

Branch Name:	Master of Technology (Cyber Security)
Program Code	ET207
Course Title:	Android Security
Course Code:	2ET2070303T
Pre-requisite:	Basic Detail Android Programming

Course Objective: This course aims to provide students with comprehensive knowledge and practical skills in securing Android applications and devices. Through a combination of theoretical lessons and hands-on exercises, students will learn to identify vulnerabilities, implement security measures, and perform penetration testing on Android application

Teaching and Examination Scheme:

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								Total (Marks)
					Theory (Marks)				Practical (Marks)				
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
3	3	-	-	3	24	60	16	40	-	-	-	-	100

Course Contents:

Sr. No	Topic	Total Hours	Weight (%)
1	Introduction and Android Security Architecture : Permissions Introduction Android Platform Architecture Android Security Architecture Application Signing Installing Levels of Permissions Protection Application - Level Permissions Component - Level Permissions Extending Android Permissions	10	25
2	Managing the Policy File Introduction The Manifest File ,Manifest Tag Attributes ,Application Tag Attributes , Modifying the Application Policy Application Running with the Same Linux ID, Setting Application Permissions ,Permissions for External Applications, External Storage Debugging Mode, Backup	9	25
3	Users' Data Privacy and Protection Introduction Data Security Principles Integrity ,Availability ,Confidentiality The Mobile Environment , Data States ,Vulnerabilities and Attacks Against Stored Data ,Vulnerabilities of Stored Data ,Threats on Stored Data ,Protection Principles	8	20
4	Client-Server communication security Threats Facing Devices Transferring Data. Protecting web transferred data. Input Validation. Prevent Command Injection.	8	20
5	Securing Storage Data Storage Decisions , Privacy, Data Storage Period ,Storage Mechanisms, File Operations on an External Storage Cache Database	7	10

List of References:

1. Android Security Analysis" by Y. Liu et al. (2019)
2. Android Open Source Project (AOSP) - Security
3. Android Developers - Security
4. Android Security Bulletin
5. OWASP - Mobile Security Testing Guide
6. Google Android Security Rewards Program
2. A Study on Android Security" by A. K. Singh et al. (2020)
3. Android Security Threats and Countermeasures" by S. Lee et al. (2018)

Online Resource:

- "Android Security: A Practical Guide" by Jeffrey L. Martin - Publication date: 2019 ¹
- "Android Security Internals" by Nikolay Elenkov - Publication date: 2014 ²
- "Hacking Android" by Carlos M. Penagos - Publication date: 2016 ³

Course Learning Outcomes (CLO):

CLO	Description	Bloom's Taxonomy Level
CLO1	Define Android security architecture and its components	1 Remembering
CLO2	Explain Android security threats and risks Use tools and techniques for Android security testing and penetration testing	2 Understanding 3 Applying,
CLO3	Analyze and identify vulnerabilities in Android applications and devices	5 Evaluate, 4 Analyze
CLO4	Assess the effectiveness of Android security measures Develop and implement Android security policies and procedures	5 Evaluate, 3. Applying,
CLO5	Develop and present a comprehensive Android security plan	6 Creating

Mapping of CLOs with POs & PSOs

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes(PSOs)			
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2	PSO 3	PS O4
CLO1	M	M			M	M							H	M	M	
CLO2	M	H		M		M							L	M	M	
CLO3	M	H	H	H		M							L	M	M	
CLO4		M		H		M							M	M	M	
CLO5		M		H	L	M	M				L	L	M	H	H	

H: High, M: Medium, L: Low