

R & D Training Curriculum

Day	Topic	Key Points
1	Introduction to R&D in Business	Definition, goals, and importance of R&D for startups and companies
2	Types and Models of R&D	Basic vs. applied research, in-house vs. collaborative R&D, open innovation
3	R&D and Innovation Ecosystem	Government initiatives, funding sources, university collaboration
4	Strategic Role of R&D in Business Growth	Linking R&D with marketing, operations, and product lifecycle
5	Case Studies of Successful R&D Startups	Benchmark examples (Google X, Tesla, Infosys R&D, ISRO)
6	Formulating R&D Vision and Mission	Aligning R&D goals with company objectives
7	Organizational Structure of an R&D Unit	Team hierarchy, roles (R&D head, scientists, engineers, analysts)
8	Infrastructure and Facility Planning	Lab setup, digital tools, innovation labs, maker spaces
9	R&D Budgeting and Financial Planning	Cost estimation, ROI, and funding models
10	Policy and Regulatory Compliance	Ethical research, IPR, safety, data and material handling standards
11	Research Design and Methods	Experimental, analytical, simulation-based research
12	Idea to Prototype Process	Ideation frameworks (TRIZ, Design Thinking), proof of concept
13	Technology Readiness Levels (TRLs)	Understanding and scaling innovation stages
14	R&D Project Proposal and Reporting	Preparing proposals, progress tracking, documentation

15	Collaboration and Knowledge Sharing	Research partnerships, academic tie-ups, industry networks
16	Innovation Management Systems	Creating an idea pipeline and evaluation methods
17	Intellectual Property Rights (IPR)	Patents, copyrights, trademarks, licensing, NDAs
18	Patent Filing and Commercialization	Steps for filing, valuation, and monetization
19	Technology Transfer and Incubation	Tech licensing, startup incubation, spin-offs
20	Building Innovation Culture in the Workplace	Motivation, creativity, intrapreneurship programs
21	Digital Transformation in R&D	AI, IoT, Big Data, and Automation in R&D
22	R&D Data Management and Analytics	Data-driven decision making, research data platforms
23	Prototyping and Simulation Tools	CAD, CFD, MATLAB, ANSYS
24	Cloud Collaboration and Remote R&D	Tools for global collaboration (Git, Google Cloud, etc.)
25	Sustainability and Green R&D	Eco-innovation, sustainable materials, ESG integration
26	R&D KPIs and Performance Measurement	Productivity, innovation index, research impact
27	Product Commercialization and Market Launch	Tech-to-market pipeline, scaling innovations
28	Funding and Grants for R&D	Govt. schemes (MSME, DST, DBT, MeitY), venture funding
29	Global R&D Trends and Future Technologies	AI, quantum computing, biotech, nanotech
30	Final Project and Certification	Group R&D plan presentation, evaluation, feedback