



**SCHOOL OF ELECTRICAL ENGINEERING AND
COMPUTER SCIENCE (SEECs)**

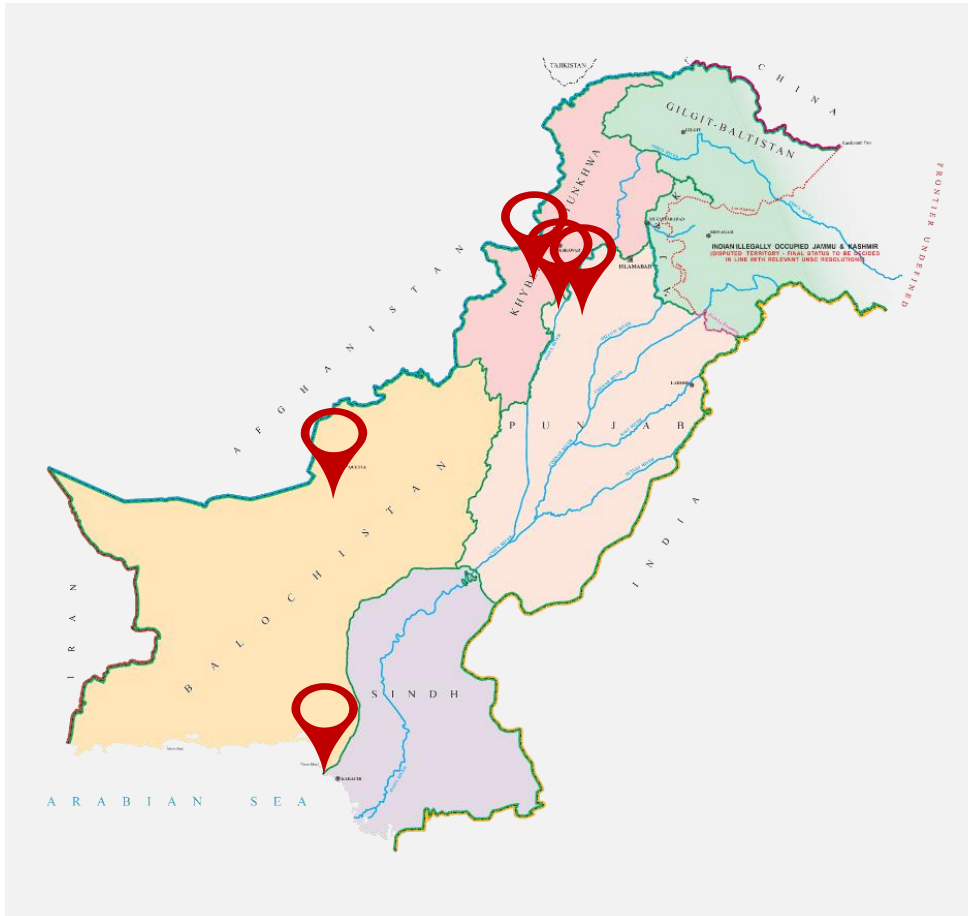


Overview

- Introduction
- NUST at a Glance
- SEECS at a Glance
- Academic Programs
- Research
- Collaborations with Industry and Academia
- Trans-Eurasia Information Network (TEIN)
- Conclusion



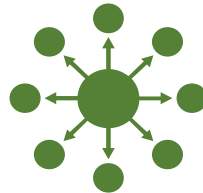
NUST Today



Predominantly Engineering & Technology



Footprint in all **4** provinces
7 campuses in 5 cities



Comprehensive Multidisciplinary university



19 Constituent Schools & Colleges



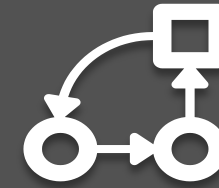
NUST Today



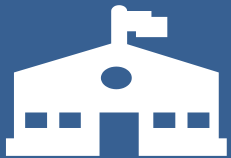
7 Disciplines offering **133** Academic Programmes



18,144 Current Students



1,230 Faculty Members



40 Multi-disciplinary



30% Female Students



42,288 Graduates



Washington Accord ratified (All Engineering programmes)



4% Acceptance Rate*
*For UG Students



Alumni Spread **64** Countries



3 DECADES OF EXCELLENCE



ESTABLISHED

5 Colleges

1991



MAIN CAMPUS
H-12 ISLAMABAD

2008

+ 7 Institutions & 1 Campus

Truly national footprint

IN ALL 4 PROVINCES

7 CAMPUSES IN 5 CITIES

19 INSTITUTIONS

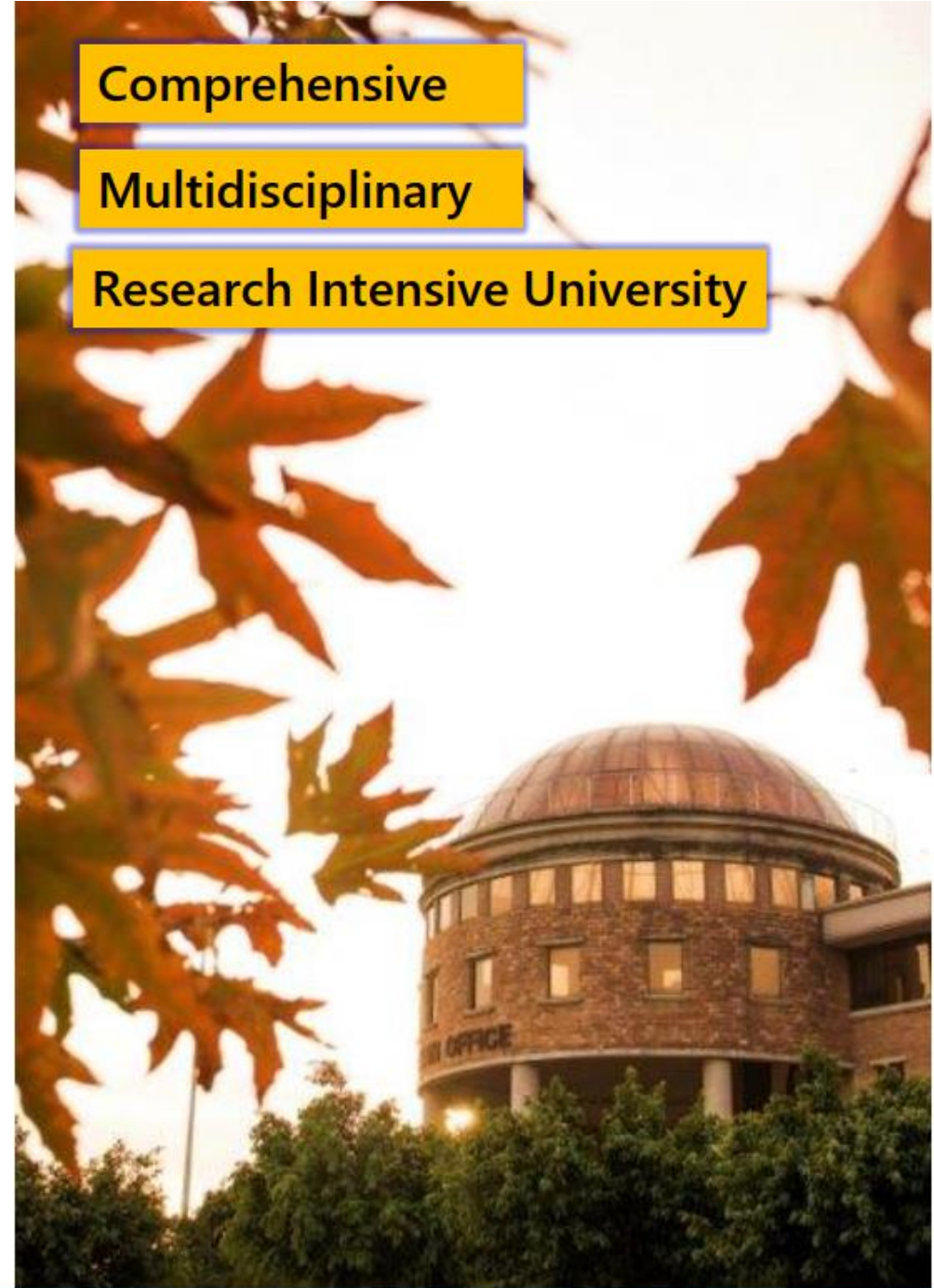
2022



Comprehensive

Multidisciplinary

Research Intensive University



QS World University Rankings 2023



NUST

#334

in the **World** | **#1 in Pakistan**

An ascent of 194
positions in last 6 years





International Rankings



by subject

QS WORLD UNIVERSITY 2023 : 334

Ranked #1 in Pakistan:

Subject Rankings:

- **Computer Science & Information Systems : 131**
- **Electrical & Electronics : 150-200**

INTELLECTUAL CAPITAL



7 Disciplines



18,500
Current Students



1,495
Faculty Members



145
Academic Programmes



30%
Female Students



42,288
Graduates



Washington Accord ratified
(All Engineering programmes)



4%
Acceptance Rate*
*For UG Students



Alumni Spread
64
Countries

7 Disciplines



Engineering



**Information
Technology**



**Applied
Biosciences**



**Management
Sciences**



**Basic/Natural
Sciences**



**Social Sciences
& Humanities**



**Art, Design &
Architecture**

[Back](#)

RESEARCH EXCELLENCE

6 SDG-ALIGNED RESEARCH THEMES
60 RESEARCH AREAS

350+ LABS
34 key laboratories



14,515 Research Publications on WoS
7,144 Joint Research Publications



Smart Cities



Green Energy



Health & Well-being,
Food & Agriculture



Transformative
Technology, Innovation
& Shared Value
Creation



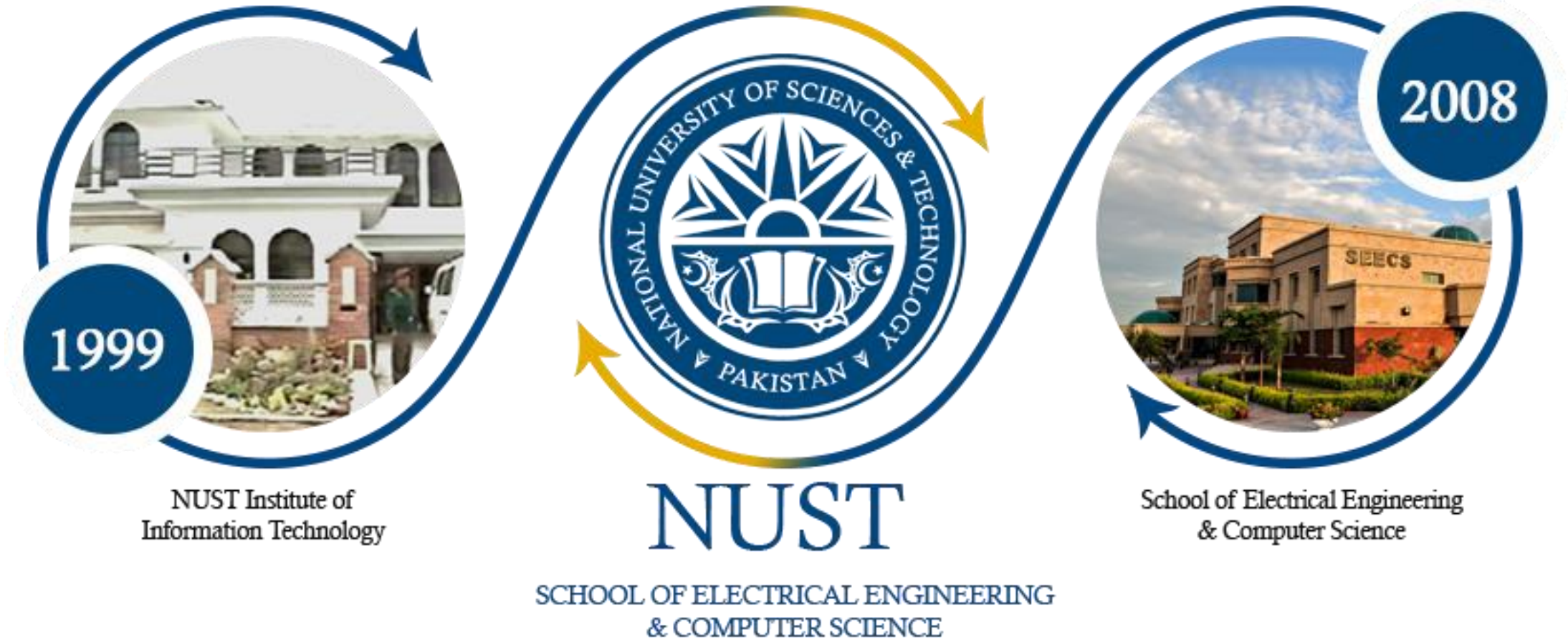
Digital Futures



Pakistani Society,
Business, &
Economy



Brief History of SEECS





Our Mission

- To develop **market-ready** competent human resources, create an **entrepreneur mindset**, and carry out cutting-edge **applied research** in computing technologies and smart systems to support the entire national socio-economic sector



SEECs at a Glance





SEECS Salient

- Best of the best student body (acceptance rate < 1%)



- Pool of over 120 highly qualified faculty

- Largest and oldest school of NUST





SEECS Salients

➤ Integrated Programs



➤ Credibility and Repute

- QS Rank CS: 131
- QS Rank EE: < 200





Academic Programs

UG Programs (03)
Electrical Engineering (BEE)
Computer Science (BSCS)
Software Engineering (BESE)

UG Students: 1594

MS Programs (06)
Electrical Engineering (MSEE)
Computer Science (MSCS)
Information Technology (MSIT)
Innovative Technologies in Learning (MSITL)
Information Security (MSIS)
Data Science (MSDS)

MS Students: 951

PhD Programs (04)
Electrical Engineering (PhDEE)
Computer Science (PhDCS)
Information Technology (PhDIT)
Information Security (PhDIS)

PhD Students: 101



Upskill/ Reskill Trainings and Boot Camps

- Network security
- Cyber Security Fundamentals
- Python Programming
- Artificial Intelligence
- Machine Learning
- Data Science
- Mobile App Development
- Internet of Things (IoT)
- Cloud Computing
- BlockChain

- EMC/ EMI trainings
- IC design
- FPGA
- Open SDN
- Open Wifi

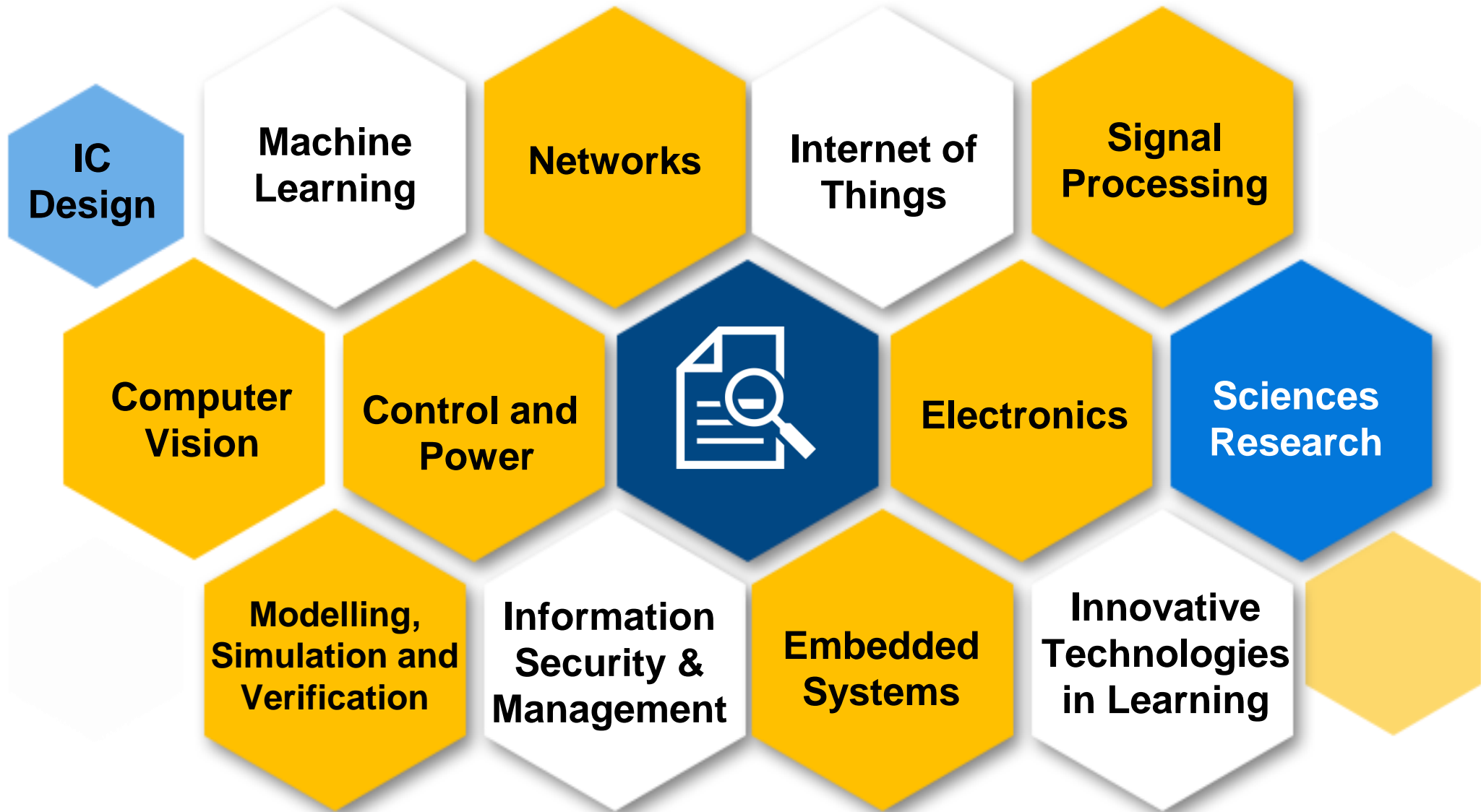


Research Overview





Research Areas





Intellectual Property Statistics

	2019	2020	2021
IPs Filed	46	25	26



SEECS
has transferred

9 **IPs**

to industry in
2019-2020



Academia - Industry Collaboration





Relevant Industries



1. National Engineering and Scientific Commission
2. Sky Electric Pakistan
3. RWR
4. K-electric
5. SLAC
6. CERN
7. Bitsym
8. NuqtaSol
9. Novapex Technologies
10. HUAWEI
11. SPD
12. PLUMgrid Inc. California, USA
13. Loongson Technologies, PRC

1. Microsoft
2. CISCO
3. IBM
4. Walee Technologies
5. Teradata
6. TPL Trakker
7. PAC Kamra
8. Sky Electric Pakistan
9. TransfoPower Pvt Ltd
10. German Research Center for Artificial Intelligence
11. Electro Mechanica
12. Document Diver, USA
13. Aarz Media
14. HUAWEI



International collaborations

81 COLLABORATIONS in 28 COUNTRIES



USA

- University of California Davis
- Monterey Bay Aquarium Research Institute
- University of North Carolina, Charlotte
- Arizona State University
- Princeton University
- Illinois Institute Of Technology
- University Of Missouri
- Georgia Tech
- Tennessee Technological University

- Michigan State University
- University of Minnesota
- Washington University, St. Louis
- George Mason University
- Fredonia State University
- Johns Hopkins University



Canada

- Concordia University
- University of Windsor



Bottom Line

- SEECs provides highly conducive and enabling environment for students, faculty and industry to contribute towards innovation economy



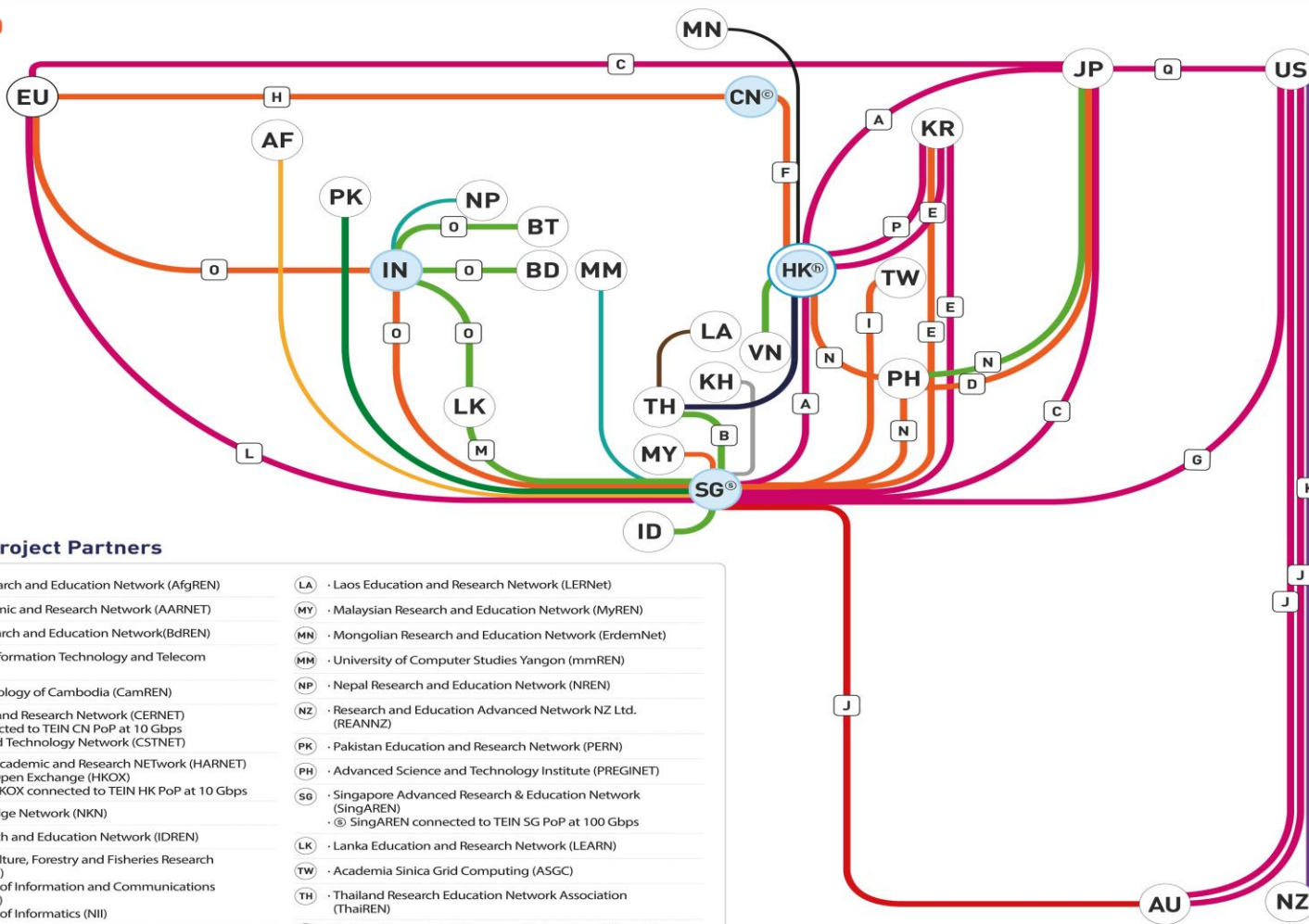
Trans-Eurasia Information Network (TEIN)



The EU co-funded Asi@Connect project provides a dedicated regional high capacity and high quality internet network, Trans Eurasia Information Network (TEIN), for Research and Education (R&E) communities across Asia-Pacific and Europe, and leverages e-infrastructures developed for public service projects.

TEIN Map

- Spectrum
 - 100 Gbps
 - 50 Gbps
 - 10 Gbps
 - 2.5 Gbps
 - 2 Gbps
 - 1 Gbps
 - 155 Mbps
 - 100 Mbps
 - 45 Mbps
 - 10 Mbps
- TEIN PoPs
 - TEIN NOC



Asi@Connect Project Partners

AF - Afghanistan Research and Education Network (AfgREN)	LA - Laos Education and Research Network (LERNet)
AU - Australia's Academic and Research Network (AARNET)	MY - Malaysian Research and Education Network (MyREN)
BD - Bangladesh Research and Education Network (BdREN)	MN - Mongolian Research and Education Network (ErdemNet)
BT - Department of Information Technology and Telecom (DrukREN)	MM - University of Computer Studies Yangon (mmREN)
KH - Institute of Technology of Cambodia (CamREN)	NP - Nepal Research and Education Network (NREN)
CN - China Education and Research Network (CERNET) ⊕ CERNET connected to TEIN CN PoP at 10 Gbps ⊙ China Science and Technology Network (CSTNET)	NZ - Research and Education Advanced Network NZ Ltd. (REANNZ)
HK - The Hong Kong Academic and Research Network (HARNET) - The Hong Kong Open Exchange (HKOX) ⊕ HARNET and HKOX connected to TEIN HK PoP at 10 Gbps	PK - Pakistan Education and Research Network (PERN)
IN - National Knowledge Network (NKN)	PH - Advanced Science and Technology Institute (PREGINET)
ID - Indonesia Research and Education Network (IDREN)	SG - Singapore Advanced Research & Education Network (SingAREN) ⊕ SingAREN connected to TEIN SG PoP at 100 Gbps
JP - Ministry of Agriculture, Forestry and Fisheries Research Network (MAFFIN) - National Institute of Information and Communications Technology (NICT) - National Institute of Informatics (NII)	LK - Lanka Education and Research Network (LEARN)
KR - National Information Society Agency (KOREN) - Korea Institute of Science and Technology Information (KREONET)	TW - Academia Sinica Grid Computing (ASGC)
	TH - Thailand Research Education Network Association (ThaiREN)
	VN - National Agency for Science and Technology Information (VinaREN)

* As of 31 January 2022.
 ** Other regions (Central Asia, Africa and Latin America) can be connected via global R&E networks such as EU(GÉANT) and US(Internet2)

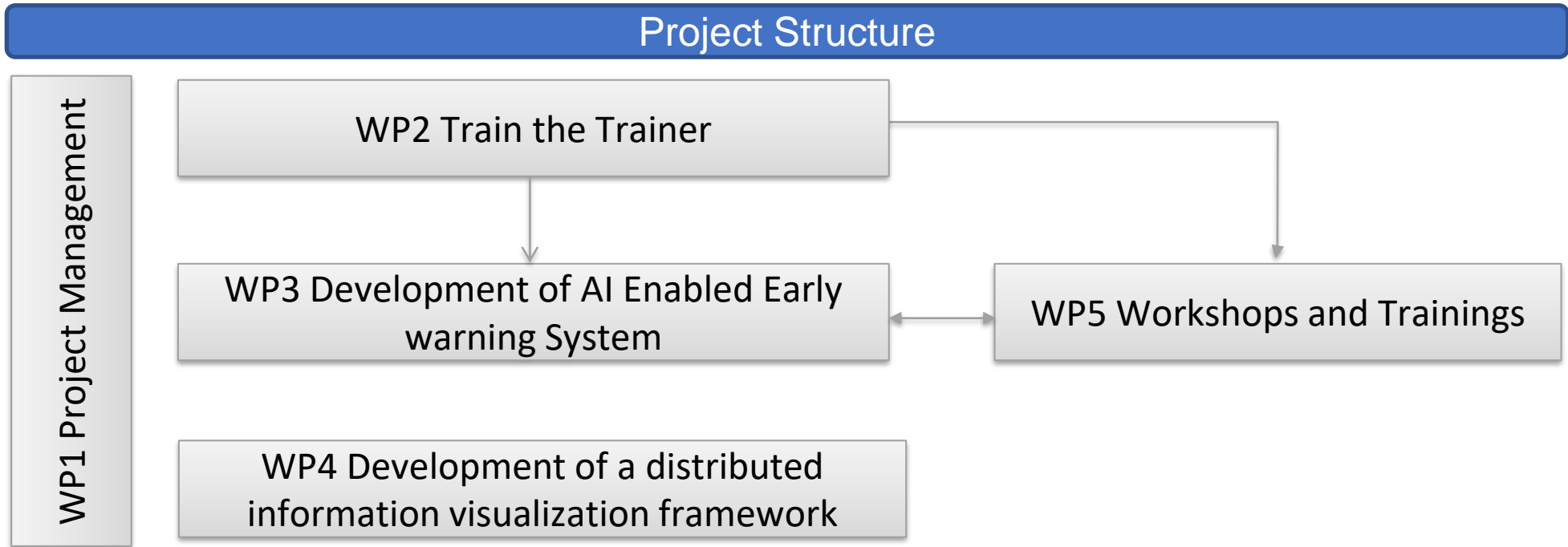
The following links are fully financed/co-financed by the link owners whose support is gratefully acknowledged

A		National Institute of Information and Communications Technology National Supercomputing Centre Singapore Advanced Research & Education Network Hong Kong Academic and Research NETWORK
B		National Institute of Information and Communications Technology Thailand Research and Education Network
C		National Institute of Informatics
D		Ministry of Agriculture, Forestry and Fisheries Research Network
E		National Information Society Agency
F		China Education and Research Network TEIN Cooperation Center
G		Internet2 ARENA-PAC TransPAC/Pacific Wave Australia's Academic and Research Network
H		Co-funded by China and EU
I		Academia Sinica Grid Computing
J		Australia's Academic and Research Network
K		Research and Education Advanced Network New Zealand
L		AARNET, GEANT, NORDUnet, SingAREN, SURF, TEIN
M		Lanka Education and Research Network
N		Advanced Science and Technology Institute
O		National Knowledge Network
P		Korea Research Environment Open Network
Q		National Supercomputing Centre Singapore Advanced Research & Education Network



About Asi@connect Project

PI/Org	<ul style="list-style-type: none">• Dr. Muhammad Moazam Fraz, NUST Pakistan• Dr. Yasir Faheem, NUST Pakistan• Dr. Arsalan Ahmad, NUST Pakistan
Budget	<ul style="list-style-type: none">• EUR 150,000
Project Period	<ul style="list-style-type: none">• Mar 2022 – Feb 2023 (12M)





Questions / Discussion



Thank you



School of Electrical Engineering & Computer Science

