

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE/SCHOOL: Department of Physics

Subject Code: PHL-901

Course Title: Physics and Technology of Ion Sources

L-T-P: 3-1-0

Credits: 4

Subject Area: PEC

Course Outlines: Review of charged particle dynamics; Gas discharge fundamentals; Classification of ion sources; Transverse and longitudinal particle beam dynamics; Beam optics with and without space charge; Extraction systems for ion sources; Types of ion sources- Penning Ionization Gauge (PIG), Electron Cyclotron Resonance (ECR), Vacuum arc, Duoplasmatron, Radio Frequency (RF), and SNICS ion source (Source of Negative Ions by Cesium Sputtering); Vacuum technology for ion sources, Beam diagnostics for ion sources.