

## **Course Analysis for EP2700/ EP270V/ EP271V: Principles of Wireless Sensor Networks (7.5 Credits), IoT (3 Credits), IoT and Artificial Intelligence (7.5 Credits)**

### **Course Summary**

The courses focus on the theoretical principles of wireless IoT, emphasizing core concepts, mathematical modeling, and the underlying protocols and algorithms. It is offered to both program students and continuous education participants. In the latest offering, the courses were attended by 24 students.

### **Course Structure**

- **Level:** Master's (Advanced)
- **Credits:** 3 or 7.5 ECTS
- **Format:** Lectures and theoretical problem-solving
- **Duration:** One semester
- **Audience:** Open to program students and professionals in continuous education
- **Student Count:** 24

### **Course Feedback**

Based on student evaluations and discussions:

- **Positive Aspects:**
  - The theoretical approach and detailed explanations were appreciated by the majority of students.
  - The content depth was relevant and intellectually stimulating, particularly for students with a strong academic orientation.
  - The course was well-organized, and lectures were clear and structured.
- **Areas for Improvement:**
  - Students expressed a desire for practical components, such as hands-on experiments or projects.
  - Some students noted that integrating practical elements would help them better understand and apply theoretical concepts.
  - Time constraints were a challenge, as the extensive theoretical content left little room for practical activities.

### **Challenges Identified**

1. **Limited Time vs. Content Scope:** The breadth and depth of theoretical material left no opportunity to incorporate practical elements without compromising on core topics.
2. **Audience Diversity:** Balancing the needs of program students and continuous education participants requires careful consideration, as their backgrounds and expectations may differ.
3. **Resource Constraints:** Adding practical components may require additional time, resources, and infrastructure.

### **Action Plan for Improvement**

To address the feedback and improve future iterations of the course, the following changes are proposed:

1. **Incorporating Practical Elements:**
  - Introduce optional lab sessions or tutorials focusing on simple sensor network setups.

- Offer a small project or simulation-based assignment using tools like MATLAB, Python, or NS3, allowing students to apply theoretical knowledge.
- 2. Balancing Time:**
- Streamline the theoretical content to prioritize key topics, creating space for practical components.
  - Explore blended learning approaches, such as pre-recorded lectures for foundational material, reserving live sessions for advanced topics or practical discussions.
- 3. Targeted Support for Diverse Audiences:**
- Provide additional support materials for continuous education students, such as primers on relevant background topics.
  - Offer advanced challenges for program students who may seek deeper technical insights.
- 4. Feedback Mechanisms:**
- Conduct mid-course surveys to gather timely feedback for iterative improvements during the semester.
- 5. Resource Development:**
- Seek collaboration with colleagues or industry professionals to develop hands-on modules or kits for sensor network demonstrations.
  - Explore funding opportunities to support the inclusion of practical tools and software licenses.

## **Conclusion**

The courses successfully provide a strong theoretical grounding in wireless IoT. However, incorporating practical components, even minimally, would significantly enhance its applicability and student experience. The proposed changes aim to make the course more balanced and impactful while remaining within the constraints of time and resources.