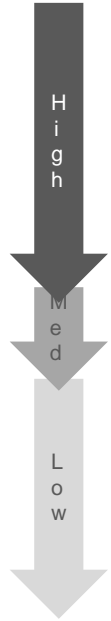
Rank 1

Rank 2

Rank 3

Fields of Study: Web Penetration Testing*

Parameters	ISOEH	Cryptus	ICS
Duration (hr)	40	80-90	48
Hands on Experience on Real time data	Yes	Yes	Yes
Advanced Modules	10%	25%	30%
Internship Provided	None	None	None
Placement Records	MNC Placement	MNC Placement	MNC Placement
Global Certifications	Yes	Yes	Yes
Eligibility	Java, HTML and Database	Python/PHP/JavaEE	CEH
Online Access	Yes	Yes	Yes
Offline Presence (Different Cities)	1	5	1
Faculties Qualification	Certified; 10 -20 yrs of Industry exp.	Globally Certified; partner - IIT KGP	Globally Certified
Target Segment	Any Graduate	Any Graduate	Any Graduate
Fee (₹)*	14,750	35,000	14,160



Parameter Ranking:

 Rank 1

 Rank 2

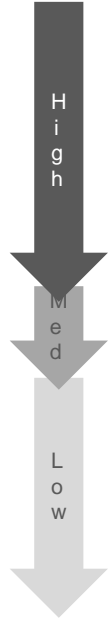
 Rank 3

The arrow depicts the weightage given to parameters; * This course is provided by all companies; However, Network and Android Penetration is also provided by ISOEH and Cryptus in a separate course

*Note: \$ 1 = ₹ 69.37

Fields of Study: Cyber Forensics

Parameters	ISOEH	Cryptus	ICS
Duration (hr)	40	80 - 90	48
Hands on Experience on Real time data	Yes	Yes	Yes
Advanced Modules	30%	25%	10%
Internship Provided	None	None	Yes (3 months)
Placement Records	MNC Placement	MNC Placement	MNC Placement
Global Certifications	Yes	Yes	None
Eligibility	Basic knowledge	No basic	No Basic
Online Access	Yes	Yes	Yes
Offline Presence (Different Cities)	1	5	1
Faculties Qualification	Certified; 10 -20 yrs of Industry exp.	Globally Certified; partner - IIT KGP	Globally Certified
Target Segment	Any Graduate	Any Graduate	Any Graduate
Fee (₹)*	34,000	35,000	44,840



Parameter Ranking:

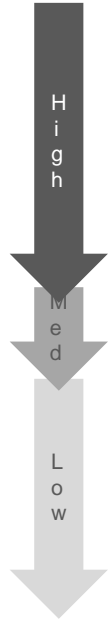
Rank 1

Rank 2

Rank 3

Fields of Study: Network Security

Parameters	ISOEH	Cryptus	ICS
Duration (hr)	80	40	45
Hands on Experience on Real time data	Yes	Yes	Yes
Advanced Modules	20%	30%	20%
Internship Provided	None	None	None
Placement Records	MNC Placement	MNC Placement	MNC Placement
Global Certifications	Yes	Yes	Yes
Eligibility	No Basic	No Basic	No Basic
Online Access	Yes	Yes	Yes
Offline Presence (Different Cities)	1	5	1
Faculties Qualification	Certified; 10 -20 yrs of Industry exp.	Globally Certified; partner - IIT KGP	Globally Certified
Target Segment	Any Graduate	Any Graduate	Any Graduate
Fee (₹)*	16,000	35,000	19,470



Parameter Ranking:

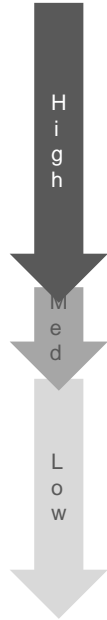
Rank 1

Rank 2

Rank 3

Fields of Study: Python

Parameters	ISOEH	Cryptus	ICS
Duration (hr)	40	80	48
Hands on Experience on Real time data	Yes	Yes	Yes
Advanced Modules	20%	10%	25%
Internship Provided	None	None	None
Placement Records	MNC Placement	MNC Placement	MNC Placement
Global Certifications	Yes	Yes	Yes
Eligibility	No Basic	No Basic	No Basic
Online Access	Yes	Yes	Yes
Offline Presence (Different Cities)	1	5	1
Faculties Qualification	Certified; 10 -20 yrs of Industry exp.	Globally Certified; partner - IIT KGP	Globally Certified
Target Segment	Any Graduate	Any Graduate	Any Graduate
Fee (₹)*	9,750	12,000	15,340



Parameter Ranking:

Rank 1

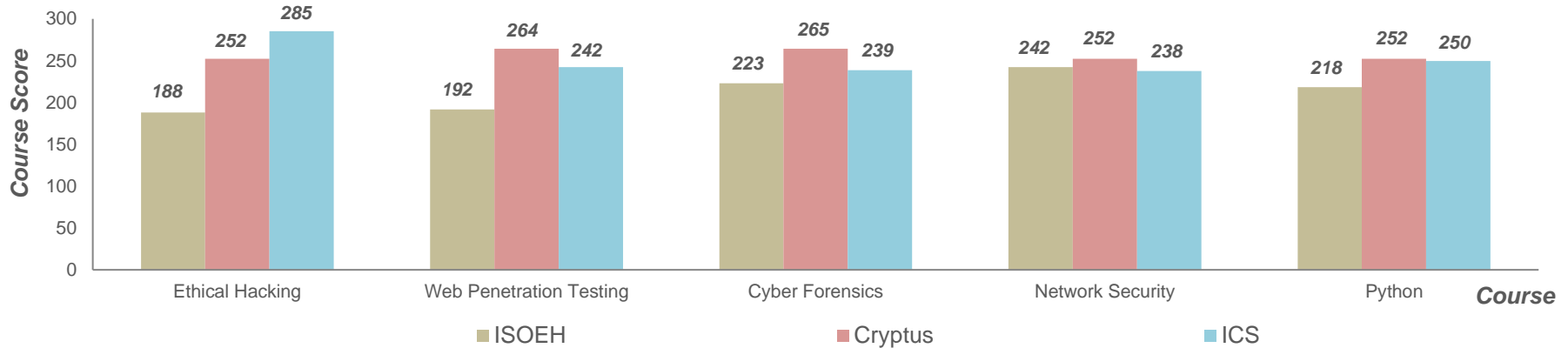
Rank 2

Rank 3

*Note: \$ 1 = ₹ 69.37

Summary

Fee (₹)* ('000)	37	35	35.4	14.7	35	14.2	34	35	44.8	16	35	19.5	9.7	12	15.3
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#	Particulars	Key Observations
1	Ethical Hacking	<ul style="list-style-type: none"> Indian Cyber Security Solutions (ICS) has the best course score with competitive pricing of INR 35,400.
2	Penetration Testing	<ul style="list-style-type: none"> Cryptus has the best course score. However, the course fee is substantially higher than others. ICS marginally lags behind Cryptus in course score with very competitive pricing.
3	Cyber Forensics	<ul style="list-style-type: none"> Cryptus stands out with both best course score and competitive pricing
4	Network Security	<ul style="list-style-type: none"> All the companies all almost at the same course score. ISOEH, however, has the best pricing.
5	Python	<ul style="list-style-type: none"> Cryptus stands out with both best course score and most competitive pricing.

*Note: \$ 1 = ₹ 69.37



Monograph: June 2019

India | Australia | Canada | Greece | Singapore | UAE | UK | USA

India Headquarters

Gurgaon

K-2/1, FF, DLF Phase 2
Gurgaon-122002

India - Satellite Offices

Delhi

1400 A
14th Floor, Devika Tower
6 - Nehru Place
New Delhi - 110 019
India

Bangalore

1084, Sobha Daffodil
Somasundarpalya, Sector 2
HSR Layout
Bangalore - 560 102
India

Hyderabad

Lotus 107, Serene County
Gachibowli
Hyderabad - 500 032
India

Barry & Stone network

Australia

11/4 Manatunga Street, Clayton
Victoria, 3168, Australia

Canada

207, Hews Way
Edmonton, Alberta
T6L 6W6 Canada

Greece

19 KM, Athens Lamia
New En Erytharia
14671, Greece

Singapore

483, Block 438, Avenue 4
Choa Chu Kang, Singapore 680438

UAE

M 14, Alwadi Building,
Sheikh Zayed Road,
P.O. Box - 125316, Dubai UAE

UK

Brook House, Cowley Mill Road
Uxbridge, Middlesex UB8 2QE

USA

4 D, Cedar Lane, Highland Park
New Jersey 08904

Thank You

For more information, please contact:

Bharat Parmar

T: +91 (124) 4119162, 4229162 Extn. 106

M: +91 98117 99162

E: bharat@eduvisors.org