CENTER FOR COMPUTER NETWORKS AND CYBER SECURITY

VISION

To be an excellent and prominent Computer Networks and Cyber Security Centre in India to carry out the Research and Development

MISSION

- ❖ Identifying and addressing the grand challenges in cyber security and privacy.

- ❖ Training the Faculty and students in Computer Networks and Cyber Security related issues through research and adequate learning programs.

- ❖ Engaging the industry to solve applied problems which can provide real benefit to the industry and community.

OBJECTIVES

- ❖ To conduct basic research in Computer Networks and Cloud Computing.

- ❖ To Analyze, Design and Development of new cryptosystems.

- ❖ To create awareness on cyber threats and educate the users to safe guards their infrastructure.

- ❖ To conduct research on Intrusion Detection and Prevention.

- ❖ To carry out consultancy on Malware Analysis, Vulnerability Assessment and Penetration Testing.

INTRODUCTION

Over the years, Information Technology has transformed the global economy, people and markets in ways beyond imagination. With the Information Technology gaining the centre stage, nations across the world are experimenting with innovative ideas for economic development and inclusive growth. An increasing proportion of the world's population is migrating to **cyberspace** to communicate, enjoy, learn, and conduct commerce. It has also created new vulnerabilities and opportunities for disruption.

The threat from professional criminals and state sponsored saboteurs in cyber space is growing and continue to become more sophisticated. State sponsored saboteurs focus on economic and political espionage and on making preparations for digital sabotage. Not only the number of countries that developing digital attack capabilities, but also the attacks that are carried out are becoming increasingly complex. Combined with it, the numerous attacks that the digital infrastructure of countries faces on a daily basis from non-state actors. This forms a direct threat to the economic interests and national security of countries. These developments call for an increased effort to strengthen the cyber-security infrastructure of countries and thereby better protect their vital interests.

Therefore there is a great demand for Cyber Security professionals and hence Center for Computer Networks and Cyber Security at SVEC was established to empower the students and faculty.

This Center enables both students and faculty to gain practical experience on current cyber security solutions and technologies. The major areas of research are IoT security, Cyber Physical System Security, Computer network security, Network monitoring and forensics, Vulnerability remediation and Assurance, Cloud computing and Software defined Networks. The objective of the center is to create an environment that allows students and faculty to get hands-on experience with the available technical solutions and to conduct basic and applied research to solve real life problems.

THE TEAM

Dr. C.MadhusudhanaRao, Professor, Dept. of CSSE - Coordinator (Intrusion Detection Systems, IoT security, Cyber secure Smart Cities)
Dr. M. Sakthivel, Associate Professor, Dept. of CSE (Wireless Networks, Mobile Adhoc Networks, Cognitive Networks)
Dr. D. R. Kumar Raja, Associate Professor, Dept. of CSSE (Internet of Things)
Dr. V. Jyothsna, Associate Professor, Dept. of IT (Intrusion Detection)
Mr. N Papanna, Assistant Professor, Dept. of CSE (Computer Networks and Security)
Mr. A Chandra, Assistant Professor, Dept. of CSSE (Network Security, Routing, Energy Management in MANETs)
Mr. Ganesh Davanam, Assistant Professor, Dept. of CSE (Cognitive Networks)
Mr. Jeevan Pradeep, Assistant Professor, Dept. of CSE (Cyber Security)
Mr. E.S.Phalguna Krishna, Assistant Professor, Dept. of CSE (Cloud Computing)
Mr. G Uma Mahesh, Assistant Professor, Dept. of IT (Computer Networks,IoT, Network Security)
Mr. M Ramu, Assistant Professor, Dept. of CSSE (Malware Analysis, IoT)
Mr. S Shiva Prakash, Assistant Professor, Dept. of CSSE (Internet of Things)
Mr. M.Ganesh Karthik, Assistant Professor, Dept. of CSE (Cloud Computing)
Mr. A.RamprakashReddy, Assistant Professor, Dept. of CSE (IoT Security)
Mr. K Balaji, Assistant Professor, Dept. of CSE (Cloud Security)
Mr. D.Giridhar Kumar, Assistant Professor, Dept. of CSSE (Distributed Computing)

COLLABORATIONS

National Cyber Safety and
Security Standards

ACTIVITIES

PUBLICATIONS

International / National Journals

01. **Dr. Sasikumar Gurumoorthy**, "**Color Blindness Correction using Augmented Reality**", Madridge Journal of Bioinformatics and System Biology, Vol.1, pp 740-742, 2019

02. **Dr. Sasikumar Gurumoorthy**, **Epilepsy analysis using open source EDF tools for information science and data analytics"**, International Journal of communication systems, special issue, pp 1-11, 2019

03. **V. Jyothsna**, "**A Flow-Based Network Intrusion Detection System for High-Speed Networks Using Meta-heuristic Scale**", Computing and Network Sustainability, Lecture Notes in Networks and Systems, vol. 75, pp. 337-356, 2019.

04. **Dr.C.MadhusudhanaRao,** "**Design of an optimal acceptance plan for Network Intrusion Detection**" International Journal of Innovative Technology and Exploring Engineering, Vol-9, No:1, pp 4379-4383, 2019.

05. **Dr.M. Sakthivel, "Progressive AODV: A Routing algorithm intended for Mobile Adhoc Networks"**, International Journal of Engineering and Advanced Technology, Vol-9 No. 2, pp. 70-74, 2019.

Books / Book Chapters

1. P. Venkata Krishna, **Sasikumar Gurumoorthy**, Mohammad S. Obaidat "Social Network Forensics, Cyber Security and Machine Learning" SpringerBriefs in Applied Science and Technology, 2019

2. **V. Jyothsna**, "Anomaly based Intrusion Detection Systems", Computer and Network Security, IntechOpen, 2019.

3. **C.MadhusudhanaRao**, M.M. Naidu, "A Novell Network Intrusion Detection System utilizing Acceptance Sampling", Book Chapter, Lambert Academic Publishing House, 2019.

Conference Proceedings

1. **D.Ganesh,** Dr. M. Sunil Kumar, **"Review of Spatio temporal Clustering Methods Classification",**International Conference on Advances in Computing and Information Technology(ICAIT'19), Annamali University,Tamilnadu 24th to 25[th]September,2019.

2. **N.Papanna, "Multicast Routing Protocols in Mobile Ad Hoc Networks: Issues, Challenges and Applications "** at International Conference on Computing Communication and Electrical Technologies (ICCCET -2019), GNITS, Hyderabad, 29th to 30th August 2019

3. **V.Jyothsna**, "A Network Intrusion Detection System with Hybrid Dimensionality Reduction and Neural Network based Classifier", Fourth International Conference on Information and Communication Technology for Sustainable Development, Goa, India,5th to 6[th]July , 2019

PROJECTS

PROJECTS SUBMITTED

Name of Principal Investigator	Duration of project	Name of the research project	Amount (in Lakhs)	Name of funding agency
Dr.C.MadhusudhanaRao	3 years	A Model for Sustainable Livelihood Development of Yandi Tribe Through Tangible Technology Tools and Training	199.53	DST-SEED TITE
Dr. C.MadhusudhanaRao	3 years	Cyber Security for Smart Cites and Health Care	30	DST-NSTMIS

SVET FUNDED PROJECTS

Sl. No.	Name of Principal Investigator	Duration of project	Name of the research project	Amount (in Rs)
1.	Mr. G Hemanth Kumar Dr. D R Kumar Raja	1.5 years	Automation of Aerators based system on water quality parameters in Aqua Culture	1,50,000

Ph.D(Enrollment, Supervising, Committee Member)

Name of the Faculty	Status
Dr. C.MadhusudhanaRao	Doctorates
Dr. M Sakthivel	
Dr. D R Kumar Raja	
Dr. V Jyothsna	
Mr. N Papanna	Synopsis submission under process
Mr. A Chandra	Pre Ph.D Completed
Mr. D Ganesh	Synopsis submission under process
Mr. S Shiva Prakash	Course Work Completed
Mr.E.S.Phalguna Krishna	Synopsis submission under process
Mr. G Uma Mahesh	Course Work Completed
Mr. M Ramu	Course Work Completed
Mr. Jeevan Pradeep	Pre Ph.D Completed
Mr. M.Ganesh Karthik	Synopsis submission under process
Mr. A.Ramprakash reddy	Course Work Completed
Mr. K Balaji	Pre Ph.D Completed
Mr.D.Giridhar Kumar	Pre Ph.D Completed

Conferences/Seminars/Workshops Attended

S. No	Name of the Faculty	Type of the Programme	Title of the Programme	Venue and address	Duration	Dates (from … to….)
1	Mr. G.Uma Mahesh	Training Program	CCNA (module 3 and 4) Instructor Training Program	Cisco Networking Academy and State Board of Technical Education and Training, Andhra Pradesh at GOVT Polytechnic, Vijayawada	10 Days	28.01.2019 to 06.02.2019
2	Mr.A. Ramprakash Reddy	Workshop	How to Write Research Articles for Scientific Journals and Ph. D Thesis on Computational Engineering	SRM IST, Chennai	1 day	12.09.2019
3	Mr.K.Balaji	Workshop	CCNA (module 3 and 4) Instructor Training Program	Cisco Networking Academy and State Board of Technical Education and Training, Andhra Pradesh at GOVT Polytechnic, Vijayawada	10 Days	21.01.2019 to 30.01.2019
4	Mr.D.Ganesh	FDP	Cyber Security	K.S.R.M College of Engineering, KADAPA	14 Days	11.11.2019 to 23.11.2019
5	Mr.K.Jeevan Pradeep	Workshop	IoT Next	Taj Yeshwantapur Bangalore By Tie, Bangalore	2 Days	02.12.2019 to 03.12.2019
6	Mr.K.Jeevan Pradeep	Workshop	**Internet of Things**	**NITK, Suratka**l	5 Days	04.11.2019 to 08.11.2019
7	Ms. V. Jyothsna	Faculty Development Program	Emerging Trends and Research Challenges in Cyber Security, Cryptanalysis and Cyber Physical Systems,DST Sponsored	Chadalawada Ramanamma Engineering College, Tirupati	12 Days	10.06.2019 to 22.06.2019
8	Dr.M.Sakthivel	Workshop	Wireless Sensor Networks using Contiki-Cooja Simulator	Gnanamani College of Technology, Namakkal, Tamil Nadu.	1 Day	13.09.2019

9	Dr. C. Madhusudana Rao	Workshop	**HiPC,2019**	International Convention Center, Hyderabad	4 Days	17.12.2019 to 20.12.2019

Conferences/Seminars/Workshops Organized

S. No.	Name of the Faculty	Type of the program	Title of the program	Sponsoring agency	Duration	Date(s)
1.	Dr. M. Naresh Babu	Faculty Development Program	New Directions in Cryptography and Applications to Cyber Security	E&ICT Academy, NIT Warangal	1 Week	27.05.2019 to 01.06.2019
2.	Mr.D.Ganesh	Faculty Development Program	Deep Learning	E&ICT Academy, NIT Warangal	1 Week	20.05.2019 to 25.05.2019
3.	Dr. M.Sakthivel	Workshop	Advanced Python	APSSDC	3 Days	25.07.2019 to 27.07.2019
4.	Dr. M.Sakthivel	Workshop	Python Basics	APSSDC	3 Days	29.07.2019 to 31.07.2019
5.	Dr.C.Madhusudhana Rao	Faculty Development Program	Teaching for Product Development	Columbia Business School, New York City	2 days	16.09.2019 to 17.09.2019

OTHER ACTIVITIES& ACHIEVEMENTS

Name of the Faculty	Activity / Achievements
Dr. C. MadhusudhanaRao	• Completed NPTEL course on "Accreditation and Outcome Based Education" • Reviewer for WSEAS Transactions on Communications
Mr. N. Papanna	• Completed NPTEL course on "Programming in java"
Mr. Ganesh	• Completed NPTEL Certification on Programming in C • Completed Course Certification on "Introduction to HTML5" authorized by University of MICHIGAN • Completed Course Certification on "Machine Learning" authorized by Stanford University.
Mr. E. S. Phalguna Krishna	• Completed NPTEL Course on "Cloud Computing" • Completed NPTEL Certification Course on "Introduction to Internet of Things"
Mr. M. Ganesh Karthik	• Completed NPTEL Course on "Problem Solving through Programming C"
Mr. K. Balaji	• Completed NPTEL Course on "Cloud Computing"
Ms. V. Jyothsna	• Completed NPTEL Course on "Cryptography and Network Security" • Completed NPTEL Certification Course on "Introduction to Internet of Things" • Acted as Reviewer for Bulletin of Electrical Engineering and Informatics (Indexed in Scopus) • Acted as Reviewer for Recent Patents on Computer Science • Acted as Reviewer for International Conference on Computer Science, Information Technology, and Electrical Engineering (ICOMITEE 2019) • Acted as Reviewer International Conference on Electrical Engineering, Computer Science and Informatics (EECSI 2019
Mr. G. Uma Mahesh	• Completed NPTEL Certification Course on "Introduction to Internet of Things" • Completed NPTEL Certification Course on "Cloud Computing"
Mr A. Ramprakash Reddy	• Completed NPTEL Certification Course on "Introduction to Internet of Things"
Mr. A. Chandra	• Completed NPTEL Certification Course on "Accreditation and OBE".
Mr. D Giridhar Kumar	• Completed NPTEL Certification Course on "Introduction to Operating Systems".

New Directions in Cryptography and Applications to Cyber Security
(27thMay to 01st June 2019)

The Faculty Development Programme mainly focused on Cryptography Algorithms, Design of Network Security Protocols, Programming using GMP, hands on Design and Implementation of Security Protocols, Security Simulation Tools (AVISPA) and opportunities to enhance research capabilities of faculty in Cryptography and Cyber Security. A total of 40 members of faculty and Research Scholars from Odisha, Jalgaon, Tamil Nadu, Hyderabad, Bangalore and various parts of Andhra Pradesh attended the programme. The following are the resource persons of the program:

Dr. Kamini Malhotra , **Scientist-F, DRDO, New Delhi**

Dr. R. Padmavathi, Associate Professor, NIT Warangal

Dr. Suresh Babu, Assistant Professor, NIT Warangal

Mr. Vinod Maher, RCI, DRDO, Hyderabad.

Mr. Nitin Reddy, Nplus Research Block Chain Labs.

Mr. Rajeev Ranjan, Wipro Pvt. Ltd.

Hands-on Session on 'Security Simulation Tool', AVISPA

Research Facilities

Software

- Ollydbg
- IDAPro
- Oracle Virtual Box
- Network Simulator-3
- OSSEC
- OpenDLP

Training on Network Simulator – 3 by Mr. A Chandra

Hands on training on Network Simulator - 3

Training on CCNA Module 3 and 4 by Mr. S Shiva Prakash

Training on CCNA Module 3 and 4 by Mr. D Giridhar Kumar