

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-655 **Course Title:** Essential AI for Managers
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To build foundation on essential AI for managers.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Essential programming in python	5
2.	An overview of multi-armed bandits, contextual bandits, restless bandits, Algorithms such as UCB, greedy etc. Applications in dynamic pricing and online advertisement.	6
3.	Google search engine analytics, application of the PageRank algorithm, Analytics for kidney allocation, Layout design.	3
4.	Fraud detection, reducing healthcare fraud, AI in asset management	3
5.	Introduction to Reinforcement Learning, Model free prediction, Q-learning in warehouse management	4
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Sugiyama, Masashi. Statistical reinforcement learning: modern machine learning approaches. CRC Press.	2015
2.	Sutton, Richard S., and Andrew G. Barto. Reinforcement learning: An introduction. MIT press.	2018
3.	Bertsimas, Dimitris, and Robert Michael Freund. Data, models, and decisions: The fundamentals of management science. South-Western Pub.	2010
4.	Bertsimas, Dimitris, K. O. Allison, and William R. Pulleyblank. The analytics edge. Charlestown, MA: Dynamic Ideas LLC.	2016
5.	OR Tools library by google developers	2020