



Detailed Dual Degree Course Structure at RMSOEE

1. Basic entrepreneurship (EP 60001) <Presently not offered>

Entrepreneurial traits, true motivation & leadership, understanding of Entrepreneurial process, Opportunity assessment for new ventures, creating a business model with technology differentiators, launching and managing venture, Human resource aspects, understanding of personal aspirations, Entrepreneurial personality development,, Entrepreneurial communication, Entrepreneurship in Indian Scenario, Future prospects in India and emerging economies.

2. Foundations of Entrepreneurship (EP 60020)

The course aims to make the students knowledgeable on how a business entity is borne, determinants of winning business model, building a balanced team, sources of capital for creating fixed and working assets including government incentives. The course aims to introduce basic accounting knowledge for participants to have a grip on the financials of the venture. A brief list of compliance is also discussed. This includes requirement of license, taxation, labor laws, and cyber laws. The basics of marketing management, human resource management and strategic management are also discussed, especially in the context of new venture creation. The course would provide introductory knowledge on major business issues so that every student possesses a holistic view on the operation and successful running of a business. With the knowledge imparted through this course a student, after taking up assignment in a business establishment in any capacity, shall be able to see the organization in its entirety and take more informed decisions.

3. Marketing and market research (EP 60002)

Market dynamics, Market segmentations and creation of derivatives, Marketing Research methodologies, trend, assessment, analysis and forecasting, structural aspects of market, market inflexion points and transitions. Identification of overall market, addressable market and serviceable market for product and services, price erosions, market plans for resource constrained business development during the early stages of start-up, Skills in applying basic marketing principles, promotion techniques in an integrated manner to produce a practical, cost effective action sales plan, its implementation, monitoring and re-launch.



4. Product Development (EP 60003)

Understanding of innovative product development phases, product segmentations based on market push-pull forces, design and development of product and service derivatives, Experience working in teams to design and construct high-quality product prototypes, product technology forecasting, Entrepreneurship of a new product right from the stage of ideation to the end of its market life.

5. Engineering Design Process (EP 60042)

Introduction to Engineering Design Process; Design Approaches - Forward and Reverse Engineering; Reverse Engineering Process – Definition and goal of Reverse engineering (RE); Methods and techniques of reverse engineering; Contact and Non-Contact RE; Technologies and equipment - Laser Scanner with Portable Coordinate Measuring Machine, Control software, Modelling Reengineering, Redesign and Engineering Product Development; Innovative Product Design and Engineering Optimization; Relation between Reverse engineering and Rapid prototyping; Rapid Prototyping –Technologies. Benchmarking and establishing engineering specifications; Design Requirement Analysis and Planning; Integrated Product and Process Design; Theory of inventive problem solving (TRIZ): Fundamentals, methods and techniques, inventive design strategies. and Simulation in Engineering Design - Computer Aided Engineering and Simulation; Multi Agent Simulation in Product Development; Engineering Product Design Analytics; Remanufacturing and Product Design: Enabling Design for Remanufacture; Remanufacturing Processes and Product Realisation; Engineering Manufacturing and Materials; Sustainability and Design: Recyclability; Reliability and Lean Design Engineering; Interface with Industrial design; Economic considerations in design; Eco Design and Green Engineering Product Development.

5. Financial and Legal Aspects of Business (EP 60005)

Process for effective financial planning, where to start, types of budgets preparation, budget a value-added activity, Concise overview of specific ratios to measure financial performance, liquidity, asset management, profitability, leverage, market value ratios, and comparative analysis, Venture capital and its relation to grants and loan opportunities, business laws enshrined in the Indian constitution, the policies of the state, Income tax structure, the labor laws, Indian commercial laws, EXIM policies, ACTS and amendments in the business realm, business and ethics, basic differences in policies between Indian and American, British laws , managers and the legal environment.

6. Management of Growth Venture (EP 60006)

Importance of Innovation as a differentiator in growth venture, Underlying opportunities, Strategic management for Launching process of growth ventures, Understanding organizational & institutional aspects of growth ventures, developing and leveraging capabilities, stages & process in Growth Venture financing such as Grants, Loans and venture capital (Pub/Pvt.), Product manufacturing & its marketing of growth venture firms, Measuring and rewarding performance of high-growth firms, Growth of venture capitals in Indian scenario, Understanding of change management aspects of Human



Resource Management, Entrepreneurial Leadership, Staffing Organizations, Employee Development and Training, Compensation Management, Managing a Diverse Workforce, Employee/Labor Relations Employment Law, Personnel and Industrial Psychology, Exit strategies of Growth ventures, Future prospects of venture financing of growth venture firms.

Elective I

1. Economics of Entrepreneurship (EP 60008)

This course introduces students to entrepreneurship through a resource based real market simulation, which demonstrates how entrepreneurship promotes economic activity and benefits society. The economics view of entrepreneurship is needed for students and budding entrepreneurs as it not only broadens their understanding of the classic approach of entrepreneurship as a profession or a behavior but it also provides new understanding of interplay between entrepreneurship and the economy as a whole.

2. Technology Entrepreneurship (EP 60022)

Technological Innovation and Entrepreneurship; Technology Strategy; Managing Technology and Innovation for competitive advantage; Technology Acquisition and Assessment; Generation and Diffusion; *Absorption and Adaptation*; *Development* of indigenous technology for import substitution and global competitiveness; Technology Business Incubation; Technology Intelligence and R&D Management. Technology-Business Incubation and Venture Creation; Competitiveness across Value Chain and technology deployment. Techno economic Feasibility analysis – Technology business plan: Demand Assessment; Technical Marketing Research; Plant, Equipment, Machinery and process selection decisions; Prototyping, Production/Operation system design and capacity planning; Technical Sourcing; Technology Project Management; Protecting innovation through patents; Steps involved; Technology Transfer; Appropriate Technology and Frugal Engineering in entrepreneurship.

3. Growing and Managing an Entrepreneurial Firm (EP 60024)

Involving creation of new business ventures, Nature of the financial institution's need for primary reserves and loan-able funds, Management of growth of the Firm with respect to contexts of Human resources, early stage/growth stage/exit stage capital, IPR strategy, diversification strategy and sustainable strategic management.

4. Entrepreneurship in Developed Countries and Emerging Nations (EP 60026)

Attainment of success with the application of entrepreneurship in developed nations, Economy saturation and its management by entrepreneurs, Importance of small business to the national economy, Identify the meaning of cultural diversity and how it impacts a small business for developed and emerging nations.



5. Global Entrepreneurship labs – Emerging Markets (EP 60028)

Market review of emerging markets, Economics of growth, the major entrepreneurship labs/centers of the world, International marketing and business development, Networking of entrepreneurs based on culture and type of businesses, simultaneous access of venture resources, innovations and technical talent for accelerated ripening of growth ventures.

6. Entrepreneurship with Established Organizations (EP 60030)

Service strategies followed by established industries, Major share of the market, examination and evaluation of business practices and policies, Long term service markets where potential for growth is expected, understanding scope of innovations within an existing corporate structure and culture, stages of identification, initiation, launch, management, new department or subsidiary creation, spin-off and spin-out strategies, mergers and acquisitions, integrations and sustainable growth.

7. Design-Driven Innovation (EP60011)

Design-Thinking. Identifying Challenges and Gathering Data Genesis of Innovation: Innovation in Established Organizations, Top-Down Innovation, Bottom-Up Innovation, Innovation in the Start-Up, Independent Innovators. The relationship between design and innovation, the strategy of design-driven innovation, the process of design-driven innovation, building design-driven capabilities, the Innovation Process, Process Considerations, Process Models.

Idea Generation, Concept Development, Implementation, Managing Innovation. A significant part of the course will involve engaging the students in understanding an actual problem, trying to create alternative solutions, developing prototypes, validating the prototype by the target audience. This part of the study may involve either absolutely new problem and building a solution thereto or existing problem, solution to which has already been evolved.

8. Financing New Ventures (EP 60010)

Financial Institutions, Funding the R&D for Refinement of Early Stage Innovations, Cost of Project and Means of Financing, Sources of Equity, Sources of Debt Fund for Capital Assets, Quasi Equity – Preference Capital, Working Capital Funding and Management, Financing international trade – Export and import credit, Risk and Return, Cost of Capital, Raising International finance – equity (ADR), debt (ECB), hybrid (FCCB,) and Exchange Risk, Project Risk Analysis, Initial Public Offering of Shares.



Elective II

1. Engineering B-Plan Development-I (EP 60021)

Process of initiating a business venture, Tools to develop a new business, Evaluate business models and analyze entrepreneurial issues, Product definition based cost estimation and price points linked to supply chains and delivery linkages, creating scope for re-launch, zero recall strategy, Engg. B-plans for grants, loans and venture capital, exit friendly product and service designs, amenability to spin-outs and new fund-raising opportunities.

2. Micro-Financing the Grassroots Sector (EP 60023)

Salient features of micro finance, benefits and target groups, Understand the scope and potential of micro-finance, Active micro-finance by potential organizations, Micro-finance models and characteristics, designing micro-finance program- client identification, Credit Institutions-rural credit, Types of rural institutions, self Help Groups (SHGs) and generation of savings.

3. Special Topics in Entrepreneurship (EP 60025)

Facts about the New venture creations with limited resources, Psychology of Entrepreneurship, Acquiring Resources, Opportunity Recognition, Creativity and Improvisation or other evolving topics.

4. Techno-Entrepreneurial Leadership (EP 60007)

Leading a corporate business house or unit in Multinational Company has got fundamentally different than to create, develop and lead a new start up business. The course will make the students appreciate the nature of leadership, its different styles and approaches, and to manage effectively new startup firms and divisions within their firms and to support Intrapreneurship and entrepreneurship in a time when it is aspired highly by the economy and society. Students will learn to create, establish, and reinforce techno-entrepreneurial rules of engagement designed to increase understanding uncertainties, technological discontinuities, and communication effectiveness to get the most out the current human dynamic in their respective techno-environmental inputs. Understanding these, leadership models allow students to reflect on their own style in today's technologically and culturally changing environment.



Elective III

1. Institutional aspects of entrepreneurship (EP 60027)

Institutions influencing entrepreneurship are undergoing significant transformation, Legal and regulatory aspects of institutional relations, Logics or governance structures, transparency and audit, organizing principles related to entrepreneurship, Initial Public Offerings, Understand how angel and alternative equity sources work and vs institutional venture capital.

2. Small business development (EP 60029)

Operation of the small business: accounting, finance, production, and marketing subsystems, use of analytical approach for problems of manpower, IPR, supply management, delivery linkages, networking management. Special emphasis on fund raising strategies from small business financial resources.

3. Entrepreneurial Exit Strategies (EP 60031)

To follow relevant exit strategies from inception to going public, Financial restructuring, buy outs, private equity led management buy outs, leveraged buy outs and other aspects of financial engineering for exits, Consider the benefits and detriments of achieving liquidity through sale or merger, Gain an appreciation of an investors perspective of various liquidity alternatives.

Elective IV

1. Costing and Accounting for Entrepreneurs (EP 60032)

Personal & financial budget planning, Principles of financial accountancy, Understanding and analysis of costs of production, cost concepts, material, labor and overhead costs, overhead allocations and absorption, introduction to job costing, process costing, marginal costing, and standard costing, relevant costs for decision making, cost control and cost reduction. Fundamental of income taxation, Advanced taxation, Auditing.

2. Asian cultural values and traits in business (EP 60034)

Traditional and modern values of Asian culture that have been applied to contemporary businesses, Entrepreneurship to achieve excellence in the professional spheres of Asian cultures and customs, Entrepreneurial specialties of business in India, South Asia, Japan, Arab, China and Korea, Asian business strategies, BRIC effects, export-import trends, demographics, social entrepreneurship businesses and local development.



3. Launching and growing professional practice or service business (EP 60036)

Creation of sustainable and profitable professional practices for those in technical professions, Focused on providing a professional service.

4. Entrepreneurship in social sector (EP 60038)

Worldwide explosion of social entrepreneurial activities, Bottom of the Pyramid Markets in emerging nations, Local Markets accesses, supply chains and relationships to Social Entrepreneurship, Aspects of developmental economics and grass-root enterprise creation.

5. Engineering B-Plan Development-II (EP 60040)

Advanced method in experimental B-Plan development (Live Cases)

Projects

Semester 3 (Project, EP 67001)

Project work based on preliminary B-Plan Development and starting new company.

Semester 4 (Project, EP 67002)

Research based project for development of the company's marketable product and product implementation. Marketing strategy for the product and success forecasted in the market.

Semester 5 (Project, EP 67003)

Development of the company's product based on market research, product segmentation. Product launch and its feedback from the market.

Semester 6 (Project, EP 67004)

Project based on company's venture financing opportunities, choosing from a mix of grants, loans and venture capital, legal aspects of the startup company for IPR, contracts and company laws.

Semester 9 (Project Innovation, EP 67005)

REAL TIME, Live Project based on development of B-Plan, product development, Marketing and researching, Financing by venture capitalists.



Semester 10 (Project Product, EP 67006)

LIVE Project work based on Launching of the product developed into the market, financial projections and analysis of the breakeven point, Applying for Getting Incubation at IIT KGP, knowledge application of the various subjects of the Entrepreneurship curriculum from launching the venture into its future exits.