

Republic of Yemen

Ministry of Higher Education & Scientific Research

Council of Academic Accreditation & Quality Assurance of Higher Education(CAQA)

21 September University for Medical and Applied Sciences



Faculty of Engineering and Computer
Department of Information Technology

Program of Information Technology

Course Specification of
Mobile Application Development
Course Code. (07.11. 722)

2024



T4: This Template is Developed and Approved by CAQA-Yemen, 2023

Prepared by:

Dr. -----

Reviewed by:

Dr. -----

Head of the Department:

Quality Unit:

Dean

I. General Information:

| | | | | | | |
|-----|--|------------------------------------|----------------------|----------------------|-------------------------|----------|
| 1. | Course Title: | Mobile Application Development | | | | |
| 2. | Course Code: | 07.11. 722 | | | | |
| 3. | Credit Hours: | Credit Hours | Theory Contact Hours | | Practical Contact Hours | |
| | | | Lecture | Tutorial/ Seminar | Lab | Clinical |
| | | 3 | 2 | -- | 2 | -- |
| 4. | Level/ Semester at which this Course is offered: | 4 Level / 1 Semester | | | | |
| 5. | Pre –Requisite (if any): | programming 1,2,3 | | | | |
| 6. | Co –Requisite (if any): | Non | | | | |
| 7. | Program (s) in which the Course is Offered: | Bachelor of Information Technology | | | | |
| 8. | Language of Teaching the Course: | English/Arabic | | | | |
| 9. | Location of Teaching the Course: | Faculty of Medical Technology | | | | |
| 10. | Prepared by: | | | | | |
| 11 | Date and Number of Approval by Council: | | | | | |

II. Course Description:

Mobile Application Development aims to provide students with the knowledge and skills to design, develop, and deploy mobile applications tailored to healthcare environments. It covers mobile application development concepts, frameworks, and tools, including user interface design, backend integration, and data security. This course focuses on practical implementation, fostering creativity and collaboration in creating secure, user-friendly, and innovative mobile solutions to meet healthcare needs.

| III. Course Intended Learning Outcomes (CILOs) : Upon successful completion of the course, students will be able to: | | Referenced PILOs | |
|--|---|-------------------|---|
| A. Knowledge and Understanding: | | I, P or M/A | |
| a2 | Identify user and Healthcare needs to provide IT based solutions to real-world problem. | | A2 Identify user and Healthcare needs to provide IT based solutions to real-world problem. |
| a4 | Demonstrate a sound understanding the computing concept related to analysis, design, implementation, and evaluation of Health information system. | | A4 Demonstrate a sound understanding the computing concept related to analysis, design, implementation, and evaluation of Health information system. |
| B. Cognitive/ Intellectual Skills: | | | |
| b4 | Evaluate IT based solution to meet a given set of Health requirements in the context of Health Information Technology discipline | | B4 Evaluate IT based solution to meet a given set of Health requirements in the context of Health Information Technology discipline. |
| C. Practical and Professional Skills: | | | |

| | | | | |
|--|--|--|----|---|
| c1 | Apply appropriate tools and methodologies for the development and documentation of mobile healthcare applications | | C1 | Employ effectively the concepts, principles of computational tools, techniques used for the construction and documentation of Health Information of varying complexity. |
| c2 | design, implement, and test a computing-based solution to meet a given set of computing requirement in the context of Health Information Technology. | | C2 | design, implement, and test a computing-based solution to meet a given set of computing requirement in the context of Health Information Technology. |
| c3 | Integrate secure data management practices in mobile applications to safeguard sensitive health information | | | Use systematic approaches to select, develop, apply integrates, and administrate secure computing technologies to accomplish user and Health goals. |
| c4 | Utilize contemporary mobile development platforms, frameworks, and tools to implement healthcare solutions. | | C4 | Use current techniques, skills, and tools necessary for computing practices. |
| D. General and Transferable Skills: | | | | |
| d1 | Collaborate in teams to design and deliver mobile applications that address complex healthcare challenges | | D1 | Function effectively as an individual, as a member, or leader of a team engaged in activities appropriate to the Health Information Technology discipline to accomplish a common goal.. |
| d4 | Identify emerging trends in mobile application development and incorporate them into lifelong learning strategies | | D4 | Engage in continuing professional development and lifelong learning as an IT professional |

I= Introduced, P=Practiced or M/A= Mastered/Advanced

| (A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods: | | | |
|---|--|---|--|
| | Course Intended Learning Outcomes | Teaching Strategies | Assessment Strategies |
| a1 | Identify and explain fundamental data structures, algorithms, and mathematical concepts relevant to Health Information Technology. | <ul style="list-style-type: none"> ▪ Lectures ▪ Discussion ▪ Presentation ▪ Self-learning | <ul style="list-style-type: none"> ▪ Written exam (mid and final terms and quizzes) ▪ Final practical exam ▪ Assignments |
| a2 | | | <ul style="list-style-type: none"> ▪ Written exam (mid and final terms and quizzes) ▪ Final practical exam ▪ Assignments ▪ Programming |
| a3 | Apply appropriate data structures and algorithms to solve specific computing problems in healthcare settings. | <ul style="list-style-type: none"> ▪ Lectures ▪ Discussion ▪ Presentation ▪ Self-learning | <ul style="list-style-type: none"> ▪ Written exam (mid and final terms and quizzes) ▪ Final practical exam ▪ Assignments ▪ Programming |
| a4 | Analyze data organization and storage strategies to optimize healthcare information system efficiency. | <ul style="list-style-type: none"> ▪ Lectures ▪ Discussion ▪ Presentation ▪ Self-learning | <ul style="list-style-type: none"> ▪ Written exam (mid and final terms and quizzes) ▪ Final practical exam ▪ Lab assignments ▪ Practical exams |
| (B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods: | | | |

| | Course Intended Learning Outcomes | Teaching Strategies | Assessment Strategies |
|--|--|--|---|
| b1 | Evaluate and select suitable algorithms for addressing computational challenges in health data management. | <ul style="list-style-type: none"> ▪ Lectures ▪ Tutorials ▪ Discussion ▪ Self-Learning | <ul style="list-style-type: none"> ▪ Written exam (mid and final terms and quizzes) ▪ Final practical exam ▪ Assignments ▪ Lab assignments ▪ Practical exams |
| b2 | | <ul style="list-style-type: none"> ▪ | <ul style="list-style-type: none"> ▪ |
| b3 | Formulate efficient data processing techniques to meet the needs of healthcare information systems. | <ul style="list-style-type: none"> ▪ Lectures ▪ Tutorials ▪ Discussion ▪ Self-Learning | <ul style="list-style-type: none"> ▪ Written exam (mid and final terms and quizzes) ▪ Final practical exam ▪ Assignments ▪ Lab assignments ▪ Coding projects |
| b4 | Assess the effectiveness of different algorithmic solutions in meeting healthcare-specific requirements. | <ul style="list-style-type: none"> ▪ Lectures ▪ Tutorials ▪ Discussion ▪ Self-Learning | <ul style="list-style-type: none"> ▪ Written exam (mid and final terms and quizzes) ▪ Final practical exam ▪ Assignments ▪ Lab assignments ▪ Project presentations |
| | | <ul style="list-style-type: none"> ▪ | <ul style="list-style-type: none"> ▪ |
| (C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods: | | | |
| | Course Intended Learning Outcomes | Teaching Strategies | Assessment Strategies |
| c1 | | <ul style="list-style-type: none"> ▪ | <ul style="list-style-type: none"> ▪ |
| c2 | Test algorithmic solutions and their performance within health information applications | <ul style="list-style-type: none"> ▪ Tutorials ▪ Training ▪ Lab work ▪ | <ul style="list-style-type: none"> ▪ Written exam (mid and final terms and quizzes) ▪ Final practical exam ▪ Assignments ▪ Project evaluation |
| | | <ul style="list-style-type: none"> ▪ | <ul style="list-style-type: none"> ▪ |

| | | | |
|--|-----------------------------------|---------------------|-----------------------|
| c4 | | ▪ | ▪ |
| (D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods: | | | |
| | Course Intended Learning Outcomes | Teaching Strategies | Assessment Strategies |
| d1 | | ▪ | ▪ |
| d2 | | ▪ | ▪ |
| | ... | ▪ | ▪ |

IV. Course Contents:

A. Theoretical Aspect:

| No. | Units/Topics List | Sub Topics List | Number of Weeks | Contact Hours | Learning Outcomes (CILOs) |
|-----|---|---|-----------------|---------------|---------------------------|
| 1 | Introduction to Mobile Application Development | Overview of mobile development; Healthcare applications and significance; Development environments. | 1 | 2 | a1 |
| 2 | Mobile Application Architecture | Client-server architecture; MVC and MVVM patterns; Platform-specific architectures (iOS/Android) | 2 | 4 | a2 |
| 3 | User Interface (UI) Design | Designing intuitive interfaces; UI guidelines for healthcare; Responsive design. | 2 | 4 | c1 |
| 4 | Development Frameworks and Tools | Overview of popular frameworks (Flutter, React Native); IDEs and SDKs; Deployment tools | 2 | 4 | c3 |
| 5 | Data Management in Mobile Applications | Database integration; Secure data handling; APIs for data synchronization. | 2 | 4 | c2 |
| 6 | Testing and Debugging | Testing strategies; Automated tools; Debugging techniques. | 2 | 4 | c2 |

| No. | Units/Topics List | Sub Topics List | Number of Weeks | Contact Hours | Learning Outcomes (CILOs) |
|--|---------------------------------------|---|-----------------|---------------|----------------------------|
| 7 | Emerging Trends in Mobile Development | AR/VR in healthcare; Machine learning for mobile apps; Cross-platform vs. native trends | 1 | 2 | c4 |
| 8 | Midterm Exam | Covers topics from weeks 1–7. | 1 | 2 | a1, a2, c1, c2, c4 |
| 9 | Project Discussion and Preparation | Project proposal development; Requirements analysis; Initial design sketches. | 1 | 2 | d1 |
| 10 | Final Review and Preparation | Recap of key concepts; Practice problems. | 1 | 2 | a1, a2, c1, c2, c4, d1, d4 |
| 11 | Final Exam | Comprehensive assessment of all topics covered in the course. | 1 | 2 | all |
| Number of Weeks /and Units Per Semester | | | 16 | 32 | |

B. Practical Aspect (Lab(/Clinical) (if any):

| No. | Tasks/ Experiments | Number of Weeks | Contact Hours | Learning Outcomes (CILOs) |
|--|---|-----------------|---------------|---------------------------|
| 1 | Setting up the development environment | 1 | 2 | c1 |
| 2 | Creating a basic healthcare app | 1 | 2 | c2 |
| 3 | Developing user-friendly interfaces | 2 | 4 | c3 |
| 4 | Midterm Practical Exam | 1 | 2 | c1, c2, c3 |
| 5 | Secure data integration | 2 | 4 | c2 |
| 6 | Testing and debugging a prototype | 2 | 4 | c2 |
| 7 | Final project implementation and testing | 3 | 6 | c2, c3, d1 |
| 8 | Final project discussion and presentation | 2 | 4 | d1 |
| 9 | Final Practical Exam | 1 | 2 | all |
| Number of Weeks /and Units Per Semester | | 15 | 30 | |

C. Tutorial Aspect (if any):

| No. | Tutorial | Number of Weeks | Contact Hours | Learning Outcomes (CILOs) |
|--|----------|-----------------|---------------|---------------------------|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| Number of Weeks /and Units Per Semester | | | | |

VII. Assignments:

| No. | Assignments | Week Due | Mark | Aligned CILOs (symbols) |
|-----|---|----------|------|-------------------------|
| 1 | Exercises and Home Works, Problem Solving (I) | 3 | 3 | a1,a2, c1, c2 |
| 2 | Exercises and Home Works, Problem | 9 | 3 | c3,c4,d1,d4 |

| No. | Assignments | Week Due | Mark | Aligned CILOs (symbols) |
|-------|------------------------------------|----------|------|---------------------------|
| | Solving (II) | | | |
| 3 | Technical Report and Presentation. | 11 | 4 | a1, a2, c1, c2, c4,d1, d4 |
| Total | | | 10 | |

VIII. Schedule of Assessment Tasks for Students During the Semester:

| No. | Assessment Method | Week Due | Mark | Proportion of Final Assessment | Aligned Course Learning Outcomes |
|-------|--|----------|------|--------------------------------|----------------------------------|
| 1 | Assignments | 3,8,11 | 10 | 10 % | a1, a2, c1, c2, c4,d1, d4 |
| 2 | Quizzes 1 & 2 | 6,12 | 5 | 5 % | a1, a2, c1, c2, c3,c4 |
| 3 | Mid-Term Theoretical Exam | 9 | 10 | 10 % | a1, a2, c1, c2, c4 |
| 4 | Mid-Term Practical Exam | 7 | 5 | 5 % | c1, c2, c3 |
| 5 | Final Practical Exam including Project Presentation & Evaluation | 15 | 10 | 10 % | all |
| 6 | Final Theoretical Exam | 16 | 60 | 60 % | all |
| Total | | | 100 | 100% | |

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, Title, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two):

1. John Horton, 2023, Android Programming for Beginners, 4th Edition, Birmingham, UK, Packt Publishing.
2. Erica Sadun, 2022, iOS Application Development for Health Professionals, 3rd Edition, New York, USA, Apress..

2- Essential References:

1. Ying Bai, 2021, Practical Database Programming with Python, 3rd Edition, Boca Raton, USA, CRC Press.
2. William Van Hecke, 2023, Designing Mobile Interfaces, 2nd Edition, Sebastopol, USA, O'Reilly Media.

3- Electronic Materials and Web Sites etc.:

Websites:

1. Google Developers - Android Development: <https://developer.android.com>
2. Apple Developer - iOS Development: <https://developer.apple.com>
3. W3Schools Mobile Development Tutorials: <https://www.w3schools.com/mobile>.

Journals:

1. R. Smith et al., 2023, "Emerging Trends in Healthcare Mobile Applications," **Journal of Mobile Computing and Health IT**, Vol. 12, Issue 3.
2. L. Gonzalez, 2023, "Data Security in Healthcare Mobile Apps," **International Journal of Information Security in Healthcare**, Vol. 15, Issue 2.

Other Web Sources:

3. TutorialsPoint: **Mobile Development**:
https://www.tutorialspoint.com/mobile_development/index.htm
4. Medium: **Latest Articles on Mobile App Development**:
<https://medium.com/tag/mobile-app-development>

X. Course Policies: (Based on the Uniform Students' By law (2007))

| | |
|---|---|
| 1 | <p>Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.</p> |
| 2 | <p>Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.</p> |
| 3 | <p>Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.</p> |



| | |
|---|--|
| 4 | Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same. |
| 5 | Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply. |
| 6 | Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply. |
| 7 | Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration. |



Faculty of Medical Technology

Department of Medical Information Technology

Program of Medical Information Technology

Course Plan (Syllabus) of Mobile Application Development Course Code. 07.11. 722

| I. Information about Faculty Member Responsible for the Course: | | | | | | | |
|---|--|--------------|-----|-----|-----|-----|-----|
| Name of Faculty Member: | | Office Hours | | | | | |
| Location & Telephone No.: | | | | | | | |
| E-mail: | | SAT | SUN | MON | TUE | WED | THU |

2024

II. Course Identification and General Information:

| | | | | | |
|----|--|------------------------------------|--------------|----------|------------|
| 1 | Course Title: | Mobile Application Development | | | |
| 2 | Course Code & Number: | 07.11. 722 | | | |
| 3 | Credit Hours: | Credit Hours | Theory Hours | | Lab. Hours |
| | | | Lecture | Exercise | |
| | | 3 | 2 | -- | 2 |
| 4 | Study Level/ Semester at which this Course is offered: | 4 Level / 1 Semester | | | |
| 5 | Pre –Requisite (if any): | programming 1,2,3 | | | |
| 6 | Co –Requisite (if any): | Non | | | |
| 7 | Program (s) in which the Course is Offered: | Bachelor of Information Technology | | | |
| 8 | Language of Teaching the Course: | English/Arabic | | | |
| 9 | Study System: | Semester Based System | | | |
| 10 | Mode of Delivery: | Full Time | | | |
| 11 | Location of Teaching the Course: | Faculty of Medical Technology | | | |
| 12 | Prepared by: | | | | |
| 13 | Date of Approval: | | | | |

III. Course Description:

Mobile Application Development aims to provide students with the knowledge and skills to design, develop, and deploy mobile applications tailored to healthcare environments. It covers mobile application development concepts, frameworks, and tools, including user interface design, backend integration, and data security. This course focuses on practical implementation, fostering creativity and collaboration in creating secure, user-friendly, and innovative mobile solutions to meet healthcare needs

IV. Course Intended Learning Outcomes (CILOs) :



| Upon successful completion of the Course, student will be able to: | |
|--|--|
| A. Knowledge and Understanding: | |
| a1 | Identify user and Healthcare needs to provide IT based solutions to real-world problem. |
| a2 | |
| a3 | |
| a4 | Demonstrate a sound understanding the computing concept related to analysis, design, implementation, and evaluation of Health information system. |
| B. Cognitive/ Intellectual Skills: | |
| b1 | |
| b2 | |
| b3 | |
| b4 | Evaluate IT based solution to meet a given set of Health requirements in the context of Health Information Technology discipline |
| C. Practical and Professional Skills: | |
| c1 | Apply appropriate tools and methodologies for the development and documentation of mobile healthcare applications |
| c2 | design, implement, and test a computing-based solution to meet a given set of computing requirement in the context of Health Information Technology. |
| c3 | Integrate secure data management practices in mobile applications to safeguard sensitive health information |
| c4 | Utilize contemporary mobile development platforms, frameworks, and tools to implement healthcare solutions. |
| D. Transferable Skills: | |
| d1 | Collaborate in teams to design and deliver mobile applications that address complex healthcare challenges |
| | |
| | |

| | |
|----|---|
| d4 | Identify emerging trends in mobile application development and incorporate them into lifelong learning strategies |
|----|---|

V. Course Contents:

A. Theoretical Aspect:

| No. | Units/Topics List | Sub Topics List | Number of Weeks | Contact Hours | Learning Outcomes (CILOs) |
|-----|--|---|-----------------|---------------|---------------------------|
| 1 | Introduction to Mobile Application Development | Overview of mobile development; Healthcare applications and significance; Development environments. | 1 | 2 | a1 |
| 2 | Mobile Application Architecture | Client-server architecture; MVC and MVVM patterns; Platform-specific architectures (iOS/Android) | 2 | 4 | a2 |
| 3 | User Interface (UI) Design | Designing intuitive interfaces; UI guidelines for healthcare; Responsive design. | 2 | 4 | c1 |
| 4 | Development Frameworks and Tools | Overview of popular frameworks (Flutter, React Native); IDEs and SDKs; Deployment tools | 2 | 4 | c3 |
| 5 | Data Management in Mobile Applications | Database integration; Secure data handling; APIs for data synchronization. | 2 | 4 | c2 |
| 6 | Testing and Debugging | Testing strategies; Automated tools; Debugging techniques. | 2 | 4 | c2 |
| 7 | Emerging Trends in Mobile Development | AR/VR in healthcare; Machine learning for mobile apps; Cross-platform vs. native trends | 1 | 2 | c4 |
| 8 | Midterm Exam | Covers topics from weeks 1–7. | 1 | 2 | a1, a2, c1, c2, c4 |
| 9 | Project Discussion and Preparation | Project proposal development; Requirements analysis; Initial design sketches. | 1 | 2 | d1 |

| | | | | | |
|---|------------------------------|---|----|----|----------------------------|
| 10 | Final Review and Preparation | Recap of key concepts; Practice problems. | 1 | 2 | a1, a2, c1, c2, c4, d1, d4 |
| 11 | Final Exam | Comprehensive assessment of all topics covered in the course. | 1 | 2 | all |
| 12 | | | | | |
| Number of Weeks /and Units Per Semester | | | 16 | 32 | |

B. Case Studies and Practical Aspect:

| No. | Tasks/ Experiments | Number of Weeks | Contact Hours | Learning Outcomes (CILOs) |
|---|---|-----------------|---------------|---------------------------|
| 1 | Setting up the development environment | 1 | 2 | c1 |
| 2 | Creating a basic healthcare app | 1 | 2 | c2 |
| 3 | Developing user-friendly interfaces | 2 | 4 | c3 |
| 4 | Midterm Practical Exam | 1 | 2 | c1, c2, c3 |
| 5 | Secure data integration | 2 | 4 | c2 |
| 6 | Testing and debugging a prototype | 2 | 4 | c2 |
| 7 | Final project implementation and testing | 3 | 6 | c2, c3, d1 |
| 8 | Final project discussion and presentation | 2 | 4 | d1 |
| 9 | Final Practical Exam | 1 | 2 | all |
| Number of Weeks /and Units Per Semester | | 15 | 30 | |

C. Tutorial Aspect:

| No. | Tutorial | Number of Weeks | Contact Hours |
|-----|----------|-----------------|---------------|
| 1 | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |

| No. | Tutorial | Number of Weeks | Contact Hours |
|---|----------|-----------------|---------------|
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| Number of Weeks /and Units Per Semester | | | |

VI. Teaching Strategies of the Course:

Knowledge and Understanding Skills is developed through:

- Lectures
- Discussion
- Presentation
- Self-learning

Intellectual Skills are developed through:

- Lectures
- Tutorials
- Discussion
- Case studies (CBL)
- Self-Learning
- Problem Based Learning (PBL)

Practical and professional Skills are developed through:

- Tutorials
- Training
- Case studies (CBL)
- Problem Solving Learning (PSL)
- Problem Based Learning (PBL)

General/Transferrable Skills are developed through:

- Discussion
- Case studies (CBL)
- Self-Learning
- Presentation

VII. Assessment Methods of the Course:

- Written exam (mid and final terms and quizzes),
 - Final practical exam
- Assignments

VIII. Assignments:

| No. | Assignments | Week Due | Mark |
|--------------|--|----------|-----------|
| 1 | Exercises and Home Works, Problem Solving (I) | 3 | 3 |
| 2 | Exercises and Home Works, Problem Solving (II) | 9 | 3 |
| 3 | Technical Report and Presentation. | 11 | 4 |
| Total | | | 10 |

IX. Schedule of Assessment Tasks for Students During the Semester:

| No. | Assessment Method | Week Due | Mark | Proportion of Final Assessment |
|-----|---------------------------|----------|------|--------------------------------|
| 1 | Assignments | 3,8,11 | 10 | 10 % |
| 2 | Quizzes 1 & 2 | 6,12 | 5 | 5 % |
| 3 | Mid-Term Theoretical Exam | 9 | 10 | 10 % |
| 4 | Mid-Term Practical Exam | 7 | 5 | 5 % |

| No. | Assessment Method | Week Due | Mark | Proportion of Final Assessment |
|-------|--|----------|------|--------------------------------|
| 5 | Final Practical Exam including Project Presentation & Evaluation | 15 | 10 | 10 % |
| 6 | Final Theoretical Exam | 16 | 60 | 60 % |
| Total | | | 100 | 100% |

X. Learning Resources:

- *Written in the following order:* Author, Year of publication, Title, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two):

1. John Horton, 2023, Android Programming for Beginners, 4th Edition, Birmingham, UK, Packt Publishing.
2. Erica Sadun, 2022, iOS Application Development for Health Professionals, 3rd Edition, New York, USA, Apress..

2- Essential References:

1. Ying Bai, 2021, Practical Database Programming with Python, 3rd Edition, Boca Raton, USA, CRC Press.
2. William Van Hecke, 2023, Designing Mobile Interfaces, 2nd Edition, Sebastopol, USA, O'Reilly Media.

3- Electronic Materials and Web Sites etc.:

Websites:

1. Google Developers - Android Development: <https://developer.android.com>
2. Apple Developer - iOS Development: <https://developer.apple.com>
3. W3Schools Mobile Development Tutorials: <https://www.w3schools.com/mobile>.

Journals:

1. R. Smith et al., 2023, "Emerging Trends in Healthcare Mobile Applications," **Journal of Mobile Computing and Health IT**, Vol. 12, Issue 3.
2. L. Gonzalez, 2023, "Data Security in Healthcare Mobile Apps," **International Journal of Information Security in Healthcare**, Vol. 15, Issue 2.

Other Web Sources:

1. TutorialsPoint: **Mobile Development:**
https://www.tutorialspoint.com/mobile_development/index.htm
2. Medium: **Latest Articles on Mobile App Development:**
<https://medium.com/tag/mobile-app-development>

XI. Course Policies: (Based on the Uniform Students' Bylaw (2007))

| | |
|---|--|
| 1 | Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes. |
| 2 | Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class. |
| 3 | Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed. |
| 4 | Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same. |
| 5 | Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply. |
| 6 | Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply. |
| 7 | Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration. |