Teilmodul	TM–Kurzbezeichnung
KNCF: Native and Cross–Platform Framework in Mobile Application Development	KNCF
Verantwortliche/r	Fakultät
Prof. Dr. Markus Westner	Informatik und Mathematik
Lehrende/r / Dozierende/r	Angebotsfrequenz
Dr. Amir Rahiman	
Lehrform	
Seminaristischer Unterricht und Übungen	

Studiensemester gemäß Studienplan	Lehrumfang [SWS oder UE]	Lehrsprache	Arbeitsaufwand [ECTS-Credits]
3. / 4. / 6. / 7.	4 SWS	englisch	5

Zeitaufwand:

Präsenzstudium	Eigenstudium
60h	90h

Studien- und Prüfungsleistung
Kl. u./o. StA. u./ o. mdl. LN

Inhalte
Lecture topics 1)Mobile application ecosystems 2)Mobile application development 3)Dart programming 4)Laying out widgets 5)Standard library – Plugins and packages 6)Network, storage I/O and navigation 7)Database in mobile application 8)Testing and debugging 9)Application deployment   Lab 1)Native application development framework configuration 2)Application on hardware devices 3)Layout and Graphical user interface (GUI) – Frontend development 4)Database application – Backend development 5)Built-in packages and plugins 6)Custom-made Package development 7)Application distribution

Lernziele: Fachkompetenz
Nach der erfolgreichen Absolvierung des Teilmoduls sind die Studierenden in der Lage, 1) Compare suitable tools, framework, design, and architecture for native and cross-platform mobile application development (2). 2) Design and develop a real mobile application using an appropriate development framework as a team (3). 3) Deploy the application to the marketplace for digital distribution (3).

Lernziele: Persönliche Kompetenz
Nach der erfolgreichen Absolvierung des Teilmoduls sind die Studierenden in der Lage, 1) Gain competence the concept, architecture, framework, interface design, technique, and methodology of mobile application development (3). 2) Proficient the successful practice in developing an application for the current mobile business market by using the recent cross-platform mobile application development solutions (3). 3) Efficient and skillful to use the Flutter SDK framework in designing and developing a range of mobile applications (3).

Lehrmedien
1. Lecturing (Face-to-face and online) • Slaid presentation • Textbooks – available in the library catalog • Visual aid – projector, laptop 2. Lab exercises/practical – VS Code and Android Studio • Computer/laptop preinstalled with the Flutter SDK • Computer lab with the Internet facility

Literatur
[1] P. Nawrocki, K. Wrona, M. Marczak, and B. Sniezynski. A Comparison of Native and CrossPlatform Frameworks for Mobile Applications. Computer, 54(3), 18-27 (2021) [2] D. Inupakutika, S. Kaghyan, D. Akopian, P. Chalela, and A.G. Ramirez. Facilitating the development of cross-platform mHealth applications for chronic supportive care and a case study. Journal of biomedical informatics, 105, p.103420 (2020). [3] K. Vassallo, G. Lalit, P. Vijay, and K. Ramesh. "Contemporary technologies and methods for cross-platform application development." Journal of Computational and Theoretical Nanoscience 16, no. 9, 3854-3859 (2019) [4] A. Biørn-Hansen, C. Rieger, T. M. Grønli, T. A. Majchrzak, and G. Ghinea, An empirical investigation of performance overhead in crossplatform mobile development frameworks. Empirical Software Engineering, 25, pp.2997-3040 (2020) [5] . I. Swarna, P. James, and A. Randy. "CrossPlatform Analysis and Development of Online Catering Platform (Kunyahku)." Journal of Applied Information, Communication and Technology 7, no. 2, 79-89 (2020). [6] S. Roubi, M. Erramdani and S. Mbarki, "A Model Driven Approach for generating Graphical User Interface for MVC Rich Internet Application.," Computer and Information Science, vol. 9, p. 91– 98, 2016.

Die Zahlen in Klammern geben die zu erreichenden Niveaustufen an: 1 - kennen, 2 - können, 3 - verstehen und anwenden