**Ministry Of Higher Education and Scientific Research**

**AL-Mustansaria University/College of Science/Department of Computer Science**

**(الخطة الدراسية للمساق )**

***Course Plan***

|  |  |  |
| --- | --- | --- |
| **Course No.:** | | **Course Name: weather forecasting II** |
| **Academic Year:   2018-2019** | | **Time Division: 2hr Theoretical & 2hr Practical** |
|  |

**Course Description :**

|  |
| --- |
| this Annual course is an introduction to Science of weather forecasts , which is based on understanding types and methods of weather forecasting. and on techniques and methods used in observation atmospheric phenomena and their accompanying weather, which lead to prediction in weather elements, depending on the analysis of weather maps and satellite images , and on reviewing the equations and physical laws which is controlling these phenomena , like Pressure systems, fronts, clouds... ext. **Course Intended Outcomes :** |
| At the end of the course, students are expected to learn:   * what is the weather forecasting . * how to use the weather maps and satellite images in weather forecasting . * what is the role of physical laws in weather predictions . * forecasting in weather elements and basic atmospheric phenomena . |

# Course Outline:

|  |  |
| --- | --- |
| **Week** | **Description depends on the Timing table (Theoretical & Practical)** |
| 1 | **Introduction to weather forecasting**  Outline of weather forecasting, types of forecasting, method of weather forecasting. |
| 2 | **Weather maps**  Types of weather maps, gradients, the continuity of weather maps. |
| 3 | **Meteorological Co-ordinates**  Types of meteorological coordinates, slope and curvature of surface. |
| 4 | **Forecasting using satellites : part 1**  Meteorological satellite types and their properties, images and data obtained from meteorological satellites. |
| 5 | **Forecasting using satellites : part 2**  Using meteorological satellites in weather forecasting. |
| 6 | **pressure systems & fronts**  Synoptic pressure systems, fronts & their types, pressure systems influence in Iraq weather, |
| 7 | **Exam 1** |
| **8** | **Movement of pressure systems**  Moving systems of coordinate, digital representation of pressure systems, derive the velocity laws of pressure systems. |
| **9** | **Forecasting Methods in pressure systems movement: part 1**  Extension method, the base of equal lines of the dual pressure conduct, the base of inclination axis. |
| **10** | **Forecasting Methods in pressure systems movement: part 2**  The base of pressure lines equal of warm section, predicting in depressions center site (or heights) in Peterson method, the base of oriented stream. |
| **11** | **Forecasting in Intensification of pressure system: part 1**  Intensity of pressure systems, vertical composition of ideal front. |
| **12** | **Forecasting in Intensification of pressure system: part 2**  Forecasting in intensity of front decline by terms of meteorological variables. |
| **13** | **Vorticity & Circulation**  Vorticity motion, absolute vorticity, relationship between circulation and vorticity motion. |
| **14** | **Exam 2** |

**Textbooks:**

|  |
| --- |
| 1. Weather Analysis & forecasting, T. Vasquez, Weather Graphics Technologies, 2011. 2. Weather Analysis and Forecasting, S, Petterssen, McGraw-Hill; First Edition, 1956. 3. تجارب عملية في الرصد والتحليل والتنبؤ الجوي، منعم حكيم خلف، سناء عباس عبد الجبار، مؤسسة مصر مرتضى للكتاب العراقي للنشر، مطبعة جعفر العصامي، بغداد، 2010. |

**Suggested references:**

|  |
| --- |
| 1. Weather Forecasting Handbook, Tim Vasques, Fifth Edition,2002. 2. Compendium of meteorology,WMO,NO.364,1978. 3. Principles of Meteorological Analysis, Walter J.Saucier, University of Chicago Press,1955. 4. Weather Analysis and Forecasting, S, Petterssen, McGraw-Hill; First Edition, 1956. 5. فيزياء الجو والفضاء، الجزء الأول، الأنواء الجوية، الباحث العلمي د.حميد مجول، أ.م فياض عبد اللطيف النجم، الطبعة الأولى، 1982. 6. خرائط الطقس والتنبؤ الجوي، د.حازم توفيق، ماجد السيد ولي محمد ، 1985. 7. الجو عناصره وتقلباته، عبد الغني سلطان، 1985. 8. الرصد والتنبؤ الجوي، الدكتور علي حسين موسى,1986. 9. الطقس والمناخ والأرصاد الجوية ، خروسوف س.ب ، 1968. |

**Marking:**

|  |  |
| --- | --- |
| **First Semester** | **Final Exam** |
| |  |  |  |  | | --- | --- | --- | --- | | **1st exam** | **2nd exam** | **Practical** | **Activity** | | **14** | **14** | **10** | **2** | | |  | | --- | |  |   60 |

**Assignments and/or Projects:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Assignment/Project** | **Description** | **Due Date** | **Marking** |
| H.W | answering a series of questions with the end of each a week semester | During the course | 1 |
| Quizzes | Two or more quizzes | During the course | 1 |

**Instructor information:**

|  |  |  |
| --- | --- | --- |
| Lecture Room No.: [ 201 ] | Time:  **TUS, 8:30-12:30** | |
| Instructor's Name *Dr. Hazim H. Hussain Al-Saleem* | | Office No.: **5** | | |
| E-Mail: [*Dr.Hazim@uomustansiriyah.edu.iq*](mailto:Dr.Hazim@uomustansiriyah.edu.iq)  ***NOTES:***   * ***Office Hours: Other office hours are available by appointment.*** * ***The content of this syllabus not be changed during the current semester.*** | | | |  |

**Lecturer Signature ** Chairman Signature**