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| 1. | Title of the course | Queueing Theory |
| 2. | Course number | EE604L |
| 3. | Structure of credits | 3-0-0-3 |
| 4. | Offered to | PG |
| 5. | New course/modification to | Modification To EE6024/9 |
| 6. | To be offered by | Department of Electrical Engineering |
| 7. | To take effect from | July 2022 |
| 8. | Prerequisite | CoT |
| 9. | **Course Objective(s):** To introduce techniques from queueing theory for modeling and solving problems that arise in communication networks. | |
| 10. | **Course Content:** Stochastic processes: convergence of random sequences, law of large numbers; Discrete time Markov chains (DTMC): hitting time and recurrence, communicating classes and class properties, discrete time M/M/1 queue; Renewal theory: renewal reward process, Poisson process, stopping times, regenerative processes; Continuous time Markov chain (CTMC): structure of pure jump CTMC, birth and death processes, Little's law, M/M/1 queues, M/M/m queues, M/G/1, queueing systems. | |
| 11. | **Textbook(s):**<br>1. Wolff R W, *Stochastic Modelling and Theory of Queues*, Prentice Hall (1989). | |
| 12. | **Reference(s):**<br>1. Bertsekas D and Gallager R G, *Data Networks*, Prentice Hall (1992).<br>2. Kumar A, *Discrete Event Stochastic Processes*, Lecture Notes Series, IISc Bangalore (2012). | |