

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

(Established by Govt. Act No. 30 of 2008)

Kukatpally, Hyderabad – 500085, Telangana (India).

Dr. M. Manzoor Hussain

M.Tech., Ph.D.,

Professor of Mechanical Engineering &

REGISTRAR

Dt: 17-08-2020

To

All The Principals,
JNTUH Constituent & Affiliated and Autonomous Colleges,
JNTUniversity Hyderabad
Kukatpally,
Hyderabad.

Sub: JNTUH Introducing a regular course in Cyber security at 3rd year
B.Tech, 15 day FDP on "Cyber Security" faculty registration-Reg.

As you are aware that, from the academic year 2020-21 in JNTUH Syllabus, a regular course "Cyber Security" without credits is introduced as mandatory course for all the branches of Engineering of all constituent & affiliated colleges. A newly created centre in JNTUH Campus "The Centre of Excellence in Cyber Security" is organising 15-day online FDP on "**Cyber Security**" from **24 Aug, 2020 - 09 Sept, 2020 (timings: 3:00 PM to 6:30 PM)** to train the Faculty who are going to teach this Subject from this academic year. This FDP is designed as per new syllabus of Cyber Security introduced by JNTUH.

Further the principals and HODs are requested to ensure the registration of faculty from your college going to teach this subject in the department. Hence, kindly depute 2 Faculty to get trained in this FDP from your institute, so that they can teach this course for the Students in an efficient manner. For further information or clarity if any required please feel free to contact undersigned or Dr. R. Sridevi, Prof. in CSE and Coordinator The Centre of Excellence in Cyber Security. Thank you.

Attachments:

1. Flyer.
2. Circular for Cyber Security
3. Tentative timetable



18/8/2020

REGISTRAR



CENTRE OF EXCELLENCE IN CYBER SECURITY
Jawaharlal Nehru Technological University Hyderabad
15 day online Faculty Development Programme

On

"CYBER SECURITY"

In association with



TATA CONSULTANCY SERVICES



CENTRE OF EXCELLENCE IN CYBER SECURITY

JNTU Hyderabad has established a Centre of Excellence in Cyber Security to provide training for the Faculty & Students to facilitate Research & Innovation by identifying the skill gaps in the field of Cyber Security & Forensics.

Course:

The Objective of this FDP is to train the Faculty to teach the Cyber Security course which is newly introduced by JNTUH from this academic year.

Eligibility:

Faculty from all branches of Engineering

Registration Fee Particulars:

The Registration fee for the course is **Rs. 800/- (Rupees Eight hundred Only)** to be paid through online payment mode. Certificate will be issued to the participants on successful completion of the course.

How to Apply:

The faculty members who desire to participate in the program are requested to register their details through online mode at <https://forms.gle/2LlIOSJn2bsrpf6cUa> on or before 20th Aug, 2020.

Chief Patron

Sri Jayesh Ranjan, IAS
In charge Vice-Chancellor, JNTUH



Patrons

Dr. A. Govardhan
Rector, JNTUH



Dr. M. Manzoor Hussain
Registrar, JNTUH



Resource Persons:

Resource persons are from TCS, CoE in Cyber Security of DSCI, C-DAC, IDRET, BARC, Central Forensics Science Laboratory, TS Forensic Science Laboratory, JNTUH, OU, HCU, NALSAR and other premier Academic & Research Institutions.

Instructions to the Participants for Online Course:

- Filling the registration form is mandatory.
- Attendance is mandatory for all sessions.
- Link will be provided a day in advance.

Important Dates:

Last date for the receipt of application through online : 20.08.2020
Intimation of selection to the participants through e-mail : 22.08.2020
Course duration : 24.08.2020 to 09.09.2020
Course Timings : 03:00P.M.—6:30 P.M

Coordinators

Dr. R. Sridevi **Dr. A. Govardhan**

Address for all Correspondence:

Dr. R.Sridevi
Professor in CSE &
Coordinator, CoE in Cyber Security,
Jawaharlal Nehru Technological University Hyderabad
Kukatpally, Hyderabad – 500 085, Telangana State
Please contact: 9705192304



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

All the Principals/Directors of Constituent and Affiliated Colleges of JNTUH are requested to include Cyber Security (CS) and Artificial Intelligence (AI) courses **compulsorily** in the B.Tech. curriculum of all Engineering branches at 3rd year 1st & 2nd semesters of 2018 Regulations (**R18**) as mandatory (non-credit) courses from the academic year 2020-21.

The above said courses will be implemented from the academic year 2020-21 in the following manner:

Name of the Mandatory (Non-Credit) Course	Year & Semester	B.Tech Branches
Artificial Intelligence	3 rd year 1 st semester	EEE, CSE & IT
	3 rd year 2 nd semester	ECE, EIE, Civil, ME, AE, ME (M), MME, Mining & Petroleum Engg.
Cyber Security	3 rd year 1 st semester	ECE, EIE, Civil, ME, AE, ME (M), MME, Mining & Petroleum Engg.
	3 rd year 2 nd semester	EEE, CSE & IT

NOTE: The attendance requirement and pass in the subjects are compulsory and the above two subjects are to be mentioned in the Marks Memos.

This is in addition to the already existing R18 B.Tech. III Year curriculum.

Please find Enclosed Syllabus.

CYBER SECURITY

B.Tech. III Year I/II Semester

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Prerequisites: NIL

Course objectives:

- To familiarize various types of cyber-attacks and cyber-crimes
- To give an overview of the cyber laws
- To study the defensive techniques against these attacks

Course Outcomes: The students will be able to understand cyber-attacks, types of cybercrimes, cyber laws and also how to protect them self and ultimately the entire Internet community from such attacks.

UNIT - I

Introduction to Cyber Security: Basic Cyber Security Concepts, layers of security, Vulnerability, threat, Harmful acts, Internet Governance – Challenges and Constraints, Computer Criminals, CIA Triad, Assets and Threat, motive of attackers, active attacks, passive attacks, Software attacks, hardware attacks, Spectrum of attacks, Taxonomy of various attacks, IP spoofing, Methods of defense, Security Models, risk management, Cyber Threats-Cyber Warfare, Cyber Crime, Cyber terrorism, Cyber Espionage, etc., Comprehensive Cyber Security Policy.

UNIT - II

Cyberspace and the Law & Cyber Forensics: Introduction, Cyber Security Regulations, Roles of International Law. The INDIAN Cyberspace, National Cyber Security Policy.

Introduction, Historical background of Cyber forensics, Digital Forensics Science, The Need for Computer Forensics, Cyber Forensics and Digital evidence, Forensics Analysis of Email, Digital Forensics Lifecycle, Forensics Investigation, Challenges in Computer Forensics, Special Techniques for Forensics Auditing.

UNIT - III

Cybercrime: Mobile and Wireless Devices: Introduction, Proliferation of Mobile and Wireless Devices, Trends in Mobility, Credit card Frauds in Mobile and Wireless Computing Era, Security Challenges Posed by Mobile Devices, Registry Settings for Mobile Devices, Authentication service Security, Attacks on Mobile/Cell Phones, Mobile Devices: Security Implications for Organizations, Organizational Measures for Handling Mobile, Organizational Security Policies and Measures in Mobile Computing Era, Laptops.

UNIT- IV

Cyber Security: Organizational Implications: Introduction, cost of cybercrimes and IPR issues, web threats for organizations, security and privacy implications, social media marketing: security risks and perils for organizations, social computing and the associated challenges for organizations.

Cybercrime and Cyber terrorism: Introduction, intellectual property in the cyberspace, the ethical dimension of cybercrimes the psychology, mindset and skills of hackers and other cyber criminals.

UNIT - V

Privacy Issues: Basic Data Privacy Concepts: Fundamental Concepts, Data Privacy Attacks, Data linking and profiling, privacy policies and their specifications, privacy policy languages, privacy in different domains- medical, financial, etc.

Cybercrime: Examples and Mini-Cases

Examples: Official Website of Maharashtra Government Hacked, Indian Banks Lose Millions of Rupees, Parliament Attack, Pune City Police Bust Nigerian Racket, e-mail spoofing instances.

Mini-Cases: The Indian Case of online Gambling, An Indian Case of Intellectual Property Crime, Financial Frauds in Cyber Domain.

TEXT BOOKS:

1. Nina Godbole and Sunit Belpure, Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Wiley
2. B. B. Gupta, D. P. Agrawal, Haoxiang Wang, Computer and Cyber Security: Principles, Algorithm, Applications, and Perspectives, CRC Press, ISBN 9780815371335, 2018.

REFERENCES:

1. Cyber Security Essentials, James Graham, Richard Howard and Ryan Otson, CRC Press.
2. Introduction to Cyber Security, Chwan-Hwa(john) Wu, J. David Irwin, CRC Press T&F Group.

ARTIFICIAL INTELLIGENCE

B.Tech. III Year I/II Semester

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Course Objectives: To train the students to understand different types of AI agents, various AI search algorithms, fundamentals of knowledge representation, building of simple knowledge-based systems and to apply knowledge representation, reasoning. Study of Markov Models enable the student ready to step into applied AI.

UNIT - I

Introduction: AI problems, Agents and Environments, Structure of Agents, Problem Solving Agents

Basic Search Strategies: Problem Spaces, Uninformed Search (Breadth-First, Depth-First Search, Depth-first with Iterative Deepening), Heuristic Search (Hill Climbing, Generic Best-First, A*), Constraint Satisfaction (Backtracking, Local Search)

UNIT - II

Advanced Search: Constructing Search Trees, Stochastic Search, A* Search Implementation, Minimax Search, Alpha-Beta Pruning

Basic Knowledge Representation and Reasoning: Propositional Logic, First-Order Logic, Forward Chaining and Backward Chaining, Introduction to Probabilistic Reasoning, Bayes Theorem

UNIT - III

Advanced Knowledge Representation and Reasoning: Knowledge Representation Issues, Non-monotonic Reasoning, Other Knowledge Representation Schemes

Reasoning Under Uncertainty: Basic probability, Acting Under Uncertainty, Bayes' Rule, Representing Knowledge in an Uncertain Domain, Bayesian Networks

UNIT - IV

Learning: What Is Learning? Rote Learning, Learning by Taking Advice, Learning in Problem Solving, Learning from Examples, Winston's Learning Program, Decision Trees.

UNIT - V

Expert Systems: Representing and Using Domain Knowledge, Shell, Explanation, Knowledge Acquisition.

TEXT BOOK:

1. Russell, S. and Norvig, P, Artificial Intelligence: A Modern Approach, Third Edition, Prentice-Hall, 2010.

REFERENCE BOOKS:

1. Artificial Intelligence, Elaine Rich, Kevin Knight, Shivasankar B. Nair, The McGraw Hill publications, Third Edition, 2009.
2. George F. Luger, Artificial Intelligence: Structures and Strategies for Complex Problem Solving, Pearson Education, 6th ed., 2009.

**15 day FDP on “CYBER SECURITY”
(24-08-2020 to 09-09-2020)**

Tentative Timetable

S.No	Date	Topic	Expert Name
Inaugural Session 24-08-2020 (3:00 PM -3:30 PM)			
UNIT-I: Introduction to Cyber Security			
1	24-08-2020	(S-I) 3:30PM - 4:30PM Keynote on Basic Cyber Security Concepts.	Dr A.Damodaram Professor in CSE & Director, SIT &Former Vice Chancellor, S V University
2		(S-II) Layers of Security, Vulnerability, threat, Harmful acts Internet Governance-Challenges and Constraints, Computer Criminals, CIA Triad, Assets and Threat.	Dr Y.V.Subba Rao Associate Professor, School of Computer & Information Sciences, HCU
3	25-08-2020	(S-I) Motive of attackers, Active attacks, Passive attacks, Software attacks, Hardware attacks, Spectrum of attacks.	Dr Rajarshi Pal Asst.Professor& Joint Director, Centre of Excellence in Cyber Security IDRBT
4		(S-II) Taxonomy of various attacks, IP spoofing, Methods of defence,	Mr Santosh Supraja Technologies
5	26-08-2020	(S-I) Security models, risk management, Cyber Threats, Cyber warfare.	Dr Lalith Singh Scientist-F BARC
6		(S-II) Cyber crime, cyber terrorism, Cyber espionage, etc. Comprehensive Cyber security policy.	Dr. K.V.K.Santhy Associate Professor of Criminal Law Proctor, NALSAR University of Law
S-I: 3:00 PM-4:30 PM & S-II :5:00PM-6:30PM			

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Tentative Timetable

UNIT-II: Cyberspace and the Law & Cyber Forensics

7	27-08-2020	(S-I)	Introduction, Cyber Security Regulations, Roles of International Law. The Indian Cyberspace, National Cyber Security Policy.	Mr Ch.A.S. Murty, Associate Director, C-DAC, Hyderabad
8		(S-II)	Introduction, Historical background of cyber forensics, Digital forensics Science.	Mr M.Krishna Asst. Director, Central Forensic Science Lab krishforensics@gmail.com
9	28-08-2020	(S-I)	The need for computer forensics, Cyber forensics and digital evidence, forensics analysis of Email.	JayaPrasad . Botsa Senior Associate, Cyber Risk, Kroll
10		(S-II)	Digital forensics Lifecycle, Forensics Investigation, Challenges in Computer forensics,	JayaPrasad . Botsa Senior Associate, Cyber Risk, Kroll
11	29-09-2020	(S-I)	Special Techniques for forensics Auditing, Case Studies.	Mr Ch A S Murty/ Mrs Indravani, C-DAC, Hyderabad
12		(S-II)	Major forensic tools demonstration.	MS.Anjana Scientific Officer TS-Forensic Science Lab

S-I: 3:00 PM -4:30 PM

&

S-II :5:00 PM -6:30PM

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Tentative Timetable

UNIT-III: Cyber Crime: Mobile and wireless Devices

13		(S-I)	Introduction ,Proliferation of mobile and wireless devices, Trends in mobility	Dr Sastry, Professor, IDRBT, Hyderabad
14	31-08-2020	(S-II)	Credit card Frauds in mobile and wireless computing Era.	Dr Rajarshi Pal Asst.Professor& Joint Director, Centre of Excellence in Cyber Security IDRBT
15	01-09-2020	(S-I)	Security Challenges posed by Mobile Devices, Registry settings for mobile devices.	Ms.Anjana Scientific Officer TS-Forensic Science Lab
16		(S-II)	Authentication service security, Attacks on Mobile/cell phones,	Ms.Anjana Scientific Officer TS-Forensic Science Lab
17	02-09-2020	(S-I)	Mobile Devices: Security Implications for organizations. Organizational measures for handling mobile,	Expert from TCS
18		(S-II)	Organizational Security Polices and measures in mobile Computing Era, Laptops.	Expert from CoE in cyber security, Data Security Council of India

S-I: 3:00 PM -4:30 PM

&

S-II :5:00 PM -6:30PM

**15 day FDP on “CYBER SECURITY”
(24-08-2020 to 09-09-2020)**

Tentative Timetable

UNIT-IV: Cyber Security: Organizational Implications				
19	03-09-2020	(S-I)	Introduction, Cost of Cyber crimes and IPR issues,	Dr G.B Reddy Professor, University College of Law, OU
20		(S-II)	Web threats for organizations, Security and privacy implications.	Expert from EC-Council
21	04-09-2020	(S-I)	Social media Marketing: Security risks and perils for organizations, Social computing and the associated challenges for organizations.	Prof K.Shyamala Professor in CSE & Chair Person, BoS, OU
22		(S-II)	Trends in Cyber crimes in India and case studies	Sri CH. Y. Srinivas Kumar Asst. Commissioner of Police, Cyber Crimes, Cyberabad.
23	05-09-2020	(S-I)	Cyber Terrorism: Introduction. Intellectual Property in the Cyber space, the ethical dimension of cyber crimes the psychology	Mr Ch.A.S. Murty, Associate Director, C-DAC, Hyderabad
24		(S-II)	Mindset and skills of hackers and other cyber criminals	Mr Ch.A.S. Murty, Associate Director, C-DAC, Hyderabad
S-I: 3:00 PM -4:30 PM & S-II :5:00 PM -6:30PM				

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(24-08-2020 to 09-09-2020)**

Tentative Timetable

UNIT-V: Privacy Issues: Basic Data Privacy Concepts				
25	07-09-2020	(S-I)	Basic Data Privacy Concepts: Fundamental Concepts, Data Privacy attacks. Data linking and profiling,	Expert from CoE in cyber security, Data Security Council of India
26		(S-II)	Privacy policies and their specifications Privacy policy languages, Privacy in different domains –Medical, Financial, et.	Swamy Tadikonda, PGP SP Jain Director, VSPRO
Cyber Crime: Examples and Mini –Cases				
27	08-09-2020	(S-I)	Official website of Maharashtra Government Hacked, Indian banks, Loss of millions of Rupees	Pavan Thota, Head, Engineering and Industrial Services, TCS
28		(S-II)	Parliament attack, Pune city police bust Nigerian racket, e-mail spoofing instances.	Dr.K.V.K.Santhy Associate Professor of Criminal Law Proctor, NALSAR University of Law
29	09-09-2020	(S-I)	Mini-Cases: The Indian case of online gambling	Mr Ch A S Murty/ Mr Nandeswar/ Mrs Indravani, CDAC.
30		(S-II)	An Indian case of Intellectual property crime, Financial frauds in Cyber Domain.	Pavan Thota, Head, Engineering and Industrial Services, TCS
S-I: 3:00 PM -4:30 PM & S-II :5:00 PM -6:30PM				