AI:21AM401 LessonPlan2

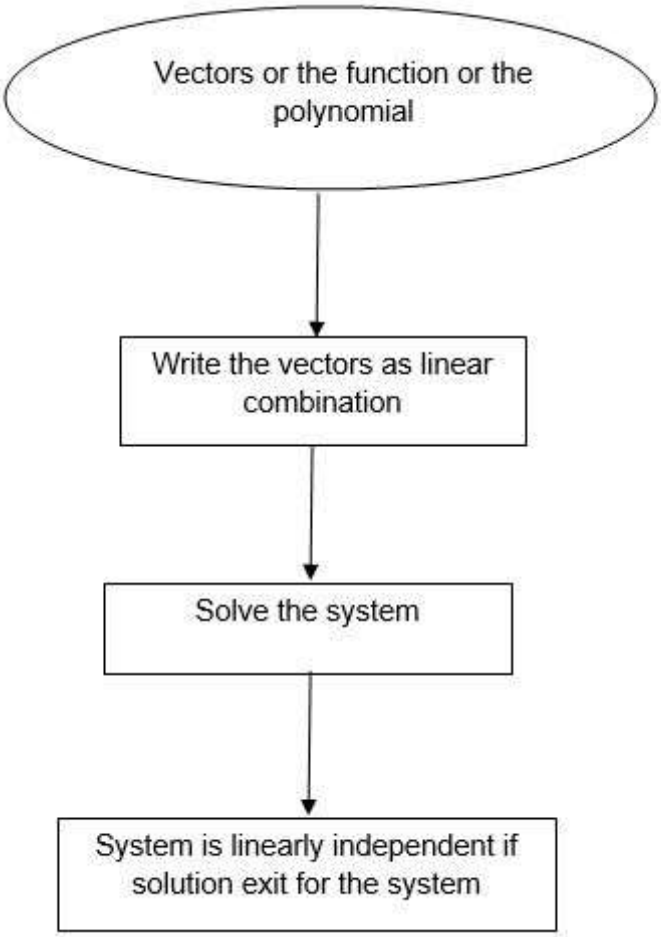
Department	Artificial Intelligence And Machine Learning
Degree & Semester:	B.TECH & IV
Course code & Title:	21AM401 & MATHEMATICS FOR MACHINE LEARNING
Unit Title:	Vector Space
CO / Lesson No (GO):	1/2

- **Prerequisite(s):** Row operations
- **Topic :** Linear combinations and linear system of equations - Linear independence.
- **General Objective (GO):**Understand the concept of Linear combinations and apply it in the engineering problems.
- **Specific Objectives (SO):** (Addresses the detail specification of contents to be taught for the session; Minimum three SOs to be given; CD/KD mapping should be specified in parentheses at the end of each SO)
  - SO1 Illustrate the linear combination of vectors with example. (U-C)
  - SO2 Illustrate the linearly independent system and dependent system with example. (U-C)
  - SO3 Assess the linear system of equations.(Ap-P)
- **Mapping Table**

  (Each SO should be mapped to the specific PO competency and indicators with relevance to the mapping done for the respective course outcome as shown in the table below)

SO	PO	PO/PSO Competency	PO/PSO Indicator
SO1	1, 2	1.1, 1.2	1.1.1,1.2.1
SO2	1,2	1.1,1.2, 2.1, 2.4	1.1.1,1.2.1, 2.1.3 2.1.3, 2.4.1, 2.4.3, 2.4.3
SO3	1,2	1.1,1.2, 2.1, 2.4	1.1.1,1.2.1, 2.1.3 2.1.3, 2.4.1, 2.4.3, 2.4.3

- **Mind map and Summary**



- **Summary**
  - A vector w is called a linear combination of the vectors v1, v2, . . . , vr if it can be expressed in the form w = k1v1 + k2v2 + · · · + krvr

where k1, k2, . . . , kr are scalars.

- **References (Books/Videos/Journals/Web references)**
  - Kreyszig Erwin, Advanced Engineering Mathematics, 7th Edition, John Wiley, 1993.
  - B. S. Grewal, Higher Engineering Mathematics, Khanna Publication, 2017
  - Peter V. O Neil, Advanced Engineering Mathematics, Seventh Edition, Thomson Learning, 2011
  - Michael. D. Greenberg, Advanced Engineering Mathematics, Second Edition, Pearson , 2002.
  - Gilbert Strang, Introduction to linear algebra, Fifth Edition, ANE Books, 2016.
  - https://machinelearningmastery.com/introduction-matrices-machine-learning

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