**Ministry Of Higher Education and Scientific Research**

**Mustansiriyah University/College of Science/Dept. of Atmospheric Sciences**

**(الخطة الدراسية للمساق)**

**Course Plan**

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| **Course No.:1** |  |
| **Course Name: Boundary Layer Lab1** | **Time Division:** |
| **Course Websitehttps://uomustansiriyah.edu.iq/e-learn/profile.php?id=463** | **Semester & Year:**   1 , **2023/2022** |

**Course Description**

* The first course includes experiments to calculate the vertical structure of the boundary layer and the identification of the secondary layers shown during it, as well as the calculation of the mechanical effect on the wind movement and the application of the Pasqual equation to classify the stability of the air

**Course Intended Outcomes:**

* At the end of the first course, we expect the student to know the shape of the vertical structure of the boundary layer and the types of air stability within the boundary layer and the effect of the surface on horizontal wind movement.

Lab **Course Outline:**

**Course Outline:**

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| --- | --- |
| **Week** | **Description depends on the Timing table (Theoretical & Practical)** |
| 1 | Lab 1:The vertical structure of BL by using drawing potential  temperature profile |
| 2 | Lab 2:The vertical structure of BL by using drawing potential  temperature profile |
| 3 | Lab 3:Discussion the results |
| 4 | Lab 4: Estimation of fraction velocity (u\*). |
| 5 | Lab 5:Discussion the results |
| 6 | Lab 6: Calculation drag coefficient of surface (CD) by using  formotric methods. |
| 7 | Lab7: Discussion the results |
| 8 | Lab 8:.Calculation of turbulent intensity of horizontal wind speed. |
| 9 | Lab9: Discussion the results |
| 10 | Lab 10:.Finding atmospheric stability categories by using Basiquil  method. |
| 11 | Lab11: Discussion the results |
| 12 | First Exam |
| 13 |  |
| 14 |  |
| 15 |  |

**Textbooks:**

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| 1. Stull , R. , 2004 : An Introduction to Boundary layer Meteorology ,Kluwer Academic Publishers, London. |

**Suggested references:**

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| 1. McIntosh, D. H. and A. S. Thom., 1981: Essentials of Meteorology.   Taylor and Francis LTD, London. |

**Marking:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Course** | | | | | **Final Exam** | **Final Mark** |
| **1st exam** | **2nd exam** | **Practical** | **Activity** | **Total** |  |  |
| **10** | **10** | **10** | **2** | **12** | **20** | **32** |
|  |  |  |  |  |  |  |

**Assignments and/ or Projects:**

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| --- | --- | --- | --- |
| **Assignment/ Project** | **Description** | **Due Date** | **Marking** |
| **A report** | **A report submitted by the student on any external subject** | **Weakly** | **10** |

**Instructor(s) information**

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| **Section:     Atmospheric Sciences Building** | | **Lecture Room:** | **Boundary Layer Lab Office No.:** | |
| **Instructor's Name: L.Nagham Abbas Mohammed E-Mail**: **setnagham @uomustansiriyah.edu.iq** | | | |  |
| **Office Hours:5** | **days : Sunday , Tuesday**  **NOTES:**  **-Office Hour: Other office hours are available by appointment.**  **-The content of this syllabus not be changed during the current semester.**  **Lecturer Signature Chairman Signature** | | | |

**L. Nagham Abbas Mohammed**