**Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam – 603 110**

**(An Autonomous Institution, Affiliated to Anna University, Chennai)**

**Department of Electronics and Communication Engineering**

**Regulations 2021**

**Assignment - II**

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| **Degree & Branch** | B.E. ECE | **Semester** | VII |
| **Subject Code & Name** | UEC2726 Optimization in Wireless Communications | | |

(K1: Remembering, K2: Understanding, K3: Applying, K4: Analyzing, K5: Evaluating, K6: Creating)

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| K3 | 1 | Solve the following matrix completion problem with 2 users and 2 movies:   |  |  |  | | --- | --- | --- | |  | A | B | | 1 | 4 | 5 | | 2 | 3 | ? |   Find the rating of user 2 for movie B using simple model and biased model using least-square technique. | CO4 |
| K2 | 2 | Explain the principle of transmit beamforming via second order cone programming with suitable mathematical steps. | CO4 |
| K3 | 3 | What is an online recommender system. Explain the working principle of Netflix and the Netflix challenge associated with matrix completion problem. | CO4 |
| K3 | 4 | Consider the following optimization problem:    where and are convex functions. , and are given matrices and vectors of appropriate dimensions.  1. Derive the scaled form of the Alternating Direction Method of Multipliers (ADMM) for the above problem.  2. Provide an example to illustrate the application of the scaled ADMM formulation on a specific instance of this problem. | CO4 |

Prepared By

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