LECTURE PLAN

Institute/Department	UNIVERSITY INSTITUTE OF ENGINEERING (UIE)	**Program**	**Bachelor of Engineering - Computer Science & Engineering (CS201)**
Master Subject Coordinator Name:	Pooja Kaplesh	**Master Subject Coordinator E-Code**:	**E7943**
Course Name	Web and Mobile Security	**Course Code**	**20CST-333**

Lecture	Tutorial	Practical	Self Study	Credit	Subject Type
2	0	0	0	2.0	T

Course Type	Course Category	Mode of Assessment	Mode of Delivery
Program Elective	Graded (GR)	Theory Examination (ET)	Theory (TH)

Mission of the Department	MD1: To provide practical knowledge using state-of-the-art technological support for the experiential learning of our students. MD2: To provide an industry-recommended curriculum and transparent assessment for quality learning experiences. MD3: To create global linkages for interdisciplinary collaborative learning and research. MD4: To nurture an advanced learning platform for research and innovation for students' profound future growth. MD5: To inculcate leadership qualities and strong ethical values through value-based education.
Vision of the Department	"To be recognized as a leading Computer Science and Engineering department through effective teaching practices and excellence in research and innovation for creating competent professionals with ethics, values, and entrepreneurial attitude to deliver service to society and to meet the current industry standards at the global level."

Program Educational Objectives(PEOs)	
PEO1	PEO1 Graduates of the Computer Science and Engineering will contribute to the Nation's growth through their ability to solve diverse and complex computer science and engineering problems across a broad range of application areas. (PEO1 is focused on Problem Solving)
PEO2	PEO2 Graduates of the Computer Science and Engineering will be successful professionals, designing and implementing Products & Services of global standards in the field of Computer Science & Engineering, becoming entrepreneurs, Pursuing higher studies & research. (PEO 2 is focused on Professional Success)
PEO3	PEO3 Graduates of the Computer Science and Engineering Program will be able to adapt to changing scenario of dynamic technology with an ability to solve larger societal problems using logical and flexible approach in decision making. (PEO 3 is focused on Attaining Flexibility and Adaptability)

Program Specific OutComes(PSOs)	
PSO1	PSO1 Exhibit attitude for continuous learning and deliver efficient solutions for emerging challenges in the computation domain.
PSO2	PSO2 Apply standard software engineering principles to develop viable solutions for Information Technology Enabled Services (ITES).

Program OutComes(POs)	
PO1	PO1 Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
PO2	PO2 Problem analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
PO3	PO3 Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural, societal, and environmental considerations.
PO4	PO4 Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.
PO5	PO5 Modern tool usage: Create, select, and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	PO6 The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7	PO7 Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PO8	PO8 Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	PO9 Individual or teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	PO10 Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
PO11	PO11 Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	PO12 Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context to technological change.

Text Books

Sr No	Title of the Book	Author Name	Volume/Edition	Publish Hours	Years
1	Hacking Exposed Web Applications	Joel Scambray, Vincent Liu, Caleb Sima	3	McGraw-Hill	2010
2	Hacking Exposed Mobile: Security Secrets & Solutions	Neil Bergman, Mike Stanfield, Jason Rouse, and Joe	1	McGraw Hill	2013

Reference Books

Sr No	Title of the Book	Author Name	Volume/Edition	Publish Hours	Years
1	The Web Application Hacker's Handbook Discovering and Exploiting Security Flaws	Dafydd Stuttard, Marcus Pinto	2	Wiley Publishing	2011
2	Wireless and Mobile Network Security	Pallapa Venkataram, Satish Babu	1	Tata McGraw Hill,	2010
3	Web Application Security, Exploitation and Countermeasures for Modern Web Applications	Andrew Hoffman,	1	O'Reilly Media, Inc.	2020

Course OutCome

SrNo	OutCome
CO1	Understanding the modern concept and foundation of web and Mobile security
CO2	Familiarize with the issues and technologies involved in designing a wireless and mobile system that is robust against various attacks.
CO3	Identify network vulnerability, emphasis on ethics, social engineering vulnerabilities and training.
CO4	Understand principles of web security and to guarantee a secure network by monitoring and analyzing the nature of attacks through cyber/computer forensics software/tools.
CO5	To gain knowledge of the tools, techniques and ethical issues likely to face the domain of ethical hacking and ethical responsibilities.

Lecture Plan Preview-Theory

Unit No	LectureNo	ChapterName	Topic	Text/ Reference Books	Pedagogical Tool**	Mapped with CO Numer (s)
1	1	Chapter1	Web Fundamentals – HTML, HTTP	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO1
1	2	Chapter1	Client-side scripting, Server-side scripting	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO1
1	3	Chapter2	Web server architecture - Windows & Linux	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO2
1	4	Chapter2	IIS and LAMP servers	,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO1
1	5	Chapter2	Network topologies and DMZ	,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO1
1	6	Chapter3	Mobile Security Fundamentals-Introduction to Mobile Security	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO2

1	7	Chapter3	Building Blocks – Basic security and cryptographic techniques.	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO2
1	8	Chapter3	Basic security and cryptographic techniques.	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO2
2	9	Chapter1	Web applications: Introduction to web applications, Web application hacking	,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO2
2	10	Chapter1	Overview of browsers, extensions, and platforms.	,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO2
2	11	Chapter1	Mobile applications and Models: Mobile Malware and App Security	,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO2
2	12	Chapter1	Android Security Model , IOS Security Model , Security Model of the Windows Phone	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO2
2	13	Chapter2	Web Security-Attacks, detection evasion techniques for the most popular web platforms, including IIS, Apache, PHP, and ASP.NET	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO3

2	14	Chapter2	countermeasures for the most popular web platforms, including IIS, Apache, PHP, and ASP.NET	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports, Simulation,Video Lecture	CO3
2	15	Chapter2	Attacks and countermeasures for common web authentication mechanisms, including password-based, multifactor (e.g., CAPTCHA),	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports, Simulation,Video Lecture	CO3
2	16	Chapter2	online authentication services like Windows Live ID.	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports, Simulation,Video Lecture	CO3
2	17	Chapter3	Mobile Security-Security of GSM Networks, Security of UMTS Networks, LTE Security	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports, Simulation,Video Lecture	CO4
2	18	Chapter3	Wi-Fi and Bluetooth Security, SIM/UICC Security.	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports, Simulation,Video Lecture	CO4
2	19	Chapter3	Wi-Fi and Bluetooth Security, SIM/UICC Security.	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports, Simulation,Video Lecture	CO3
3	20	Chapter1	Advanced session analysis, hijacking, and fixation techniques	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports, Simulation,Video Lecture	CO4

3	21	Chapter1	Cross-site scripting, SQL injection	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO4
3	22	Chapter1	classic categories of malicious input, Overlong input (like buffer overflows)	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO4
3	23	Chapter1	canonicalization attacks (like the infamous dot-dot-slash), and meta characters (including angle brackets, quotes, single quote, double dashes, percent, asterisk, underscore, newline, ampersand, pipe, and semicolon)	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO4
3	24	Chapter1	beginner-to-advanced SQL injection tools and techniques, stealth-encoding techniques and input validation/ output-encoding countermeasures.	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO5
3	25	Chapter2	Emerging Trends in Mobile Security-Mobile Geo-location and Mobile Web Security	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO5
3	26	Chapter2	Security of Mobile VoIP Communications.	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO4
3	27	Chapter3	Web services vulnerabilities discovery and XSS Attack	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO3

3	28	Chapter3	input injection, external entity injection, and XPath injection	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO3
3	29	Chapter3	Web application management attacks against remote server management, Web browser exploits	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO5
3	30	Chapter3	web content management/authoring, admin misconfigurations, and developer-driven mistakes	,T-Hacking Exposed Mobile: Securi,T-Hacking Exposed Web Applicatio,R- The Web Application Hacker's ,R-Web Application Security, Expl,R-Wireless and Mobile Network Se	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Reports,Simulation,Video Lecture	CO4

Assessment Model			
Sr No	Assessment Name	Exam Name	Max Marks
1	20EU01	External Theory	60
2	20EU01	Assignment	10
3	20EU01	Attendance Marks	2
4	20EU01	Mid-Semester Test-1	40
5	20EU01	Quiz	4
6	20EU01	Surprise Test	12
7	20EU01	Mid-Semester Test-2	40

CO vs PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CO2	3	NA	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	2
CO3	NA	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	2
CO4	NA	NA	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CO5	NA	3	NA	2	NA	NA	NA	NA	NA	NA	NA	NA	3	2
Target	3	3	3	2	NA	NA	NA	NA	NA	NA	NA	NA	3	2