

## Critical Analysis — M.Sc. Data Science (HITS, 2023-24, 4 Sem, 80 Cr)

- **UGC/NEP-2020/NAAC:** CBCS, OBE, MOOC links ✓; **missing** multi-entry/exit, ABC credit-bank, IKS, mandatory internship-credit, NAAC C-3/5/7 evidence.
- **OBE chain:** PEO→12 PO→3 PSO→5 CO/course with 1/2/3 weighted CO-PO matrix — Washington-Accord aligned.
- **Bloom (BTL):** COs reach BTL-2/3 widely, BTL-4 in DAA & ML; **BTL-5 Evaluate & BTL-6 Create largely absent** — limits higher-order learning.
- **Progression:** S-I Stats/DAA/AI/AdvDB → S-II ML/Optim/IR/DataProtection/BigData → S-III Ethics/Wrangling/Mini-Project → S-IV Hadoop-Hive-Pig + Dissertation. Vertical flow sound; S-I credit load heavy.
- **Assessment:** CIA 50% (2 internals + assignment + lab) + ESE 50%; project rubric Topic 10 / Design 15 / Implementation 20 / Report 5. **Progressive but exam-heavy**; no viva, peer-review or portfolio weightage.
- **Industry relevance:** Strong — Python, MongoDB, Spark, Hadoop, Hive, Pig, IR, ML. **Gaps** — MLOps, Cloud (AWS/GCP/Azure), GenAI/LLMs, Vector DBs, Kubernetes, Responsible-AI, DPDP-Act 2023.
- **Bibliography:** Mitchell, Han-Kamber, Manning-IR, Kroese, O'Higgins; Coursera/NPTEL — mostly 2011-17 editions. **Add** Géron 2022, Russell-Norvig 4e, Goodfellow DL, Kleppmann DDIA, Provost-Fawcett.
- **Diversification:** Dept + Open Electives + MOOCs give breadth; **no** formal SWAYAM/ABC credit-transfer, minor degree, or internship credit.

| Parameter | Strength                | Shortcoming                         |
|-----------|-------------------------|-------------------------------------|
| UGC/NEP   | CBCS, 80 cr, OBE        | No multi-exit, ABC, IKS, internship |
| Bloom     | BTL 1–4 covered         | BTL 5–6 thin                        |
| Industry  | Spark/Hadoop/ML/IR      | No MLOps, Cloud, GenAI, RAI         |
| Assess.   | CIA 50 + ESE 50, rubric | Exam-heavy; no viva/peer/portfolio  |
| Refs      | Classic core texts      | 2011-17; no DL/LLM titles           |

**Recommendations:** add MLOps/Cloud/GenAI electives; mandatory 8-wk internship (4 cr); SWAYAM-ABC integration; BTL-5/6 capstone rubrics; refresh refs to 2022+; embed Responsible-AI & DPDP-Act case-studies; viva + peer-assessment (10%+10%).