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| **Faculty:** Engineering Technology | |
| **Program:** BSc Architectural Eng. | **Department:** Architectural |
| **Semester:** Second (Spring) | **Academic year:** 2024/2025 |

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**Course Plan**

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| **First: Course Information** | | | | | | |
| ***Practical: 0*** | | ***Theoretical: 3*** | ***Credit Hours: 3*** | | ***Course Title:*** Technical equipment of building | | ***Course No.:*** 0908372 | |
| ***Lecture Time: 09.30-10.30 Mon, Wend, Sat*** | | | | ***Section No.: 1*** | | ***Prerequisite No.:*** 908263 | | |
| ***7*** | | | | | | | ***Level in JNQF*** | |
| ***Obligatory University Requirement Elective University Requirement***  ***Obligatory Faculty Requirement Elective Faculty Requirement***  ***Obligatory Specialization Requirement Elective Specialization Requirement***  ***Ancillary course*** | | | | | | | ***Type Of Course:*** | |
| ***Face-to-Face Learning***  ***Blended Learning (2 Face-to-Face + 1 Asynchronous)***  ***Online Learning (2 Synchronous+ 1 Asynchronous)*** | | | | | | | ***Type of Learning:*** | |

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| **Second: Instructor’s Information** |

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| ***Course Coordinator:*** | | | |
| ***Academic Rank: Assistant Professor*** | | ***Name: Malek Al Momani*** | |
| ***Email: mmomani@zu.edu.jo*** | ***Extension Number: 2085*** | ***Office Number: 238L*** | |
| ***Course Instructor:*** | | | |
| ***Academic Rank: Assistant Professor*** | | ***Name: Dr Malek Al Momani*** | |
| ***Email: mmomani@zu.edu.jo*** | ***Extension Number: 2085*** | ***Office Number: 238L*** | |
| ***Sunday Monday Tuesday Wednesday Thursday Satarday***  ***09.30-10.30 09.30-10.30*** | | | ***Office Hours:*** |

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| **Third: Course Description** |

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| The course aims to study the equipment of elevators, escalators, traffic corridors and firefighting systems, and to discuss the environmental studies such as air and water purification, solar energy exploitation, sewage analysis, as well as the study of sewage, cold and hot water at buildings. |

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| **Fourth: Course objectives** |

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| -Identify the fundamentals of Technical Structures of buildings  -Develop sufficient understanding of the equipment of elevators, escalators, traffic corridors, and firefighting systems  -Develop good understanding on the sewage system, and cold and hot water systems in buildings  -Develop sufficient understanding of the global environmental issues, such as air and water purification, solar energy exploitation, and sewage analysis  -Ability to identify the Technical Equipment requirements for physical structures  -Ability to integrate the knowledge of Technical Equipment into building structural design  -Ability to implement sewage systems, and hot and cold water systems into architectural projects  -Ability to acknowledge the global environmental issues in architectural project  -Ability to identify all the Technical Equipment necessary for the completion of every architectural building following the structural construction phase to ensure the enabling of healthy inhabitation |

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| ***Associated PILOs***  ***Code***  *Choose one PILO for each CILO\** | ***CILOs***  If any CLO will not be assessed in the course, mark NA. | ***CILOs Code*** | ***Level descriptor***  ***according***  ***to (JNQF)*** |
| **PO1** | Identify the fundamentals of Technical Structures of buildings | **K1** | **Knowledge** |
| **PO1** | Develop sufficient understanding of the equipment of elevators, escalators, traffic corridors, and firefighting systems | **K2** |
|  | Develop good understanding on the sewage system, and cold and hot water systems in buildings | **K3** |
|  | Develop sufficient understanding of the global environmental issues, such as air and water purification, solar energy exploitation, and sewage analysis | **K4** |
| **PO4** | Ability to identify the Technical Equipment requirements for physical structures | **S1** |
|  | Ability to integrate the knowledge of Technical Equipment into building structural design | **S2** |
|  | Ability to implement sewage systems, and hot and cold water systems into architectural projects | **S3** |
| **PO6** | Ability to identify all the Technical Equipment necessary for the completion of every architectural building following the structural construction phase to ensure the enabling of healthy inhabitation | **C1** | **Competencies** |

**Sixth: Learning Resources**

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|  | ***Building Services Engineering*** | | ***Main Reference:*** |
| ***Publication Year: 2013*** | ***Issue No.: 6th Edition*** | ***Author: David V.Chadderton*** | |
| * ***Hall, F. and Greeno, R., 2017. Building services handbook. Routledge.*** * ***Bleicher, D., 2017. The illustrated guide to mechanical building services.*** | | | ***Additional Sources&Websites:*** |
| ***Classroom Laboratory Workshop MS Teams Moodle*** | | | ***Teaching Type:*** |

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| **Seventh : Course Structure** |

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| Lecture Date | Intended Teaching Outcomes (ILOs) | Topics | Teaching Procedures\* | Teaching Methods\*\* | References\*\*\* |
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| 03.03.25 | K1, K2 | Syllabus+Introduction | Face-to-Face | PPT Lecture | Textbook |
| 05.03.25 | K1, K2 | Ventilation, Air  Conditioning and  Heating(Sl.2-Sl.10) | Face-to-Face | PPT Lecture | Textbook |
| 08.03.25 | K1, K2 | Activity No. 1  مبدا عمل المكيف | Asynchronous | Assignment | Google |
| 10.03.25 | K1, S1 | Ventilation, Air Conditioning and  Heating(Sl.11-Sl.20) | Face-to-Face | PPT Lecture | Textbook |
| 12.03.25 | K1, S1 | Ventilation, Air  Conditioning and  Heating(Sl.21-Sl.30) | Face-to-Face | PPT Lecture | Textbook |
| 15.03.25 | K1, S1 | Activity No. 2  عمل التدفئة المركزية | Asynchronous | Assignment | Google |
| 17.03.25 | K1, S1 | Ventilation, Air  Conditioning and  Heating(Sl.31-Sl.38 | Face-to-Face | A self-check  essay | Textbook |
| 19.03.25 | S1 | Solar Energy(Sl. 1-Sl. 8) | Face-to-Face | PPT Lecture | Textbook |
| 22.03.25 | K1, S1 | Activity No. 3  السخانات الشمسية | Asynchronous | Assignment | Google |
| 24.03.25 | K2,K3 | Lifts and Stairs(Sl. 1-Sl.10 | Face-to-Face | Quiz over video | Textbook |
| 26.03.25 | K2,K3 | Lifts and Stairs(Sl.11-Sl.18 | Face-to-Face | PPT Lecture | Textbook |
| 29.03.25 | K1, S1 | Activity No. 4  المصاعد | Asynchronous | Assignment | Google |
| 31.03.25 | ……………………… | …………….. | ………………. | ……………….. | ……………. |
| 02.04.25 | …………………….. | ……………………. | ……………….. | …………………. | ………….. |
| 05.04.25 | K2,K3 | Lifts and Stairs(Sl. 19-Sl.25 | Asynchronous | Assignment | Textbook |
| 07.04.25 | K2,K4 | Fire Safety System  (Sl. 1-Sl.15) | Face-to-Face | Educational  video | Google |
| 09.04.25 | K1,K2,K4 | Fire Safety System(Sl. 16-Sl.33 | Face-to-Face | PPT Lecture | Textbook |
| 12.04.25 | K1,K2,K4 | Activity No. 6  مضخات الحريق | Face-to-Face | Assignment | Google |
| 14.04.25 | K1,K2,K4 | Fire Safety Systems (Sl. 34-Sl.50) | Face-to-Face | PPT Lecture | Google |
| 16.04.25 | ,K2,K4 | Fire Safety Systems (Sl.5 1-Sl.65) | Face-to-Face | PPT Lecture | Textbook |
| 19.04.25 | K2,K3 | Activity No. 7  نظم الامان في الحريق | Asynchronous | Assignment | Google |
| 21.04.25 | K2,K3 | Fire Safety Systems (Sl. 66-Sl.80) | Face-to-Face | PPT Lecture | Textbook |
| 23.04.25 | K2,K3 | Fire Safety Systems (Sl.8 1-Sl.95) | Face-to-Face | PPT Lecture | Textbook |
| 26.04.25 | ,K2,K4 | Activity No. 8  انظمة الصرف الصحي في المباني | Asynchronou | Assignment | Google |
| 28.04.25 | K1,K2,K3 K4,S1 | Sanitary Pipework Systems in Buildings (Sl. 1-Sl.10) | Face-to-Face | PPT Lecture | Textbook |
| 30.04.25 | K3,K4 S2,S3 | Sanitary Pipework Systems in Buildings (Sl. 11-Sl.20) | Face-to-Face | PPT Lecture | Textbook |
| 03.05.25 | ,K2,K4,S2,S3 | Activity No. 9  انظمة الصرف الصحي في المباني | Asynchronou | Assignment | Textbook |
| 05.05.25 | K1,K2, K3, S1 | **Midterm Exam** | Face-to-Face |  |  |
| 07.05.25 | S2,S3 | Sanitary Pipework Systems in Buildings (S2l. 1-Sl.31) | Face-to-Face | PPT Lecture | Textbook |
| 10.05.25 | S2,S3 | Activity No. 10  مصادر المياه | Asynchronou | Assignment | Google |
| 12.05.25 | S3,S4 | Water Resources and Processing Systems (Sl. 1-Sl.18) | Face-to-Face | PPT Lecture | Textbook |
| 14.05.25 | S3,S4 | Water Resources and Processing Systems (Sl. 19-Sl.35) | Face-to-Face | PPT Lecture | Textbook |
| 17.05.25 | K4,S4 | Activity No. 11  مصادر المياه | Asynchronou | Assignment | Google |
| 19.05.25 | K4,S4 | Water Resources and Processing Systems (Sl. 36-Sl.58) | Face-to-Face | PPT Lecture | Textbook |
| 21.05.25 | K4,S4 | Water Feeds  Building Systems (Sl. 1-Sl.17) | Face-to-Face | PPT Lecture | Textbook |
| 24.05.25 | K4,S4 | Activity No. 12  طرق تزويد المباني بالمياه | Asynchronou | Assignment | Google |
| 26.05.25 | K4,S4 | Water Feeds  Building Systems (Sl. 18-Sl.35) | Face-to-Face | PPT Lecture | Textbook |
| 28.05.25 | K3, K4 | Water Feeds  Building Systems (Sl.36-Sl.57) | Face-to-Face | PPT Lecture | Textbook |
| 31.05.25 | K3,S3 | Activity No. 13  انظمة تغذية الابنية بالمياه | Asynchronou | Assignment | Google |
| 02.06.25 | K3, S3 | Water Feeds  Building Systems (Sl. 58-Sl.70) | Face-to-Face | PPT Lecture | Textbook |
| 04.06.25 | K4, C1 | Water Feeds  Building Systems(Sl. 71-Sl.87) | Face-to-Face | PPT Lecture | Textbook |
| **TBC** | **K1-4,S1-4,C1** | **Final Exam** | Face-to-Face |  |  |

\* Learning procedures: (Face-to-Face, synchronous, asynchronous). \*\* Teaching methods: (Lecture, videos, etc…..). \*\*\* Reference: (Pages of the book, recorded lecture, video….).

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| **Eighth:Assessment Methods** |

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| **Methods** | **Online Learning** | **Blended Learning** | **Face-To-Face**  **Learning** | **Specific Course Output to be assessed**  \*\*If any CILO will not be assessed in the course, mark NA. | | | | |  |  |  |
| **K1** | **K2** | **S1** | **S2** | **C1** |  |  |  |
| **First Exam** | - | **-** | - | **-** | **-** | **-** | **-** | **-** |  |  |  |
| **Second Exam** | - | **-** | - | **-** | **-** | **-** | **-** | **-** |  |  |  |
| **Mid-term Exam** | - | **30** | - | **10** |  | **10** |  | **10** |  |  |  |
| **Participation** | - | **-** | - | **-** | **-** | **-** | **-** | **-** |  |  |  |
| **Asynchronous Activities** | - | **10** | - | **5** |  | **5** |  |  |  |  |  |
| **Quizzes** | - | **-** | - | **-** | **-** | **-** | **-** | **-** |  |  |  |
| **Assignments** | - | **10** |  | **5** |  | **5** |  |  |  |  |  |
| **Group presentation** | - | **-** | - | **-** | **-** | **-** | **-** | **-** |  |  |  |
| **Final Exam** | - | **50** | - | **10** | **10** | **10** | **10** | **10** |  |  |  |
| **Total out of 100** | - | **100** | - | **30** | **10** | **30** | **10** | **20** |  |  |  |

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| **Ninth : Course Policies** |

* All course policies are applied on all teaching patterns (online, blended, and face-to-face Learning) as follows:

1. Punctuality.
2. Participation and interaction.
3. Attendance and exams.

* Academic integrity: (cheating and plagiarism are prohibited).

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| **Approval** | **Name** | **Date** | **Signature** |
| **Head of Department** | Dr Dalia Al-Tarazi | 03/03/2025 |  |
| **Faculty Dean** | Dr Abdullah Khatib | 03/03/2025 |  |