Maharashtra State Board of Technical Education, Mumbai **K-2**

LABORATORY PRACTICAL PLANNING (LP)

Academic Year: 2025-26 (EVEN) **Date: 15/12/2025**
Institute Name: K. K. Wagh Polytechnic, Nashik **MSBTE Code:** 0078
Program and Code: Information Technology (IF) **Course Code &. Abbr.:** 314319 (INS)
Course Name: Information Security **Course Index:** 404 **Learning Hrs.** 30
Name of Faculty: Ms. S. P. Chivate **Semester:** 4th **Scheme:** K
CLASS: SYIF (Cray)

• Teaching-Learning & Assessment Scheme:

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme					Credits	Assessment Scheme										
				Actual Contact Hrs./Week			SLH	NLH		Paper Duration	Theory				Based on LL & TL				Based on SL		Total Marks
															Practical						
				CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
											Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
314319	INFORMATION SECURITY	INS	AEC	3	-	2	1	6	3	3	30	70	100	40	25	10	25@	10	25	10	175

Abbreviations: CL- Class Room Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS – Indian Knowledge System, SLA - Self Learning Assessment
Legends: @ Internal Assessment, # External Assessment, *# on Line Examination, @$ Internal Online Examination

- **COURSE LEVEL LEARNING OUTCOMES (COS)**

By learning course **Information Security (INS-314319)** Second Year students will be able to achieve & demonstrate the following COs on completion of course based learning.

- CO1 - Identify types of attacks which causes threat to Information Security.
- CO2 - Apply multi-factor user authentication and access control mechanisms on file, folder, device and applications.
- CO3 - Apply basic encryption / decryption techniques for a given text.
- CO4 - Apply various encryption algorithms used for information security.
- CO5 - Implement security techniques to prevent internet threats.

• COs, Practical Laboratory Learning Outcome (LLOs) and Mapping:

Pr. No	LLO	Name of Experiments/Assignment/ Sheet/ Job/ Project Activity	Planned Date	Performance Date	Remark	Related self-learning (if any)
1	LLO 1.1 LLO 1.2	*i. Install and configure Antivirus software on system (Licensed copy) ii. Use privacy and security settings on operating system	A-19/12/2025 B-18/12/2025 C-15/12/2025	A- B- C-		

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• COs, Practical Laboratory Learning Outcome (LLOs) and Mapping:

Pr. No	LLO	Name of Experiments/Assignment/ Sheet/ Job/ Project Activity	Planned Date	Performance Date	Remark	Related self-learning (if any)
2	LLO 2.1	* i. Set up single level authentication for computer system ii.Recover the password of computer system using any freeware password recovery tool (Example- John the ripper)	A-19/12/2025 B-18/12/2025 C-22/12/2025	A- B- C-		
3	LLO 3.1	*i.Grant security to file, folder or application using access permissions and verify it ii.Grant access permission while sharing file and folder	A-26/12/2025 B-25/12/2025 C-29/12/2025	A- B- C-		
4	LLO 4.1	Write a utility using C/Shell programming to create strong password authentication (Password should be more than 8 characters, and combination of digits, letters and special characters #, %, &, @)	A-02/01/2026 B-01/01/2026 C-05/01/2026	A- B- C-		
5	LLO 5.1	*i. Write a C program to implement Caesar cipher technique to perform encryption and decryption of text ii.Apply Caesar cipher technique to perform encryption and decryption of text using any open-source tool (Example - Cryptool)	A-09/01/2026 B-08/01/2026 C-05/01/2026	A- B- C-		

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• COs, Practical Laboratory Learning Outcome (LLOs) and Mapping:

Pr. No	LLO	Name of Experiments/Assignment/ Sheet/ Job/ Project Activity	Planned Date	Performance Date	Remark	Related self-learning (if any)
6	LLO 6.1	i. Implement Vernam cipher encryption technique to perform encryption of text using C programming language ii.Apply Vernam cipher technique to perform encryption and decryption of text using any open-source tool (Example - Cryptool)	A-16/01/2026 B-15/01/2026 C-12/01/2026	A- B- C-		
7	LLO 7.1	* Implement rail fence encryption technique to perform encryption of text using C programming language	A-23/01/2026 B-22/01/2026 C-19/01/2026	A- B- C-		
8	LLO 8.1	Implement simple Columnar Transposition encryption technique to perform encryption of text using C programming language	A-30/01/2026 B-22/01/2026 C-19/01/2026	A- B- C-		
9	LLO 9.1	Create and verify Hash Code for given message using any Open-source tool. (Example-Cryptool)	A-06/02/2026 B-05/02/2026 C-02/02/2026	A- B- C-		
10	LLO 10.1	i. Write a C program to implement Diffie-Hellman key exchange algorithm to perform encryption of text ii.Use Diffie-Hellman key exchange algorithm to perform encryption and decryption of text using any open-source tool (Example - Cryptool)	A-13/02/2026 B-12/02/2026 C-09/02/2026	A- B- C-		

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• COs, Practical Laboratory Learning Outcome (LLOs) and Mapping:

Pr. No	LLO	Name of Experiments/Assignment/ Sheet/ Job/ Project Activity	Planned Date	Performance Date	Remark	Related self-learning (if any)
11	LLO 11.1	* Use Steganography to encode and decode the message using any open-source tool (Example-OpenStego)	A-20/02/2026 B-19/02/2026 C-16/02/2026	A- B- C-		
12	LLO 12.1	* Create and verify digital signature using any Open-source tool (Example-Cryptool)	A-27/02/2026 B-26/02/2026 C-23/02/2026	A- B- C-		
13	LLO 13.1	* Configure firewall settings on any operating system	A-06/03/2026 B-05/03/2026 C-02/03/2026	A- B- C-		
14	LLO 14.1	Send a test mail securely using any open-source tool (Example-Pretty Good Privacy with GnuPG)	A-13/03/2026 B-12/03/2026 C-09/03/2026	A- B- C-		
15	LLO 15.1	Set up security policies for any web browser and Email account (Example: setting filter, spam for email security. Low security apps settings, cookies, synchronization for web browser))	A-20/03/2026 B-19/03/2026 C-16/03/2026	A- B- C-		
		*Trace the path of website using tracert utility	A-27/03/2026 B-26/03/2026 C-29/03/2026	A- B- C		

ASSESSMENT METHODOLOGIES/TOOLS

A. Formative assessment (Assessment for Learning) (FA-TH)

- Continuous assessment based on process and product related performance indicators. Each practical will be assessed considering
  - 60% weightage is to process
  - 40% weightage to product

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B. Summative Assessment (Assessment of Learning) (SA-TH)

- End semester examination, Lab performance, Viva voce

SUGGESTED MICRO PROJECT / ASSIGNMENT/ ACTIVITIES FOR SPECIFIC LEARNING /SKILLS DEVELOPMENT (SELF LEARNING)

Micro project

- User A wants to send message to user B securely on network.
  i. Select any two techniques to encrypt message.
  ii. Implement both the techniques.
  iii. Evaluate result of implementation.
  iv. Compare complexity of both techniques.
  v. Prepare report.

- Prepare admin level report of company who wants to implement allocate fixed system to each employee for authentic access to maintain security.
  i. Explain various single level authentication method available to access the system.
  ii. Analyse the weakness and security threats to this problem.
  iii. Suggest multi factor authentication for given problem situation.
  iv. Compare impact of single and multi-factor authentication on given situation.

- A bank has more than 1000 user accounts. Around 100 users received message regarding deduction of specific amount without intimation and after that all authorized user are not able to access online banking service of that bank.
  i. Identify type of crime and attack.
  ii. Write procedure to investigate that crime.
  iii. Write preventive measure to avoid such type of attack in future.
  iv. Write punishment of such type of attacks and state cyber law act.
  v. Write a report

- Case study on Cyber Crime in Social Engineering in India.
  i. Explain various Social Engineering attacks.
  ii. Select topic for case study.
  iii. Write problem statement of attack.
  iv. Write procedure to investigate that attack.
  v. Write a report.

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- **Assignment**
  Teacher shall give assignments covering all COs.

- **Other**
  Complete any one course related to Information Security and Cyber Crime on Infosys Springboard, Virtual Lab, and NPTEL.

Ms. S. P. Chivate
(Name & Signature of Staff)

Ms. M. S. Karande
(Name & Signature of HOD)