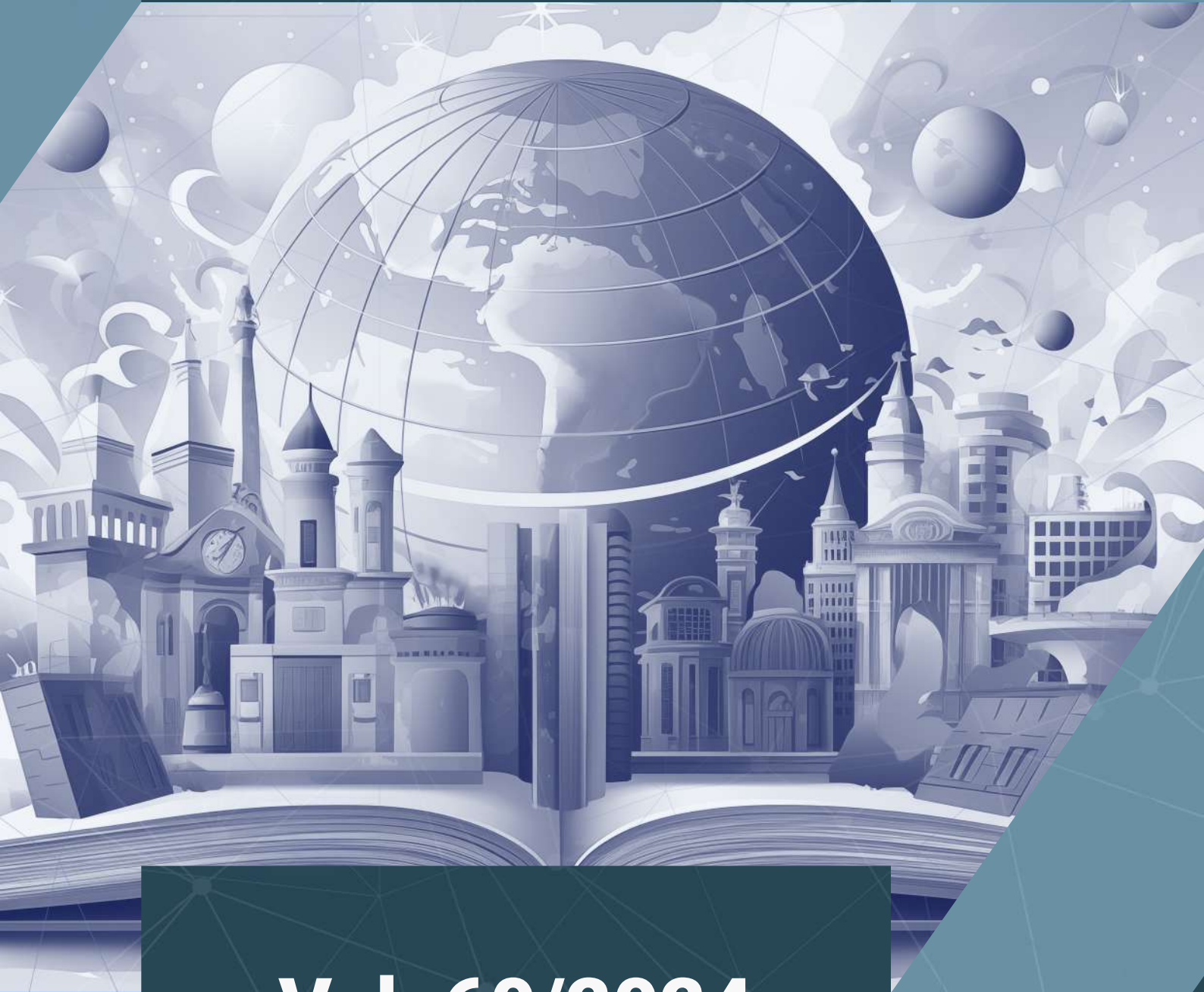




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Investigating a New Syllabus for Teaching UI Mobile App Design to Visual Communication Design Students in Amman, Jordan

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Abstract. Objectives: address the lack of specialized courses in user interface (UI) design for mobile applications in Jordanian universities' visual communication design curriculum. Develop an experimental educational syllabus for teaching UI mobile application design to visual communication design students in Jordanian universities. Methods: Four parts were used to structure the research: an introduction, the UI process, case studies and best practices, and a final project. Introduction: Basics of UI and UX Design. UI Process: theory, practice, tools, and publishing. Case Studies and Best Practices: Focus on medical UI mobile app design, including a UI checklist tool. Final Project: Students use free materials to present their work and review their projects with the class. Results: The newly developed syllabus addresses the educational needs in UI mobile app design for visual communication design students. It emphasizes the importance of involving experts and practitioners in the design process. The syllabus provides comprehensive coverage of UI/UX design, practical tools, case studies, and project-based learning. Conclusions: The developed syllabus fills a critical gap in the visual communication design curriculum of Jordanian universities. It enhances students' knowledge and skills in UI mobile app design, better preparing them for the demands of the industry. The involvement of experts and practitioners is essential in creating effective educational programs in rapidly developing fields like mobile app design.

Keywords. User experience design, User interface, Graphic design, Mobile applications, Evaluation

Introduction

Graphic design is crucial in the final output of user interface mobile applications (UI for Mobile Apps). With the rapid growth of technology, it is essential to have a specialized graphic designer rather than a programmer who is not experienced in design. The importance of mobile applications is increasing as consumers become more comfortable reading and interacting with digital information. UI design enhances the attractiveness, quality, and ease of mobile applications or machines, making it more important for graphic designers. Thus, the increasing importance of mobile applications has also increased the importance of user interface

designers (Bhandari, Neben, Chang, & Chua, 2017). Dharmayanti, Bachtiar, and Wibawa (2018) stated that designing a User Interface (UI) is the design of machines, applications, and other home appliances, through which organizations try to improve and enhance the usability and users of their products or applications.

Dharmayanti et al. (2018) noted that UI design enhances the attractiveness, quality, and easiness of mobile applications or machines. Therefore, the importance of graphic designers has considerably increased. Bhandari et al. (2017) found that users could perceive the quality of an application in two aspects. Pragmatic users use the application daily for tasks and hedonic the pleasant interaction and experience of individuals. Quality perception is also influenced by the emotional factor, which helps graphic designers design UI in accordance with users' perceptions and preferences (Bhandari et al., 2019; Bhandari et al., 2017).

There is a need for a comprehensive, effective, and practice-based syllabus for designing user interfaces for mobile applications. However, literature and educational institutions are mostly lacking in such a syllabus, particularly in Arab countries (Blair-Early & Zender, 2008; J. Johnson, 2020; Seraj & Wong, 2012). Gosselin (2002) argued that a comprehensive and good syllabus for user interface design is the primary and basic need for students to learn for their design careers. However, most UI design syllabi lack a strong theoretical base, leading to a lack of true knowledge for designers and a lack of basic theories or principles that ensure the quality of the design (Constantine & Lockwood, 2001; Fadli, 2020; Galitz, 2007; J. Johnson, 2020).

To address this issue, it is important to develop a good syllabus for designing user interfaces for mobile applications based on theories and principles. This syllabus should provide both theoretical knowledge and practical knowledge (Norman, 2013). Furthermore, including a complete perspective of user interface design, including elements such as user needs, expectations, usability criteria, and accessibility (Norman, 2013). Additionally, the syllabus should provide a well-balanced combination of design thinking and process of design to ensure a good user interface is designed and user-friendly (Constantine & Lockwood, 2001; Fadli, 2020).

Results

In this section, we analyze the different stages of syllabus development. In the first part, we analyzed the need for this syllabus in Jordanian universities. Our study of a variety of students revealed that there is a critical need for this syllabus. This is because no special UI mobile app design courses are offered, and this kind of specialization is in demand on the market. In the second part, the first draft of the syllabus was proposed based on the content analysis of 13 documents (syllabi) from various prominent sites. After this, the first draft was amended by including the opinions of five experts to create the final draft of the syllabus. We evaluated the final draft based on the perceptions of students and experts in the last two parts. The final draft received a very good evaluation in both evaluations, indicating its potential to be applied in Jordanian universities.

Problem Identification

The pilot study interviewed Jordanian (academic designers) who have graduated from four private universities in visual communication design and multimedia design (Middle East University, Philadelphia University, Al-Zaytoonah University, and Applied Science University)

in order to collect data on the research problem.

The pilot study aims to illustrate practical problems faced by Jordanian students in their current UI design syllabus and to demonstrate the need for a new syllabus that addresses existing knowledge and skills limitations. These questions are summarized as follows:

1. The availability of specialized academic courses on UI design or UI mobile apps during bachelor degrees, as there is a misconception between specialized UI mobile apps and general UI design. As a result, we need to measure each of them individually
2. The availability of non-academic courses on designing mobile apps with UI.
3. A need for theoretical and practical training programs in the design of mobile apps with an emphasis on user interfaces.
4. If they prefer face-to-face or online courses, then we can decide whether to do it online or in person.

The answers were developed as in Table (1) a descriptive evaluation of the pilot study.
The First Draft Syllabus Development (Cycle One)

The first draft of a new specialized course was developed by analyzing 13 prominent syllabi from around the world. The syllabus was designed following previous ones, and qualitative documents were analyzed using a grouping method. The most suitable content aligned with the study's aim and theoretical foundation. The first draft was then selected for use, editing, or development, as shown in Table (2).

As a result of reviewing the previous syllabus for UI mobile app design:

1. The available courses are not fully specialized for UI Mobile app design; it is usually included as a second section in UX courses or, in general, UI design courses.
2. UI mobile app design courses often present the practical aspect of programming without providing a clear understanding of theoretical concepts.
3. The most available courses about code and programs target programmers more than designers.
4. There is a lack of Arabic content about UI mobile app design.

Experts Interviews (Cycle Two)

In order to conduct expert interviews, we sent the first draft of the syllabus to five designers who specialize in user interface design or syllabus development. It was our goal to review and develop the first draft syllabus developed by the researcher. Interviews were conducted via email and Zoom. Based on experts' comments and evaluation, the final draft was proposed. The clean version of the syllabus is presented in Table (3).

Student's Evaluation

The final draft of a training program in Jordan was evaluated based on feedback from five experts. 50 students from various universities participated, with 38 registering on the website. However, only 26 remained at the end. The 12 students who did not continue were attributed to workload and time constraints. The program's final draft syllabus was developed in Cycle 2, and 11 questions were asked to students at the end. Participants were asked to provide a general evaluation and narrative feedback for further details. The program's success was attributed to the students' workload and time constraints.

The questions are:

1. How do you evaluate the benefits you have gained from this training program?
2. How do you evaluate the theoretical knowledge you have gained from this training

- program?
3. How do you evaluate the practical knowledge you have gained from this training program?
 4. How do you evaluate the trainer?
 5. Will you advise your workmates in this training program?
 6. Will you participate in an extra advanced training program?
 7. How do you evaluate the training program and the allotted time? 45 hours 15 theoretical, 10 practical 20 final projects
 8. How do you evaluate whether the training program will be high enough to qualify your entrance into the market industry?
 9. How do you evaluate the benefits of attached ready-to-use free material in this training program?
 10. After you have finished this online training program, how do you evaluate the benefits of taking online courses?
 11. Do you prefer any future training program to be face-to-face, online, or interactive, or is there no difference?

The program was highly praised by students, demonstrating its effectiveness in providing practical knowledge for market entry. The researcher plans to enhance the program by providing more training opportunities and enhancing the materials. The program also aims to incorporate advanced editing techniques in videos for better engagement.

Most students found the program beneficial to their design knowledge and skillset, and the free materials provided a better understanding of the design process. Online training was also preferred by students, indicating their preference for online training in future training.

Expert's Evaluation

The last stage in this study is to evaluate the syllabus from a group of experts (7 experts) to verify its suitability to be applied in universities and other academic institutions. Links to the final projects and Behance were given to the experts after students finished their projects and after the students' evaluations were accomplished. Individual discussions and evaluations of each expert's final project were conducted. The expert evaluation was divided into two parts: a first part for evaluating each project separately, followed by a second part for evaluating the syllabus through an overall evaluation of all projects.

Single Project Evaluation

In the first section of the evaluation, the seven experts were given the links to each project, and they were asked about their opinions.

The first project (Eren App), the second project (Anime sword), The third project (Visit Jordan), the last project (Cimodrama).

Pre-developed questions guided the evaluation are divided into three themes; general evaluation, applying the brand identity to UI screens and designing Behance presentation for the app. Overall, two of the projects were based on new ideas chosen by the students, while the other two were redesigned applications.

Based on the above descriptive statistics, we can conclude that the experts were generally satisfied with the projects developed after the students completed the course offered based on the developed syllabus. Based on the answers, we can note that the first two projects

were highly evaluated compared with the last two projects. According to experts, redesigning projects requires more experience. In the future, it is recommended that students make new project designs with new design identities and correct user experiences. Project redesigns can be postponed to a later stage.

With regard to Behance's presentations, they commented that this part needs more reading and experience to inspire a higher level of design. In addition, they added that if some design elements in the projects do not appear proportional to each other, it might be due to designing on a computer screen. Therefore, the elements do not appear as they would on a mobile device. They recommended that this problem can be solved by adding to the training program how to download and use Adobe XD on mobile. As a result, students will be able to view the designed elements proportionately to each other on the mobile screen.

Additionally, the students did not design the entire project using the ready-to-use material, so it would be better if they adhered to the recommended sizes of each app store in the future.

Moreover, they declared that problems with user experience indirectly negatively impact the final results of the project. In the two redesigned projects, this was evident. Ideally, they advocated that we should first provide students with the basic knowledge of user experience when developing mobile apps in order to guarantee the integration of UI and UX.

Furthermore, as an alternative proposal, they stated that we can test the user experience with experts before starting the design of the UI.

Apart from the above, they recommended providing students with a prerequisite course in visual identity and its implementation in UI mobile apps to help students to overcome the problem of old designs that do not have a clear good visual identity. This prerequisite course was fundamental in the redesigned projects.

Lastly, they suggested that more training time is needed for higher-level courses.

Evaluation of the Overall Syllabus through Projects

The last step is to evaluate the syllabus through the overall evaluation of projects.

The questions for the Experts' general evaluation of the syllabus are:

1. How do you evaluate all the final projects in general?
2. How do you evaluate the student level after the training program is high enough to qualify for their entrance into the market industry?
3. How do you evaluate the benefits of implementing this training program at universities?
4. How do you evaluate the training program and the time allotted? 45 hours 15 theoretical 10 practical 20 **final** projects
5. How do you evaluate the training program's acceptance after evaluating the final project?

In conclusion, the syllabus has received a very good evaluation from both experts and students. After considering their notes, the final version of the syllabus after expert's and student's evaluations is presented in Table (4).

Discussion

The study aimed to create an experimental syllabus for teaching user interface mobile apps using modern measurable learning procedures.

First objective: Building up a new experimental syllabus for teaching user interface

mobile apps with a modern measurable learning procedure.

The syllabus was developed through three cycles: analyzing 13 prominent online syllabi, obtaining opinions from five experts in user interface design and syllabus development, and amending the final draft to include best practices. The final draft covers the most desired components, considering theoretical and practical knowledge for targeted students. The study aimed to prove the novelty of its contribution by building a new experimental syllabus for teaching mobile app user interfaces. The four major components of the syllabus include the following:

- 1- The introduction: this part includes user interface design, user experience design, the relationship between UI and UX, and the Process of Mobile App Designing.
- 2- UI process: this part covers theoretical and practical sections as well as tools and publish sections, which are the core of the course.
- 3- UI case studies & UI best practice: this section includes some suggested cases and UI best practices (General best practices for medical UI mobile app design, choosing a medical app to study, and using (the UI checklist tool) to evaluate UI mobile app design)
- 4- Final project: this part suggests that at the end of the course, there will be a final project that reflects what the students learned from the course. At this stage, the teacher provides students with the requirement for designing the app where students should use the ready-to-use free material for the portfolio section to present their work as well as make live discussions to present all students' projects and review them after the students finished. The final draft of the syllabus adheres to several design principles, including structure, simplicity, visibility, feedback, tolerance, and reuse. These principles aim to make the application more appealing and user-friendly by simplifying tasks for users. The syllabus also considers the balance between theoretical and practical knowledge, providing students with an understanding of concepts and opportunities to practice what they have learned.

The syllabus has an effective evaluation system that is consistent with course requirements and focuses on tracking students' performance on the course's objectives. It also allows students to present their projects at the end of the course, allowing them to apply their theoretical knowledge in real-life situations. This design aligns with theories such as sociocultural Learning Theory, which postulates both theoretical and practical learning. The ADDIE Model was used to structure the syllabus by identifying the needs of students and course objectives, designing activities that meet these objectives, and providing lecture notes, information sources, and assessment tasks (Reinbold, 2013). The implementation process used the course delivery system, allowing students to access material and activities online (Nadiyah & Faaizah, 2015). The evaluation process used formative and summative assessment tools to track students' progress.

The syllabus is designed to accommodate any changes or modifications that may arise, ensuring that the course meets the needs of students and course objectives in the long term.

Additionally, the final syllabus follows the SAM model of instructional design, which focuses on motivation and rehearsal (Allen & Sites, 2012). Motivation is addressed by providing an engaging course, while rehearsal promotes the application of knowledge and skills.

Second objective: Evaluating the effectiveness of a new experimental syllabus for teaching user interface mobile app design to students in order to improve it.

In conclusion, the syllabus adheres to various design principles, including structure, simplicity, visibility, feedback, tolerance, and reuse, to make it easier for students to understand and apply their theoretical knowledge.

The study aimed to evaluate the effectiveness of an experimental syllabus for teaching user interface mobile app design to graphic design students. After developing the first draft of the syllabus, students were very positive about the program and found it to be beneficial to their design knowledge and skill set. The free materials and online learning environment made the course more effective than traditional methods.

The majority of students preferred online training in this type of course over face-to-face interaction, which is contradictory with prior research on students' preferences for face-to-face or hybrid approaches. This can be attributed to the comfort of taking courses online and the ability to access the material at their own pace. The lack of physical interaction with the instructor did not seem to hinder the learning process.

Third objective: Evaluating the graphic design student's level in designing UI Mobile App before and after the new experimental syllabus.

The third objective was to evaluate the graphic design student's level in designing UI Mobile App before and after the new experimental syllabus. The students' final projects presented excellent to very good results, indicating satisfaction with them. However, redesigning projects required more expertise, and it may be necessary to delay redesigning projects until a later stage. Some design elements might not appear proportional to one another because they were designed on a computer screen, which is not how they appear on mobile devices. Students can solve this problem by learning how to download and use Adobe XD on their mobile devices to view the designed elements proportionally. Additionally, the students did not use ready-to-use material throughout the whole project, so it is preferable to ask them to adhere to each store's recommended sizes. In this line, S. M. Johnson (2020) asserted that on the importance of the availability of ready-to-use materials in every training course like a video, working paper, audio or any suitable material depending on the nature of the course. Problems with the user experience indirectly affected the project's results. Ideally, students should first acquire a basic knowledge of the user experience of mobile apps to guarantee the integration of UI& UX.

Overall, the development and evaluation stages are in line with design-based research. The experimental syllabus showed to be successful and beneficial to students in terms of learning user interface mobile app design, and the student's final project results confirmed it. The evidence gathered revealed that students should be taught the importance of UI & UX integration, along with related topics such as design principles, layout design, typography design, and working with ready-to-use material.

Conclusion

This study addresses a significant gap in the curriculum of bachelor's degrees in Jordan, specifically the lack of specialized courses on user interface (UI) mobile app design for visual communication design students. The research aimed to develop and evaluate an experimental syllabus to fill this void, ensuring that it meets the needs of both learners and society.

The first objective was to create a new experimental syllabus for teaching UI mobile app design using modern measurable learning procedures. This was accomplished through a meticulous three-cycle development process. The initial cycle involved analyzing 13 prominent syllabi from international sources, followed by expert consultations to refine the syllabus, and finally, integrating best practices and feedback to produce the final draft. The resulting syllabus covers essential aspects of UI design, including theoretical foundations, practical applications, case studies, and a final project, ensuring a comprehensive learning experience for students.

The second objective focused on evaluating the effectiveness of the new syllabus.

Feedback from both students and experts was overwhelmingly positive, highlighting the syllabus's potential to significantly enhance the educational experience and practical skills of visual communication design students. Students appreciated the balance between theoretical knowledge and practical application, as well as the modern, interactive learning methods employed. Experts validated the syllabus's relevance and applicability, affirming its alignment with industry standards and educational best practices.

In evaluating the students' performance before and after the implementation of the new syllabus, the results indicated a marked improvement in their understanding and application of UI mobile app design principles. The final projects showcased by the students were well-received by experts, demonstrating their ability to integrate theoretical knowledge with practical skills effectively. However, it was noted that redesign projects require more experience, suggesting that such tasks be assigned at more advanced stages of the curriculum.

The research also revealed some areas for further improvement. Experts recommended incorporating more training on using Adobe XD on mobile devices to address issues with design element proportions. Additionally, ensuring students adhere to recommended sizes for app stores and providing prerequisite courses on visual identity and user experience were suggested to enhance the learning outcomes further.

In conclusion, the developed syllabus represents a significant advancement in the education of UI mobile app design in Jordanian universities. It bridges the gap between theoretical knowledge and practical application, preparing students to meet the demands of the rapidly evolving digital market. The positive evaluations from both students and experts underscore the syllabus's effectiveness and its potential to serve as a model for future curriculum development in this field. This research highlights the critical importance of specialized education in UI design and its impact on the quality and usability of mobile applications in the digital age.

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Table (1): a descriptive evaluation of pilot study

1. Did you study any specialized academic course on		
	Frequency	Percent
User Interface design	21	28.8%
UI Mobile app design	0	0%
Both of them UI and UI mobile app design	10	13.7%
None of them	42	57.5%
Total	73	
<i>Yes. I study</i>		
1. What is your evaluation of the trainer		
	Frequency	Percent
Excellence	9	29%
Very Good	12	38.7%
Good	8	25.8%
Fair	1	3.2%
Poor	1	3.2%
Total	31	
2. What is your evaluation of the course		
	Frequency	Percent
Excellence	6	19.4%
Very Good	14	45.2%
Good	10	32.3%
Fair	0	0%
Poor	1	3.2%
Total	31	
3. Did you make a real final project after the course you take?		
	Frequency	Percent
Yes	28	90.3%
No	2	6.5%
Maybe	1	3.2%
Total	31	
4. Did the course you take contain a ready to use free material to facilitate the design process?		
	Frequency	Percent
Yes	18	58.1%
No	11	35.5%
Maybe	2	6.5%
Total	31	
5. Do you think that the course was enough to enter the working market in this specialization?		
	Frequency	Percent
Yes	4	12.9%
No	24	77.4%
Maybe	3	9.7%

Total	31	
6. Did you get a job or promotion due to your knowledge in this course?		
	Frequency	Percent
Yes	12	38.7%
No	17	54.8%
Maybe	2	6.5%
Total	31	
7. Is the time suitable for the size of information in the course you take?		
	Frequency	Percent
Yes	12	38.7%
No	17	54.8%
Maybe	2	6.5%
Total	31	
<i>No. I don't study</i>		
1. Did you lose a job or promotion due to your lack of knowledge in this course?		
Yes	22	52.4%
No	14	33.3%
Maybe	6	14.3%
Total	42	
2. Did you study any (non- academic)- (free or payed)- (local or international) course on UI Mobile app design?		
	Frequency	Percent
Yes	4	5.5%
No	69	94.5%
Total	73	
3. Are you interested in an intensive theoretical and practical training program specialized in UI mobile app design?		
	Frequency	Percent
Yes	67	91.8%
No	6	8.2%
Total	73	
4. Do you prefer the training program to be face-to-face or online?		
	Frequency	Percent
Online	26	38.8%
Face to face	24	35.8%
No difference	17	25.4%
Total	67	

Table (2): The first draft syllabus

The first draft syllabus	
1. Introduction	
	<ul style="list-style-type: none"> ● Introduction ● What is user interface design? ● The relationship between UI and UX ● Aesthetics Vs. Functionality
2. UI Process	
	<ul style="list-style-type: none"> ✓ Theoretical <ul style="list-style-type: none"> ● User experience principles ● User interface principles ● Mobile app design principles ● Gestalt principles in UI design ● Best practice: Do/Don't ● Types of mobile app ● Application categories
	<ul style="list-style-type: none"> ✓ Practical <ul style="list-style-type: none"> ● Understanding brand platform ● Using brand visual identity to define a UI visual style <ul style="list-style-type: none"> ▪ If visual identity is available: use the brand guidelines ▪ If visual identity is not available: try to make solutions ● Understanding types of app screens ● Understanding UI elements ● Using animation and sound in UI design ● UI trends & technology trends that will transform the mobile app industry ● Mood board for UI mobile app design ● Get inspirations
	<ul style="list-style-type: none"> ✓ Tools <ul style="list-style-type: none"> ● Prototyping Tools: Adobe Experience Design Introduction – Design – Prototype - Share and export - Design systems - Cloud documents - Integrations and plugins - XD for iOS and Android ● Collaboration between Adobe programs ● Elaborating the wireframes into page mockups <p>Using Photoshop mockup to present mobile screens</p>
	<ul style="list-style-type: none"> ✓ Publish <ul style="list-style-type: none"> ● For portfolio ● Export graphics for google play and apple store
3. UI case studies & UI best practice	
	<ul style="list-style-type: none"> ● General best practice UI ● Chose an app to study ● Using (the UI checklist tool) to evaluate UI mobile app design
4. Final project	
	<ul style="list-style-type: none"> ● Give the students the requirement for designing the app

- Students should use the ready-to-use free material for the portfolio section to present their work
- Make live discussions to present all students' projects and review them. After the students have finished.

Table (3): Final draft of the syllabus

The Final syllabus
5. Introduction
<ul style="list-style-type: none"> ● User interface design ● User experience design ● The relationship between UI and UX ● The Process of Mobile App Designing
6. UI Process
<p>✓ Theoretical</p> <ul style="list-style-type: none"> ● User experience principles ● User interface principles ● Mobile app design principles ● Gestalt principles in UI design ● Best practice: Do/Don't ● Types of mobile app ● Application categories
<p>✓ Practical</p> <ul style="list-style-type: none"> ● Understanding brand platform ● Determine the UI visual style <ul style="list-style-type: none"> ▪ If visual identity is available: use the brand guidelines ▪ If visual identity is not available: try to make solutions ● Understanding types of app screens ● Understanding UI elements ● Using animation and sound in UI design ● UI trends & technology trends that will transform the mobile app industry ● Get inspirations ● Mood board for UI mobile app design
<p>✓ Tools</p> <ul style="list-style-type: none"> ● Prototyping Tools: Adobe Experience Design <p>Introduction – Design – Prototype - Share and export - Design systems - Cloud documents - Integrations and plugins - XD for iOS and Android</p> <ul style="list-style-type: none"> ● Collaboration between Adobe programs ● Elaborating the wireframes into page mockups ● Using Photoshop mockup to present mobile screens
<p>✓ Publish</p> <ul style="list-style-type: none"> ● For programmer ● For portfolio ● Export graphics for google play and apple store
7. UI case studies & UI best practice

<ul style="list-style-type: none"> • General best practice for medical UI mobile app design • Choosing a medical app to study • Using (the UI checklist tool) to evaluate UI mobile app design
8. Final project
<ul style="list-style-type: none"> • Give the students the requirement for designing the app • Students should use the ready-to-use free material for the portfolio section to present their work • Make live discussions to present all students' projects and review them. After the students finished.

Table (4): The final syllabus after expert's & student's notes

The final syllabus after experts' & students' notes
1. Introduction
<ul style="list-style-type: none"> • User interface design • User experience design • The relationship between UI and UX • The Process of Mobile App Designing
2. UI Process
<p>✓ Theoretical</p> <ul style="list-style-type: none"> • User experience principles • User interface principles • Mobile app design principles • Gestalt principles in UI design • Best practice: Do/Don't • Types of mobile app • Application categories
<p>✓ Practical</p> <ul style="list-style-type: none"> • Understanding brand platform • Determine the UI visual style <ul style="list-style-type: none"> ▪ If visual identity is available: use the brand guidelines ▪ If visual identity is not available: try to make solutions • Understanding types of app screens • Understanding UI elements • Using animation and sound in UI design • UI trends & technology trends that will transform the mobile app industry • Get inspirations • Mood board for UI mobile app design
<p>✓ Analytical (adding new section)</p> <ul style="list-style-type: none"> • <i>Choosing groups of real apps from the store in one category</i> • <i>Recording analytical videos for the selected app and sending them to the students</i> • <i>Making analytical dissection with students</i>
<p>✓ Tools</p> <ul style="list-style-type: none"> • Prototyping Tools: Adobe Experience Design Introduction – Design – Prototype - Share and export - Design systems - Cloud documents - Integrations and plugins - XD for iOS and Android

<ul style="list-style-type: none"> ● <i>Using Adobe XD App for mobile (adding new topic)</i> ● Collaboration between Adobe programs ● Elaborating the wireframes into page mockups ● Using Photoshop mockup to present mobile screens
<p>✓ Publish</p> <ul style="list-style-type: none"> ● For programmer ● For portfolio (<i>Review more real successful projects & make analytical study for featured projects on Behance website or dribbble website)-(adding more information)</i>) ● Export graphics for google play and apple store
<p>3. UI case studies & UI best practice</p>
<ul style="list-style-type: none"> ● General best practice for medical UI mobile app design ● Choosing a medical app to study ● Using (the UI checklist tool) to evaluate UI mobile app design
<p>4. Final project</p>
<ul style="list-style-type: none"> ● Give the students the requirement for designing the app (<i>At this stage, the chosen projects should be new, not redesign projects also should be studied from a UX perspective</i>) ● Students should use the ready-to-use free material for the portfolio section to present their work ● Make live discussions to present all students' projects and review them. After the students finished.