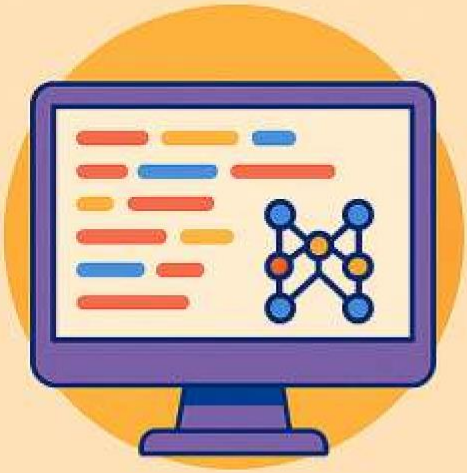
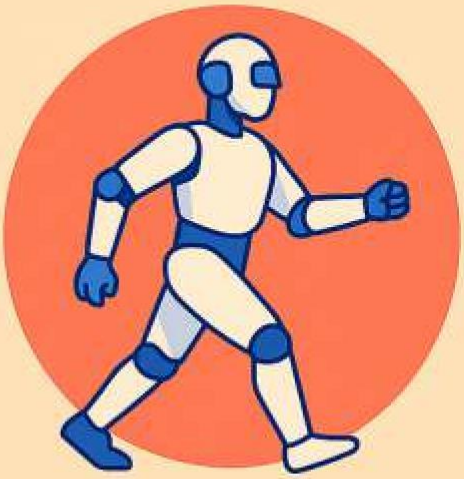
SHARDA UNIVERSITY
Beyond Boundaries

NAAC A+ ACCREDITED

SHARDA SCHOOL OF COMPUTING SCIENCE & ENGINEERING





COURSE

Kotlin for Android Application Development (CSCR9900)

VALUE ADDED
Course Brochure
2025-26

ABOUT THE UNIVERSITY

Sharda University envisions serving society by being a global University of higher learning in pursuit of academic excellence, innovation, and nurturing entrepreneurship. It has 13,000+ students from 95+ countries, 29 states, and Union Territories, providing cultural diversity and global exposure to students. It has 26000+ alumni who are today leaders in their realms. Sharda University is a NAAC A+ University with an Overall NIRF Rank of 86. The Teaching Learning Center at Sharda University is to equip the faculty members with the expertise, skills, and knowledge they need for capacity building of students. Teaching as a profession requires highly specialized skills and knowledge to have a significant impact on student learning; therefore, teachers must continually refine their conceptual and pedagogical skills.

ABOUT SCHOOL

Sharda School of Computing Science & Engineering is an open platform for diverse voices where teaching runs parallel to the real world, and students are groomed to join the global workforce. SSCSE is distinguished as one of the top-ranked engineering schools in India. The students at SSCSE benefit through the professional grooming of renowned faculty and industry experts who have experience in tackling pressing engineering problems. Students discover their passion in one of the various offered Engineering majors at the Sharda School of Computing Science & Engineering. A student-centric pedagogy, project-based approach, and design-driven curriculum provide students with an inclination for complex problem-solving, design, innovation, and a passion for learning.

ABOUT DEPARTMENT

The Department of Computer Science & Engineering strives to equip faculty and students with all the computing resources needed to address a wide range of scientific, technological, and socially complex problems. The department imparts technical education for designing quirky technological applications and innovations. The department aims to become a center of excellence and impart knowledge to intellectual professionals so as to equip them with the requisite skills as per Industry standards. The department aims to foster an innovative research environment by providing a supportive, amiable, and challenge-based learning culture. The department utilizes high-performance computing equipment and facilities to impart state-of-the-art technical knowledge to students and instill a desire to pursue lifelong learning. To emerge as a world-class department, we focus on innovative research and quality learning in computer science applications that prepare entrepreneurs and professionals to lead the social, economic, and technical development of society. The Value Added Education Courses aim to provide additional learner-centric centric graded skill skill-oriented training, with the primary objective of improving the employability skills of students.

VALUE ADDED COURSE (VAC)

The Value Added Courses aim to provide additional learner-centric centric graded skill skill-oriented training, with the primary objective of improving the employability skills of students. The value added course on Kotlin for Android Application Development enables students to build modern, robust, and efficient Android apps using Kotlin, the official language for Android development. It teaches core programming concepts, Android Studio setup, UI design, activity lifecycle, and handling user input. Students learn how to work with layouts, navigation, databases (Room), and APIs, as well as implement features like notifications and background tasks. The course emphasizes clean code practices, object-oriented programming, and real-world project development. By the end, students are equipped with the skills to create, test, and publish professional Android applications using Kotlin.

PURPOSE OF VALUE ADDED COURSE

VACs are pertinent instructional strategies designed to close knowledge gaps in students and provide them a competitive edge in the job market. The courses' well-defined structure makes these VACs highly effective in enhancing students' employability quotient by developing diverse competencies. They help students lay the creative groundwork for passion projects (such as interactive dashboards, business analytics, or sector-specific visual reports) beyond their core academic curriculum, offering skills that can transform their enthusiasm into career opportunities.

RESOURCE PERSON

Ms. Jyoti Pruthi, Assistant Professor in the Sharda School of Computing Science & Engineering at Sharda University. She has done M. Tech in Computer Science and Engineering from UIET, Maharishi Dayanand University, Rohtak, and BTech from Vaish College of Engineering, Rohtak. She is pursuing my Ph.D. in Computer Science and Engineering. She is specialized in programming languages like C, C++, Java, Python, Kotlin, TOC, Compiler Design, and Android Application development. She has also published and presented 7 research papers in journals and conferences. She is Gate qualified three times (2014, 2015, and 2016) and UGC net qualified two times (2017, 2018).

COURSE SCHEDULE

Week	Topic	Duration Hrs.
1	Variables, Operations and Priorities, Decision Making, Loop Control	2
2	Collections and Strings, Functions	2
3	Object Oriented Programming, Storage and Files	2
4	What is Activity? Activity Life Cycle	2
5	The ManifestFile.xml, Layout Resources	2
6	Project File and Folder	2
7	Button, Checkbox, Spinner, Radio Group, Rating Bar, Switch	2
8	Layouts: Linear, Frame, Table, Constraint	2
9	Composite Views: ListView, GridView, ScrollView, WebView	2
10	ImageView, ImageButton	2
11	Media Controller, VideoView, Audio	2
12	Menus and Dialogs: Option Menu, Context Menu	2
13	Popup Menu, Alert Dialog, Progress Dialog	2
14	Location-based Services	2
15	SMS in Applications	2
16	Web APIs and Firebase Integration	2
Total		**32 h**

School: Sharda School of Computing Science & Engineering, (Department of Computer Science & Engineering) **Program:** M. Tech CSE **Semester:** III **Batch:** 2024-26 **Current Academic Year:** 2025-26		
1. Course Code	CSCR7900	
2. Course Title	**Kotlin for Android Application Development**	
3. Credits	0	
4. Contact Hours (L-T-P)	30 Hours	
Course Type	Value added course	
5. Course Objective	1. Introduce the basics of Kotlin programming for Android app development. 2. Familiarize students with Android activities, UI components, media handling, and cloud integration. 3. Enable learners to build basic Android applications using Kotlin and integrate key features.	
6. Course Outcomes	The students will be able to: **CO1**: Understand and implement Kotlin basics, including variables, loops, and decision-making structures. **CO2**: Apply object-oriented programming, collections, and functions in Kotlin. **CO3**: Set up Android Studio and explain Android component structures and activity lifecycle. **CO4**: Create user interfaces using Android layouts and standard UI components. **CO5**: Incorporate images, media, menus, and dialog boxes into Android applications. **CO6**: Integrate location services, SMS, APIs, and Firebase into applications.	
7. Course Description	This course provides a foundational understanding of Kotlin programming for Android app development. It covers programming constructs, UI design, media integration, and cloud-based services. Learners will gain hands-on experience in creating functional Android apps with real-world components.	
8. Outline syllabus		CO Mapping
Unit 1	**Introduction and Set Up the Environment**	
A	Variables, Operations and Priorities, Decision Making, Loop Control	CO1
B	Collections and Strings, Functions	CO1
C	Object Oriented Programming, Storage and Files	CO1
Unit 2	**Introduction To Application Component**	
A	What is Activity? Activity Life Cycle	CO2
B	The ManifestFile.xml, Layout Resources	CO2
C	Project File and Folder	CO2
Unit 3	**Android Components**	
A	Button, Checkbox, Spinner, Radio Group, Rating Bar, Switch	CO3, CO4
B	Layouts: Linear, Frame, Table, Constraint	CO3, CO4
C	Composite Views: ListView, GridView, ScrollView, WebView	CO3, CO4
Unit 4	**Image and Media**	
A	ImageView, ImageButton	CO5
B	Media Controller, VideoView, Audio	CO5
C	Menus and Dialogs: Option Menu, Context Menu, Popup Menu, Alert Dialog, Progress Dialog	CO5
Unit 5	**Application Environment**	
A	Location-based Services	CO6
B	SMS in Applications	CO6
C	Web APIs and Firebase Integration	CO6
Mode of examination	Jury/Practical/Viva	**Text Books** 1. Josh Skeen & David Greenhalgh – Kotlin Programming: The Big Nerd Ranch Guide. 2. John Horton – Android Programming with Kotlin for Beginners.
Reference Books		