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| **COURSE IDENTIFICATION FORM** |
| **Course Code and Name:** SM 5086 INDUCTION OF REPRODUCTION BY HORMONAL APPLICATIONS IN AQUACULTURE | **Department of :** Fisheries and Aquaculture |
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| **Semester** |

 | **Theoretic Hour** | **Practice Hour** | **Total Hour** | **Credits** | **ECTS** | **Education Language** | **Type: Compulsory Elective** |
| Fall | 3 | 0 | 3 | 3 | 5 | Turkish | Optional |
| **Prerequisite (s)** | - |
| **Instructor** | Prof. Dr. Volkan KIZAK | **Mail :** volkan.kizak@munzur.edu.tr**Web :** |
| **Course Assistant** | - | **Mail :****Web :** |
| **Groups / Classes** | Master  |  |
| **Course Aim** |  Description of the reproductive physiology in fish, understanding of the mechanism of reproductive physiology and comprehension of importance the techniques that used for inducing reproduction in aquaculture. |
| **Course Goals** |  Ability to understand reproductive physiology in fish and comprehend the importance of induction techniques for reproduction. |
| **Course Learning Outs and Proficiencie*s*** | To be able to describe reproductive physiology in fish and its metabolism, apply the techniques for supply egg and sperm in aquaculture. |
| **Course Basic and Auxiliary Contexts** | 1. Aquaculture Principles and Practices (2005), Eds.; Pillay T.V.R. and Kutty M.N., p624, Blackwell Publishing, UK.
2. Broodstock management and hormonal manipulations of fish reproduction (2010), Mylonas C.C., Fostier A. and Zanuy S., General and Comparative Endocrinology 165, 516–534.
3. The Fish Oocyte - From Basic Studies To Biotechnological Applications (2007), Eds.; Babin P.J., Cerda J. and Lubzens E., p513, Springer, Netherland
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| **Methods of Give a Lecture** | Theoretical |

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| **Assessment Criteria** |  | **If Available, to Sign (x)** | **General Average Percentage (%) Rate** |
| **1. Quiz** | **X** |  |
| **2. Quiz** |  |  |
| **3. Quiz** |  |  |
| **4. Quiz** |  |  |
| **5. Quiz** |  |  |
| **Oral Examination** |  |  |
| **Practice Examination (Laboratory, Project etc.)** |  |  |
| **Final Examination** | **X** |  |
| **Semester Course Plan** |
| **Week** | **Subjects** |
| **1** | The importance of stimulating reproduction in fish |
| **2** | Broodstock management in aquaculture |
| **3** | Sperm and egg quality |
| **4** | Gametogenesis and final maturation |
| **5** | Spermatogenesis and oogenesis |
| **6** | Effect of environmental factors on maturation |
| **7** | Fish endocrine system |
| **8** | Endocrine control in gametogenesis and final maturation |
| **9** | Induction of reproduction |
| **10** | Ovulation  |
| **11** | Carp pituitary gland, gonadotropins and dopamine antagonists |
| **12** | Induction agents and techniques used in hormonal applications |
| **13** | Ovopel and ovaprim |
| **14** | Hormonal application researches in aquaculture |