M.Tech.(AI) Curriculum

The curriculum of the two-year M.Tech. (AI) program comprises a total of 64 credits of which 43 credits account for course work and 21 credits for project work. The course work is organized into:

- Pool-A courses (19 credits) (Hardcore)
- Pool-B courses (Minimum 12 credits) (Softcore)
- Recommended Electives (to bring total course credits to a minimum of 43)

**Pool-A courses: 19 credits**

- E0 251 3:1 Data Structures and Algorithms
- E1 222 3:0 Stochastic Models and Applications (or) E2 202 3:0 Random Processes
- E0 299 3:1 Computational Linear Algebra
- E0 230 3:1 Computational Methods of Optimization
- E1 213 3:1 Pattern Recognition and Neural Networks (or) E0 270 3:1 Machine Learning (or) E2 236 3:1 Foundations of Machine Learning

**Pool B-courses: Minimum of 12 credits required**

- E1 277 3:1 Reinforcement Learning
- E1 216 3:1 Computer Vision
- E9 241 2:1 Digital Image Processing
- E9 261 3:1 Speech Information Processing
- E1 254 3:1 Game Theory
- E1 241 3:0 Dynamics of Linear Systems
- E0 259 3:1 Data Analytics
- E2 231 3:0 Topics in Statistical Methods
- E9 208 3:1 Digital Video: Perception and Algorithms

**Project: 21 credits**

- EP 299 0:21 Dissertation Project

(Continued on Page 2)
Recommended Electives: Minimum of 12 credits required

In addition to the courses listed below, Pool B courses could also be taken as electives. Courses not listed here could be taken as well with the approval of the faculty advisor.

- E0 265 3:1 Convex Optimization and Applications
- E0 334 3:1 Deep Learning for Natural Language Processing
- E0 268 3:1 Practical Data Science
- DS 256 3:1 Scalable Systems for Data Science
- E9 205 3:1 Machine Learning for Signal Processing
- DS 222 3:1 Machine Learning with Large Data sets
- DS 265 3:1 Deep Learning for Computer Vision
- E0 306 3:1 Deep Learning: Theory and Practice
- E0 249 3:1 Approximation Algorithms
- E0 235 3:1 Cryptography
- E0 238 3:1 Intelligent Agents
- E2 201 3:0 Information Theory
- E1 245 3:0 Online Prediction and Learning
- E2 207 3:0 Concentration Inequalities
- E1 244 3:0 Detection and Estimation Theory
- E1 396 3:0 Topics in Stochastic Approximation Algorithms
- E2 230 3:0 Network Science and Modelling
- E1 246 3:1 Natural Language Understanding
- E9 253 3:0 Neural Networks and Learning Systems
- E9 309 3:1 Advanced Deep Learning
- CPS 313 2:1 Autonomous Navigation

(Last updated: October 1, 2020)