جامعة الزيتونــة الأردنيــة
**Al-Zaytoonah University of Jordan**
كلية العلوم وتكنولوجيا المعلومات
**Faculty of Science and IT**

" عراقة وجودة"
"Tradition and Quality"

| Course Plan for Bachelor program - Study Plan Development and Updating Procedures/ Computer Science Department | QF01/0408-4.0E |
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| Study plan No. | 2021-2022 | | Optional Specialization Requests | | Artificial Intelligence |
|---|---|---|---|---|---|
| Course No. | 0112435 | | Course name | | Internet of things applications |
| Credit Hours | 3 | | Prerequisite Co-requisite | | 0125232 |
| Course type | ☐ MANDATORY UNIVERSITY REQUIREMENT | ☐ UNIVERSITY ELECTIVE REQUIREMENTS | ☐ FACULTY MANDATORY REQUIREMENT | ☐ Support course family requirements | √Mandatory requirements ☐Elective requirements |
| Teaching style | √Full online learning | | ☐ Blended learning | | ☐Traditional learning |
| Teaching model | ☐ 2Synchronous: 1asynchronous | | √2 face to face : 1synchronous | | ☐3 Traditional |

**Faculty member and study divisions' information (to be filled in each semester by the subject instructor)**
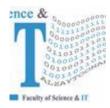
| Name | Academic rank | Office No. | Phone No. | E-mail |
|---|---|---|---|---|
| Ahmad Abusukhon | Associate professor | -- | 0777669438 | ahmad.abusukhon@zuj.edu.jo |
| | | | | |

| Division number | Time | Place | Number of students | Teaching style | Approved model |
|---|---|---|---|---|---|
| 1 | 1 | 1 | 1 | Face to face | -- |
| | | | | | |
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**Brief description**

This course describes many issues regarding the Internet of things. It includes an introduction to IoT, Solution Patterns for the Internet of Things, the edge of the IoT, the cloud, IoT applications.

**Learning resources**

| Course book information (Title, author, date of issue, publisher ... etc) | 1- J. Biron & J. Follett Foundational Elements of an IoT Solution- The Edge, The Cloud, and Application Development. 2016 O'Reilly Media, Inc, 1st edition. |
|---|---|
| Supportive learning resources (Books, databases, periodicals, software, applications, others) | 2- J. Follett, Designing for Emerging Technologies, UX for Genomics, Robotics and the Internet of Things. O'Reilly |
| Supporting websites | |
| The physical environment for teaching | ✓Class room ☐ labs ☐ Virtual educational platform ☐ Others |
| Necessary equipment and software | |
| Supporting people with special needs | |

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| For technical support | |
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## Course learning outcomes (S= Skills, C= Competences K= Knowledge,)

| No. | Course learning outcomes | The associated program learning output code |
|---|---|---|
| **Knowledge** | | |
| **K1** | Describe an introduction to the Internet of Things. | **MK2** |
| **K2** | Describe Solution Patterns for the Internet of Things. | **MK2** |
| **K3** | Describe the edge of the IoT | **MK2** |
| **K4** | Describe the cloud | **MK2** |
| **K5** | Describe various applications on the Internet of Things. | **MK2** |
| **Skills** | | |
| **S1** | Apply artificial intelligence techniques in the Internet of Things domain | **MS4** |
| **S2** | Effectively design and develop the IoT applications | **MS4** |
| **S3** | Analyze and apply knowledge representation | **MS4** |
| **S4** | Analyze problem specifications and derive appropriate solution techniques for them | **MS4** |
| **S5** | Evaluate advantages and disadvantages of an IoT system, and compare and contrast between them. | **MS4** |
| **Competences** | | |
| **C1** | Produce various products which are required by the market and solve practical problems. | **MC3** |

## Mechanisms for direct evaluation of learning outcomes

| Type of assessment / learning style | Fully electronic learning | Blended learning | Traditional Learning (Theory Learning) | Traditional Learning (Practical Learning) |
|---|---|---|---|---|
| First exam | 0 | 0 | **%20** | 0 |
| Second / midterm exam | %30 | %30 | **%20** | 30% |
| Participation / practical applications | 0 | 0 | **10** | 30% |
| Asynchronous interactive activities | %30 | %30 | **0** | 0 |
| final exam | %40 | %40 | **%50** | 40% |

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**Note:** Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, work within student groups ... etc, which the student carries out on his own, through the virtual platform without a direct encounter with the subject teacher.

## Schedule of simultaneous / face-to-face encounters and their topics

| Week | Subject | learning style* | Reference ** |
|---|---|---|---|
| 1 | Introduction to the Internet of Things | Lecture | **1-4 (Ref 1)** |
| 2 | Solution Patterns for the Internet of Things | Lecture, learning through projects, learning through problem solving | **5-10 (Ref 1)** |
| 3 | Solution Patterns for the Internet of Things | Lecture, learning through projects, learning through problem solving | **11-20 (Ref 1)** |
| 4 | The edge of Internet of Things + Review | Lecture, learning through projects, learning through problem solving | **21-35 (Ref 1)** |
| 5 | First exam | | |
| 6 | The edge of Internet of Things | Lecture, learning through projects, learning through problem solving | **35-38 (Ref 1)** |
| 7 | The Cloud | Lecture | **39-45 (Ref 1)** |
| 8 | The Cloud | Lecture, learning through projects, learning through problem solving | **45-50 (Ref 1)** |
| 9 | Designing for emerging technologies | Lecture, learning through projects, learning through problem solving | **1-15 (Ref 2)** |
| 10 | Second exam | | |
| 11 | Designing for emerging technologies | Lecture, learning through projects, learning through problem solving | **16-26 (Ref 2)** |
| 12 | Intelligent material: Designing material behavior. | Lecture, learning through projects, learning through problem solving | **27- 44 (Ref 2)** |
| 13 | Fashion with function: Designing for Wearable | Lecture, learning through projects, learning through problem solving | **65-115 (Ref 2)** |
| 14 | Internet of Things application | Lecture, learning through projects, learning through problem solving | **51-55 (Ref 1)** |
| 15 | Internet of Things application | Lecture, learning through projects, learning through problem solving | **56-60 (Ref 1)** |
| 16 | **Final Exam** | | |

**\* Learning styles: Lecture, flipped learning, learning through projects, learning through problem solving, participatory learning ... etc.**
**\*\* Reference: Pages in a book, database, recorded lecture, content on the e-learning platform, video, website ... etc.**

## Schedule of asynchronous interactive activities (in the case of e-learning and blended learning)

| Week | Task / activity | Reference | Expected results |
|---|---|---|---|
| 1 | To be filled by the AI section with the tasks which fulfill their requirements | | |

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