

# PHILOSOPHY OF MODERN SCIENCE I

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|------|--|---|
| 1    | Course Title:  | PHILOSOPHY OF MODERN SCIENCE I  |
| 2    | Course Code:   | FEL6117   |
| 3    | Type of Course:  | Optional  |
| 4    | Level of Course:   | Third Cycle   |
| 5    | Year of Study:   | 1   |
| 6    | Semester:  | 1   |
| 7    | ECTS Credits Allocated:  | 4.00  |
| 8    | Theoretical (hour/week):                                       | 2.00  |
| 9    | Practice (hour/week):  | 0.00  |
| 10   | Laboratory (hour/week):  | 0   |
| 11   | Prerequisites:   |   |
| 12   | Language:  | Turkish   |
| 13   | Mode of Delivery:  | Face to face  |
| 14   | Course Coordinator:  | Prof. Dr. IŞIK EREN   |
| 15   | Course Lecturers:  | Prof. Dr. ABDÜLKADIR ÇÜÇEN  |
| 16   | Contact information of the Course Coordinator:                 | Kadir@uludag.edu.tr;<br>Uludag Üniversitesi Felsefe Bölümü Fen-Edebiyat Fakültesi, 16059<br>Görükle, Bursa - Türkiye.<br>Tel: +90 224 2941826                             |
| 17   | Website:   |   |
| 18   | Objective of the Course:                                       | In this course it is aimed at making survey of the characteristics of scientific knowledge in both natural and human sciences as well as its extension and main problems. |
| 19   | Contribution of the Course to Professional Development:        |   |
| 20   | Learning Outcomes:   |   |
|      | 1  | To be able to explain the fundamental problems of philosophy of science.  |
|      | 2  | To be able to explain philosophical foundations of distinction of sciences.   |
|      | 3  | To be able to develop debate about scientific criteria.   |
|      | 4  | To be able to explain results of absolute positivism and knowing critics about this   |
|      | 5  |   |
|      | 6  |   |
|      | 7  |   |
|      | 8  |   |
|      | 9  |   |
|      | 10   |   |
| 21   | Course Content:  |   |
|      | <b>Course Content:</b>   |   |
| Week | Theoretical  | Practice  |
| 1    | Attempts to find an answer to the question: "What is Science?" |   |
| 2    | Philosophy of Pierre Duhem                                     |   |
| 3    | Theories as dictionary   |   |

| 4  | Theory-ladenness of observation and experiment |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
|--|--|---|--------|-----------------|------------------------|---|------|------|---|------|------|---|------|------|---|------|------|----|------|------|---|------|------|----|-------|-------|---|------|------|----|-------|-------|-----------------|--|--------|
| 5  | Philosophy of Émile Meyerson                   |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 6  | Pre-conceived ideas in science                 |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 7  | Ineffaceableness of ontology in science        |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 8  | Philosophy of Alexandre Koyré                  |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 9  | Irrational elements in science                 |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 10   | A priori elements in science                   |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 11   | Scientific revolution                          |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 12   | The theory precedes the experiment             |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 13   | The theory precedes the experiment - continued |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 14   | Evaluation                                     |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
|  |  |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 22   | Textbooks, References and/or Other Materials:  | 1. Ayer, Alfred J., Dil, Doğruluk ve Mantık, (Çev. Vehbi Hacıkadıroğlu), İstanbul: Metis Yayınları, 1998<br>2. Güzel, Cemal (Ed.). Sağduyu Filozofu: Popper, Ankara: Bilim ve Sanat Yayınları, 1996<br>3. Güzel, Cemal (Ed.). Bir Bilgi Anarşisti: Paul Feyerabend, Ankara: Bilim ve Sanat Yayınları, 1996<br>4. Güzel, Cemal (Ed.). Çoğulculuğun Kuramcısı: Lakatos, Ankara: Bilim ve Sanat Yayınları, 1999<br>5. Güzel, Cemal, Bilim Felsefesi, Ankara: Kırmızı Yayınları, 2010.<br>6. Kabadayı, Talip. Yanlışlanabilirlik Ölçütüne Yönelik   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Activites  |  | <table> <tr> <th>Number</th><th>Duration (hour)</th><th>Total Work Load (hour)</th></tr> <tr> <td>8</td><td>2.00</td><td>2.00</td></tr> <tr> <td>0</td><td>0.00</td><td>0.00</td></tr> <tr> <td>4</td><td>4.00</td><td>4.00</td></tr> <tr> <td>5</td><td>1.00</td><td>5.00</td></tr> <tr> <td>10</td><td>0.00</td><td>0.00</td></tr> <tr> <td>0</td><td>0.00</td><td>0.00</td></tr> <tr> <td>12</td><td>15.00</td><td>15.00</td></tr> <tr> <td>0</td><td>0.00</td><td>0.00</td></tr> <tr> <td>16</td><td>16.00</td><td>16.00</td></tr> <tr> <td colspan="2">Total Work Load</td><td>120.00</td></tr> </table> | Number | Duration (hour) | Total Work Load (hour) | 8 | 2.00 | 2.00 | 0 | 0.00 | 0.00 | 4 | 4.00 | 4.00 | 5 | 1.00 | 5.00 | 10 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 12 | 15.00 | 15.00 | 0 | 0.00 | 0.00 | 16 | 16.00 | 16.00 | Total Work Load |  | 120.00 |
| Number   | Duration (hour)                                | Total Work Load (hour)  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 8  | 2.00   | 2.00  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 0  | 0.00   | 0.00  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 4  | 4.00   | 4.00  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 5  | 1.00   | 5.00  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 10   | 0.00   | 0.00  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 0  | 0.00   | 0.00  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 12   | 15.00  | 15.00   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 0  | 0.00   | 0.00  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 16   | 16.00  | 16.00   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Total Work Load  |  | 120.00  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Theoretical  |  | 8   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Practicals/Labs  |  | 0   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Self study and preperation                                       |  | 4   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Homeworks  |  | 5   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Projects   |  | 10  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Field Studies  |  | 0   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Midterm exams  |  | 12  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Others   |  | 0   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Final Exams  |  | 16  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Total Work Load  |  | 120.00  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| TERM LEARNING ACTIVITIES   |  |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Total work load/ 30 hr   | NUMBER   | WEIGHT  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| ECTS Credit of the Course  |  | 4.00  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Quiz   | 0  | 0.00  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Home work-project  | 5  | 20.00   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Final Exam   | 1  | 50.00   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Total  | 7  | 100.00  |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Contribution of Term (Year) Learning Activities to Success Grade | 50.00  |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Contribution of Final Exam to Success Grade                      | 50.00  |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Total  | 100.00   |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| Measurement and Evaluation Techniques Used in the Course         |  |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |
| 24   | ECTS / WORK LOAD TABLE                         |   |        |                 |                        |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |   |      |      |    |       |       |   |      |      |    |       |       |                 |  |        |

| 25  | CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS |     |     |       |     |     |          |     |     |        |      |      |             |      |      |      |
|---|---|-----|-----|-------|-----|-----|----------|-----|-----|--------|------|------|-------------|------|------|------|
|   | PQ1   | PQ2 | PQ3 | PQ4   | PQ5 | PQ6 | PQ7      | PQ8 | PQ9 | PQ10   | PQ11 | PQ12 | PQ13        | PQ14 | PQ15 | PQ16 |
| ÖK1   | 4   | 4   | 5   | 5     | 4   | 3   | 3        | 4   | 4   | 4      | 3    | 3    | 4           | 3    | 0    | 0    |
| ÖK2   | 4   | 4   | 4   | 3     | 3   | 4   | 5        | 5   | 5   | 5      | 3    | 3    | 3           | 4    | 0    | 0    |
| ÖK3   | 3   | 4   | 4   | 4     | 5   | 3   | 3        | 3   | 4   | 4      | 5    | 5    | 3           | 4    | 0    | 0    |
| ÖK4   | 4   | 4   | 4   | 3     | 5   | 4   | 4        | 4   | 4   | 3      | 5    | 5    | 5           | 3    | 0    | 0    |
| LO: Learning Objectives    PQ: Program Qualifications |   |     |     |       |     |     |          |     |     |        |      |      |             |      |      |      |
| Contribution Level:                                   | 1 very low  |     |     | 2 low |     |     | 3 Medium |     |     | 4 High |      |      | 5 Very High |      |      |      |