Subject code: M.3(2)	**Subject name:** Architecture of Mobile Application		
Study load: 2 ECTS	**Load of contact hours:** 50	**Study semester:** Spring	**Assessment:** 5-points grade credit
Objectives:	The purpose of the course is to consider the features of the architecture of mobile applications, the basics of building user interfaces, working with local storage, synchronization, plugins and security. The course discusses the differences between mobile application architecture and web applications. The purpose of the course is to study existing approaches to the design of architecture of mobile software applications, as well as complexes and tools for developing and supporting documentation of software systems.		
Course outline:	Topics covered: 1. Mobile Application Architecture 2. Client-Server 3. Connection Types 4. Synchronization 5. Simple architectural design patterns 6. Good Architectural Design Tenets. 7. Minimum viable architecture (MVA) 8. MVC, Viper 9. Converting to MVP 10. Mobile Infrastructure. 11. Mobile Device Types. 12. Mobile Device Components. 13. Mobilizing Existing Application Architectures. 14. Evolution of Enterprise Architectures. 15. Anatomy of an Enterprise Web Architecture. 16. Considerations When Mobilizing Existing Applications. 17. Local storage 18. Basic synchronization patterns 19. Basic components of the mobile interface 20. A mobile plugins integration 21. The basics of mobile security 22. User-to-Mobile Client Security Issues. 23. Mobile Client Security Issues. 24. Client-Server Communications Security Issues.		
Learning Outcomes:	At the end of the course, the student should be able to design and evaluate the architecture of mobile applications of medium complexity.		

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<tr><td></td><td>Students will be:

1. Know basic architectural patterns.
2. Find the best fit for their next project.
3. Have a clear big picture over mobile development solutions.
4. Have a solid understanding of how mobile technologies compare.
5. Understand and use local storage.
6. Know basic synchronization patterns and how to use them.
7. Correctly create and organize the components of the mobile interface.
8. Integrate and use mobile plugins.
9. Understand the basics of mobile security.</td></tr>
<tr><td>Assessment Methods:</td><td>Assessment is split into two parts: individual tasks and group project in the end of the course.</td></tr>
<tr><td>Teacher(s):</td><td>Svetlana Bolotova</td></tr>
<tr><td>Prerequisite subject(s):</td><td>None</td></tr>
<tr><td>Compulsory Literature:</td><td>Sivakumar, Shailesh K, Srivastava, Sumit. Introduction to Mobile Architecture. Indira Gandhi National Open University (IGNOU). 2017.</td></tr>
<tr><td>Replacement Literature:</td><td>Valentino Lee, Heather Schneider, Robbie Schell. Mobile Applications: Architecture, Design, and Development: Architecture, Design, and Development 1st Edition. Prentice Hall; 1 edition. 2004.

Brian Fling, Mobile Design and Development: Practical Concepts and Techniques for Creating Mobile Sites and Web Apps. O'Reilly Media; 1 edition. 2009.</td></tr>
<tr><td>Participation requirements:</td><td>Lower limit of lectures attendance is 80%, each task and group project must be presented by end of the course.</td></tr>
<tr><td>Independent work:</td><td>Project Management.
Code Development and Integration.
Integration and System Testing.
Deployment and Release Management.
The final project.</td></tr>
<tr><td>Grading criteria scale or the minimal level necessary for passing the subject:</td><td><table><tr><td>Failed</td><td>< 50 points</td></tr><tr><td>Passed, grade 3</td><td>50-69 points</td></tr><tr><td>Passed, grade 4</td><td>70-89 points</td></tr><tr><td>Passed, grade 5</td><td>>=90 points</td></tr></table></td></tr>
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	Points distribution: **Ongoing assessment:** Individual Tasks: 20 points Homework reports: 45 points **Final Group Project:** 35 points
Information about the course:	Room ___, on ___ at ___
1) Date 1	**Lecture 1** Classroom presentation: Introduction to Mobile Application Architecture Homework: Game Development Companies overview (3 points)
2) Date 2	**Workshop 1** Students presentations: Project management features
3) Date 3	**Lecture 2** Classroom presentation: Client-server architecture Homework: Simple server development (5 points)
4) Date 4	**Workshop 2** Students presentation: Multilevel client-server architecture Homework: Simple client-server application development (7 points)
5) Date 5	**Lecture 3** Classroom presentation: Connection Types Homework: Client-Server Communications Security Issues (7 points)
6) Date 6	**Workshop 3** Students presentation: Continuous Integration
7) Date 7	**Lecture 4** Classroom presentation: Data synchronization between mobile device and internal systems
8) Date 8	**Workshop 4** Students presentations: Overview of the store-and-forward method
9) Date 9	**Lecture 5** Classroom presentation: Simple architectural design patterns Homework: Essay “Basic architecture patterns in Android” (10 points)
10) Date 10	**Workshop 5** Classroom individual task: Design pattern selection for a given application (10 points)
11) Date 11	**Lecture 6** Classroom presentation: Good Architectural Design Tenets
12) Date 12	**Workshop 6** Students presentations: Minimum viable architecture (MVA)
13) Date 13	**Lecture 7** Classroom presentation: Clean Architecture for iOS Applications, MVC design pattern
14) Date 14	**Workshop 7** Students presentations: Converting to MVP
15) Date 15	**Lecture 8** Classroom presentation: Mobile Infrastructure

16) Date 16	**Workshop 8** Students presentations: Overview of types of mobile devices. Mobile Device Components
17) Date 17	**Lecture 9** Classroom presentation: Mobilizing Existing Application Architectures
18) Date 18	**Workshop 9** Students presentations: Considerations When Mobilizing Existing Applications
19) Date 19	**Lecture 10** Classroom presentation: Evolution of Enterprise Architectures
20) Date 20	**Workshop 10** Students presentations: Anatomy of an Enterprise Web Architecture
21) Date 21	**Lecture 11** Classroom presentation: Local storage Classroom presentation: System testing Homework: Essay “The basics of mobile security” (10 points)
22) Date 22	**Workshop 11** Students presentations: User-to-Mobile Client Security Issues. Mobile Client Security Issues
23) Date 23	**Lecture 12** Classroom presentation: Basic synchronization patterns Homework: Overview of basic components of the mobile interface (3 points)
24) Date 24	**Workshop 12** Classroom individual task: A mobile plugins integration (10 points)
36) Date 25	**Workshop 13** Students presentations: Group projects demonstration (35 points)