

The Effectiveness of Developing a New Experimental Educational Syllabus for Teaching User Interface Mobile App Design to Students of Visual Communication Design in Amman, Jordan

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Abstract

It is becoming more and more essential to use mobile applications. Therefore, user interface mobile applications become more popular. Despite its importance, UI courses for mobile applications design are not a part of all graphic design syllabi at Jordanian universities for visual communication design, resulting in graduates with scant knowledge of the subject. Thus, it is common for newly graduated students to self-educate through online courses or to be trained by companies, which are often non-academic and commercial. Thus, the purpose of this study is to develop a novel educational syllabus proposition for teaching UI mobile application design to students of visual communication design at Jordanian universities. To achieve this, the current study followed a methodological approach of design-based research. This methodology allowed for several iterations of the syllabus. The first draft was based on a content analysis of 13 prominent syllabi. Then the first draft was refined based on the perceptions of five experts. As a result, this study provided a comprehensive examination of the need for specialized courses on UI mobile app design as part of the bachelor's degree. The proposed syllabus is divided into four parts: introduction, UI process, UI case studies and best practices, and a final project. The introduction covers the basics of UI. The UI process section covers theory and practice, tools, and publishing. The case studies and best practices section focuses on medical UI mobile app design and includes a UI checklist tool. The final project requires students to present and review their projects. The results of this study providing evidence of the value of involving experts and practitioners in the design process. This study also has implications for improving and developing future syllabi, which may help to bridge the gap between theory and practice in the field of UI design for mobile apps.

Keywords

Educational syllabus; user experience design; user interface mobile app design

INTRODUCTION

Graphic design plays an important and effective role in the final output of user interface mobile applications (UI for Mobile Apps). Due to the fast growth of technology in this sector, it became most important to have a specialized graphic designer rather than a programmer who usually is not experienced in design. Apart from this, the importance of mobile applications is increasing day by day as consumers are more comfortable reading and interacting with digital information form. Thus, 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 attractively, quality, and easiness of mobile applications or machines. Therefore, the importance of graphic designers has considerably increased. Bhandari et al. (2017) found that users can perceive the quality of the application in two aspects. Firstly, if users are using the application in their daily routine for their tasks, they can perceive the quality of the UI; this perception is regarded as pragmatic. While second is hedonic, which refers to the pleasant interaction and experience of individuals, based on which they perceive the quality of the user interface of application design (Bhandari et al., 2017). Based on these aspects, users can quickly perceive the quality of the design of UI (Hassenzahl, 2004). Bhandari, Chang, and Neben (2019) have highlighted another reason behind quality perception, which is the emotional factor. Authors believe that the quality of the UI design can target users emotionally, which is amongst the strongest factors in developing their perception regarding UI design. Therefore, it is also important to keep in mind the emotional aspect of users, which helps graphic designers to design UI in a way which is in accordance with the emotional aspect of users' perceptions and preferences (Bhandari et al., 2019; Bhandari et al., 2017).

As the importance of UI designers has been highlighted, there is a need for a comprehensive, effective, and practice-based syllabus for designing the user interface for mobile applications. However, literature, as well as educational institutions, are mostly lacking in a good 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 in order to be successful in their design careers. Furthermore, the author asserted that a good syllabus provides both theoretical as well as practical knowledge. However, most of the UI design syllabi lack a strong theoretical base, especially the commercial organizations are only focusing on providing practical knowledge, which often leads to a lack of true knowledge for designers, and they do not know the basic theories or principles, which ensure the quality of the design (Constantine & Lockwood, 2001; Fadli, 2020; Galitz, 2007; J. Johnson, 2020).

Consequently, it is important the development of a good syllabus for the designing of user interfaces for mobile applications, which is based on theories and principles. This syllabus should provide not only theoretical knowledge but also practical knowledge (Norman, 2013). Furthermore, designers should be able to have a complete perspective of user interface design, which should include elements such as user needs, user expectations, usability criteria, and accessibility (Norman, 2013). Additionally, the syllabus should provide a well-balanced combination of design thinking and process of design that ensures that a good user interface is designed and is 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 5 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

In this pilot study, Jordanians (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) were interviewed in order to collect data on the research problem.

The pilot study is intended to illustrate the practical problems faced by students in Jordan during their current UI design syllabus. Questions were asked 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 pilot study

The First Draft Syllabus Development (Cycle One)

In this stage, the 13 most prominent syllabi from all over the world were analyzed to extract the first draft. In this phase, a syllabus is designed that follows all previous syllabuses. An analysis of qualitative documents was conducted (document analysis) as a result of this analysis, and using a grouping method to select the most suitable content that aligns with the current study aim and theoretical foundation. Therefore, we choose the most appropriate parts from each syllabus to use, edit or develop for the new specialized. The first draft was developed as 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

After finalizing the final draft of the proposal based on comments from the five experts, there is a need to evaluate the final draft based on students in a real-life setting. As such, 50 students from different universities in Jordan were interested in participating in the training program. After communicating with them, 38 students registered on the website for the training program. There were 38 students in the program at the beginning, but only 26 remained at the end. In a survey sent to the 12 students who did not continue, all answered that it was an overload of work and lack of time.

The questions were designed to evaluate different aspects of the training program, which is built on the final draft of the syllabus developed in Cycle 2. In total, 11 relevant questions were asked to students at the end of the training program. For each question, we asked the participants to give a general evaluation along with narrative feedback in case they wanted to elaborate more. 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?

Overall, students' evaluation of the program was very positive. This shows that the training program was effective in helping students gain the practical knowledge they need to enter the market. The researcher will work to improve the program further by connecting students with more training opportunities, as well as enhancing their current materials. In addition, the researcher will work to incorporate more advanced editing techniques in the videos to make them more engaging for the students.

A majority of the students found the program to be of great benefit to their design knowledge and skillset. Through the free materials, students were able to gain a better understanding of the design process. Moreover, the students found that taking the course online was advantageous, as it allowed them to complete the course at their own pace. Finally, the majority of students preferred future training to be online, which shows the preference of students in this particular case.

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

After identifying a research problem to prove the novelty of its contribution, the study fulfilled its objectives as follows.

First objective: Building up a new experimental syllabus for teaching user interface mobile apps with a modern measurable learning procedure.

In the current study, the syllabus was developed based on three different cycles. The first cycle was based on analyzing the 13 most prominent online syllabi, whether from prestigious universities or commercial websites that are well-known for providing relevant courses. This led to the first draft of the syllabus, which contains the major components. Then the second draft was developed based on the opinion of five experts who specialize in user interface design or syllabus development. Based on their opinions and recommendations, the final draft was amended to include the best practices. This final draft covers the most desired components, which take into consideration the theoretical and practical knowledge that the syllabus will deliver to targeted students. 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 whereby 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 the design principles discussed in chapter two. In short, the syllabus has the structure principle. According to this principle, the user interface should be clear and arranged with meaningfulness; however, it can also apply to models that are familiar

to users (Constantine & Lockwood, 2001). It also has the simplicity principle, which advocates that simplicity is the key to making applications more appealing and more user-friendly by simplifying tasks for users (Blair-Early & Zender, 2008). In addition, the final draft does not have overwhelming options that may distract the students, which is consistent with visibility principles as advocated by Bhaskar et al. (2011) and Constantine and Lockwood (2001). Additionally, three other principles were considered in developing the syllabus: feedback, tolerance, and reuse (Constantine & Lockwood, 2001). The feedback principle suggests that the user should be aware of the system's state at all times so they can anticipate the next step or take corrective action if needed. Meanwhile, the tolerance principle encourages flexibility and low-cost mistakes from users. Lastly, the reuse principle allows users to use components from previous design solutions instead of building everything from scratch. All these principles are considered in the syllabus to make it easier for students to understand the process and get the most out of the course.

In addition, the final syllabus considers the balance between covering theoretical and practical knowledge to students during the course. This provides students with an understanding of the concepts, as well as a chance to practice what they have learned. Moreover, the syllabus has an effective evaluation system that is consistent with the course requirements and focuses on the evaluation of students' performance on the course's objectives. This evaluation system will help track students' performance and identify any areas of improvement. Lastly, the syllabus gives students the opportunity to present their projects at the end of the course, which allows them to apply their theoretical knowledge in real-life situations. This design of the syllabus is in line with the theories that inform the syllabus design, such as sociocultural Learning Theory, which postulates both theoretical and practical learning. According to Kirshner et al. (1997), this theory emphasizes that knowledge and action are not separate. Knowledge is valuable when it is applied. As a result, theoretical and practical knowledge are both valuable.

In addition, the rigour of developing the syllabus stemmed from using another theoretical foundation which is the ADDIE Model (Reinbold, 2013). This instructional design model states that the design process should start with analysis, followed by design, development, implementation and evaluation (Nadiyah & Faaizah, 2015). This model was used to structure the syllabus by first identifying the needs of the students and the objectives of the course. This was followed by designing activities that meet the objectives and are appropriate for the students. The

development process varied from providing lecture notes, finding sources of information, and creating assessment tasks. The implementation process used the course delivery system, allowing students to access the material and activities online. The evaluation process used a system of formative and summative assessment tools to track the students' progress. Furthermore, the syllabus has been designed to ensure that it is able to accommodate any changes or modifications that may arise. This is to ensure that the course is able to meet the needs of the students and course objectives in the long term.

Apart from the above, the final syllabus also followed the principle of the SAM model of instructional design (Allen & Sites, 2012). This model focuses on the two main elements of motivation and rehearsal. Motivation is addressed by providing students with an engaging course, while rehearsal promotes the application of knowledge and skills. Additionally, the syllabus included topics and activities that were relevant to the student's needs and the course objectives.

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

After developing the first draft of the syllabus, the syllabus was evaluated by students. Overall, students were very positive about the program (syllabus). Students gained practical knowledge through the training program, proving the program's effectiveness. It also found that the program was greatly beneficial to the majority of students' design knowledge and skill set. Students learning about the design process was enhanced by the free materials. In addition, students appreciated being able to complete the course at their own pace by taking the course online. In conclusion, the majority of students preferred online training in the future, indicating their preferences. The syllabus was found to be much more effective than the traditional methods. Furthermore, the program helped students gain a better understanding of the mobile app design process, which is essential for the success of their projects. The fact that all participants rated the program favorably is a testament to the fact that experimental syllabuses can be successful and beneficial to students in terms of learning user interface mobile app design.

Ultimately, the evaluation shows that students prefer online delivery in this type of course over face-to-face interaction. This result is contradictory or partially agreed with prior research about the preference of students to take courses either face to face or using a hybrid approach (Beebe, Gurenlian, & Rogo, 2014; Patano et al., 2021; Ramani, 2022). This can allude to the fact

that students are more comfortable taking courses online, and it allows them to be more productive in their studies. Moreover, the use of technology in the program was an added benefit, as it enabled students to access the material and practice on their own time. Finally, the lack of physical interaction with the instructor did not seem to hinder the learning process, as some experts have suggested.

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

We achieved this objective by evaluating the four delivered students' projects separately as well as overall experts' perceptions based on students' projects. According to the experts, the student's final projects presented excellent to very good results, indicating that they were satisfied with them. According to the answers, the first two projects were highly evaluated compared with the last two, and redesigning projects requires more expertise, according to the experts. Additionally, it was found that students should be asked to design new project designs with new design identities and user experiences in the future. It may be necessary to delay redesigning projects until a later stage. Creating better Behance presentations will require experience and more reading.

Furthermore, 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 to each other. Also, the students did not use ready-to-use material throughout the whole project, so in the future, 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 affect the project's final results. Two of the redesigned projects demonstrated this. 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 (F. Wang & Hannafin, 2005). 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. In conclusion, this study provides evidence that an experimental syllabus that focuses on user interface mobile app design can be an effective learning tool for graphic design students.

CONCLUSION

The study identified a gap in specialized courses on UI mobile app design as a part of the bachelor's degree and used the Needs Analysis theory to conduct a thorough analysis of the needs of the learners and society in order to develop an effective and relevant curriculum. The study also found support from previous studies that also highlighted the need to develop a new syllabus for graphic design students that focus on UI design. The research objectives were fulfilled by building a new experimental syllabus for teaching user interface mobile apps with a modern measurable learning procedure, which includes four major components: the introduction, UI process, UI components, and project work. This syllabus was evaluated by the students and experts in the field and showed a positive outcome. It can be concluded that this syllabus is capable of meeting the needs and demands of students, universities, and industry professionals. Moreover, the results of this study can be used to improve existing teaching methods and inform future syllabi. Thus, this study demonstrates that proper education in UI design is necessary to keep up with the rapidly changing digital world.

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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 • 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 • 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 • For portfolio • 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 UI • Chose an 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 • 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
<p>5. Introduction</p> <ul style="list-style-type: none"> • User interface design • User experience design • The relationship between UI and UX • The Process of Mobile App Designing
<p>6. UI Process</p> <ul style="list-style-type: none"> ✓ Theoretical • 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 ✓ Practical

<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
<p>7. 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>8. Final project</p>
<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
<ul style="list-style-type: none"> ✓ Analytical (adding new section) • Choosing groups of real apps from the store in one category • Recording analytical videos for the selected app and sending them to the students • Making analytical dissection with students
<ul style="list-style-type: none"> ✓ Tools • Prototyping Tools: Adobe Experience Design Introduction – Design – Prototype - Share and export - Design systems - Cloud documents - Integrations and plugins - XD for iOS and Android • Using Adobe XD App for mobile (adding new topic) • Collaboration between Adobe programs • Elaborating the wireframes into page mockups • Using Photoshop mockup to present mobile screens
<ul style="list-style-type: none"> ✓ Publish • For programmer • For portfolio (Review more real successful projects & make analytical study for featured projects on Behance website or dribbble website)-(adding more information)) • 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 (At this stage, the chosen projects should be new, not redesign projects also should be studied from a UX perspective) • 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.