

**ACADEMIC AFFAIRS OFFICE
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE**

No. Acd./1296 /IAPC-108

Dated: September 03 , 2021

Head, Department of Management Studies

The IAPC in its 108th meeting held on 11.08.2021 vide Item No. 108.2.3 considered and approved the following proposals with minor modifications:

1. Syllabi of PECs for MBA term wise program (**Appendix-A**)
2. To replace/reword the title of the existing PECs (**Appendix-B**)



Assistant Registrar (Curriculum)

Encl: as above

Copy to (through e mail):-

1. All faculty
2. Head of all Departments / Centres
3. Dean, Academic Affairs
4. Associate Dean of Academic Affairs (Curriculum)
5. Channel i/ Acad portal/ Academic webpage of iitr.ac.in

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-681 **Course Title:** Basics of Quantitative Finance
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/ V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge of the contemporary mathematical framework for financial management.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Relevance of probabilistic concepts in financial markets, moments, conditional expectations, binomial distributions.	5
2.	Normal distributions, attributes of lognormal distribution, relevance of lognormal distribution in financial modeling.	4
3.	Markov processes and their relevance, convergence of random variables	3
4.	Random walk processes, Brownian motion	3
5.	Differentiation in stochastic environment, integration in stochastic environment, the Ito integral	3
6.	Discrete time and continuous time martingales	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Hull, J.C., "Options, Futures, and Other Derivatives", 7 th Ed., Prentice Hall	2009
2.	Neftci, S.N., "Introduction to the Mathematics of Financial Derivatives", 2 nd Ed., Academic Press	2000
3.	Cerny, A., "Mathematical Techniques in Finance: Tools for Incomplete Markets", 2 nd Ed., Princeton University Press	2009

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-682 **Course Title:** Working Capital Management
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To acquaint the students with the lower part of the balance sheet and help them to understand the concepts of Short-term sources of funds and their uses.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Working capital management, meaning, concepts, classification and importance of working capital, objectives of working capital, factors determining working capital requirements, working capital approaches.	2
2.	Assessment and forecasting of working capital requirement, working capital financing, determining the working capital financing mix	2
3.	Inventory management, purpose and benefits of holding inventory, risk and cost of holding inventory.	3
4.	Receivables management, cost of maintaining receivables, factors influencing receivables, formation and execution of credit policy.	3
5.	Management and nature of cash, motives of holding cash, cash management, managing cash flows, determining optimum cash balance, cash management models, Investment of surplus funds.	4
6.	Management of payables, meaning, objectives and dimensions of payables management.	3
7.	Sources of working capital, new trends in financing of working capital by banks, Brief review of the recommendations of different committees on working capital.	4
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Bhattacharya H, "Working Capital Management: Strategies and Techniques", PHI Publishing, 4 th edition.	2016
2.	James.S.S., "Working Capital Management: Applications and Case Studies" John Wiley & Sons, 6 th edition.	2016
3.	Mathur S.B., "Working Capital Management & Control-Principles and Applications", New Age International Publishers, 2 nd edition.	2019
4.	James, O., "Cash and Working Capital Management: A Guide to Understanding the Strategic role of Cash and Working Capital Management in the Long - term Viability of an Organisation, Kindle edition.	2019
5.	Brealy, Myers, Allen; "Principles of Corporate Finance", McGraw Hill Education., 12 th Edition.	2018

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-683 **Course Title:** Security Analysis for Investment
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To provide a comprehensive view of Security Analysis for investment decisions.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Financial Market Operations: Market infrastructure (trading system design, short-selling, etc.), money markets and capital markets, instruments and interest rates	3
2.	Measures of Risk and Return: Risk-return framework, standard deviation (variance), VaR, ES, etc.	3
3.	Financial Market Microstructure: Theories of market-microstructure: Limit order books and quote-driven markets; Market quality, price discovery, and liquidity;	3
4.	Fundamental valuation of securities: Cash flow discounting, estimating cost of equity and cost of firm (FCFF vs FCFE)	3
5.	Efficient Market Hypotheses and Behavioral Finance: Weak, semi-strong, and strong form of efficiency; Overreaction and Under reaction hypothesis; Effect of investor sentiment on security prices	3
6.	Introduction to Fixed Income Securities (Bonds, Notes, etc.): Yield-to-maturity computation, valuation of fixed income securities; Term structure of interest rates, introduction to forward contracts	3
7.	Introduction to Derivatives: Risk management with futures & options (Call, Put), pricing of derivatives; Put-Call parity, creation of synthetic options	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Brealy, Myers, Allen; "Principles of Corporate Finance", McGraw Hill Education., 12 th Edition.	2018
2.	Elton & Gruber, "Modern Portfolio Theory", Wiley, 9 th Edition	2014
3.	Reilly, Frank, K., "Investment Analysis and Portfolio Management", Cengage, 10 th Edition,.	2017
4.	Mishkin & Eakins, "Financial Markets and Institutions" ", Pearson, 9 th Edition.	2018
5.	John C Hull, "Options, Futures, and other Deriavatives", Pearson, 10 th Edition	2018

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-684 **Course Title:** Indian Financial System
1. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
2. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
3. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
4. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** None **8. Subject Area:** PEC
9. **Objective:** To provide a comprehensive overview of Indian Financial System.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Overview of the Indian financial system – The big picture on financial Markets, mutual funds, banking, regulatory bodies, etc.	3
2.	Government security and money markets in India- G-Sec market (T-Bills and dated securities), auction mechanisms, repo markets (overnight, term), Tri-party repo, call money market.	3
3.	Corporate Bond market in India: Market infrastructure and other properties (performance, liquidity, market quality, price discovery etc.), Indian market vis-à-vis global corporate bond markets, issues afflicting the development of Indian bond market	3
4.	Equity and derivative markets in India: Market infrastructure and other properties (performance, liquidity, market quality, price discovery etc.), Comparison with developed markets, issues afflicting the development of equity market in India	3
5.	Mutual Fund Industry in India: Evolution of the industry over the years, current scenario, performance relative to other developed country mutual fund industries, contribution to financial inclusion	3
6.	Contemporary financial intermediation in India: Role of Banking, project finance, and credit rating industry in India	3
7.	Regulatory aspects of Indian financial system: Role of SEBI and RBI as regulatory and monitoring authorities, key prudential norms and regulations pertaining to banking and financial services, mutual fund industry, credit rating, etc.	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Anthony Saunders; “Financial Institutions Management: A Risk Management Approach”, McGraw Hill Education., 7 th Edition.	2017
2.	Mishkin & Eakins, “Financial Markets and Institutions”, Pearson, 9 ^h Edition.	2018
3.	Cooperman “Managing Financial Institutions”, Routledge, 1 st Edition	2016
4.	Donald and Koch, “Bank Management”, Cengage Learning, 8 th Edition	2014
5.	Frederic S. Mishkin, “The Economics of Money, Banking and Financial Markets”, Pearson, 11 th Edition	2019

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-685 **Course Title:** International Corporate Finance
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge about financial management in an international business environment in the light of currency risk, political situations, imperfect markets, and diversified opportunity sets.

10. Details of the Course

S.No.	Contents	Contact hours
1.	International Bond and Equity Market, International Capital Structure and Cost Of Capital	4
2.	Foreign Direct Investment and Cross Border Acquisition, International Capital Budgeting.	5
3.	Multinational Working Capital Management: Management of International Cash Balances, Cash Management in Practice. Receivable and Inventory Management	4
4.	Country Risk Analysis , International Tax Environment and Transfer Pricing.	3
5.	International Portfolio Investment; Optimum Portfolio Selection, International Diversification Through ADRs, Hedge Funds And ETFs etc.	5
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Laurent L. Jacque , “International corporate Finance” , Wiley	2020
2.	P.G Apte. “International Financial management” , Mc Graw Hill	2011
3.	Cheol S Eun, Bruce G Resnick “International Financial Management ”, McGraw Hill	2017
4.	Jeff Madura “International Financial management” Cengage Learning	2018
5.	Reid W. Click, Joshua D.Coval “The Theory and practice of International Financial Management “, Pearson education	2007

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-686 **Course Title:** Financial Engineering
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge on various aspects of financial risk management and provide exposure to the tools and techniques of financial engineering for design of new financial products.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Basics of futures	2
2.	Futures trading strategies, hedging, hedge ratio, cross hedging	3
3.	Option Greeks and their relevance in risk management & market trading	4
4.	Option strategies & their applications for risk management	3
5.	Speculation, its role in market equilibrium, spread strategies for speculative exposures	3
6.	Swaps, their characteristics & applications.	3
7.	Futures options, elementary applications & pricing.	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Hull, John, C., "Risk Management & Financial Institutions", Wiley Finance	2012
2.	Neftci, Salih, N. "Principles of Financial Engineering", Academic Press	2008
3.	Saunders, Anthony & Cornett, Marcia Millon, "Financial Institutions Management: A Risk Management Approach" McGraw Hill/Irwin	2008
4.	Marshall, John, F & Bansal, Vipul, "Financial Engineering" PHI Learning	1992
5.	Cuthbertson, Keith & Nitzsche, Dirk, "Financial Engineering: Derivatives & Risk Management" John Wiley	2001

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-688 **Course Title:** Financial Risk Management
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge on various aspects of financial risk management and provide exposure to the tools and techniques of financial risk management.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction to the various measures of financial risk and their mathematical and statistical properties.	4
2.	Measurement of interest rate risk, management of interest rate risk with STIFs & bond-futures.	3
3.	Concept of VaR, VaR of equity portfolios, modelling & empirical measurements	4
4.	VaR of bond & derivative portfolios, methods of measurement	4
5.	VaR measurement and application by financial institutions and banks for portfolio optimization. Concept of volatility in financial management.	2
6.	Modelling, measurement & management of volatility.	4
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Hull, John, C., "Risk Management & Financial Institutions", Wiley Finance	2012
2.	Neftci, Salih, N. "Principles of Financial Engineering", Academic Press	2008
3.	Saunders, Anthony & Cornett, Marcia Millon, "Financial Institutions Management: A Risk Management Approach" McGraw Hill/Irwin	2008
4.	Marshall, John, F & Bansal, Vipul, "Financial Engineering" PHI Learning	1992
5.	Cuthbertson, Keith & Nitzsche, Dirk, "Financial Engineering: Derivatives & Risk Management" John Wiley	2001

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-689 **Course Title:** Financial Modelling
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge on various aspects of financial modelling provide exposure to the tools and techniques of financial modelling.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Random Variables, Probability Distributions, Moments, MGFs & Characteristic Functions, Stochastic Processes, Markov Processes, Filtrations, Central Limit Theorem, Linear Regression.	3
2.	Ito Processes, Stochastic Differential Equations, Generalization to Several Dimensions, Solution of Stochastic Differential Equations, Arithmetic Brownian Motion, Ornstein- Uhlenbeck Process, Geometric Brownian Motion	4
3.	Optimization: Maxima and Minima, Lagrange Multipliers, Quadratic Programming, Calculus of Variations, Stochastic Programming	4
4.	Random walk models, Multifactor models, APT models, Cointegration, State-space modeling and cointegration, ARCH/GARCH models.	3
5.	Arbitrage principle, Arbitrage pricing in a one-period setting, Risk-Neutral probabilities, Complete markets, Arbitrage pricing in a multiperiod finite-state setting, Equivalent martingale measures, Path dependence and Markov models	3
6.	Arbitrage Pricing in continuous-state, continuous-time models: The Arbitrage principle in continuous time, Arbitrage pricing in continuous-state, continuous-time.	4
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Focardi, S.M. & Fabozzi, F.J, "The mathematics of financial modelling & investment management," Wiley Finance, 2004	2004
2.	Neftci, Salih, N. "Principles of Financial Engineering", Academic Press	2008
3.	Reilly, F K, Brown, K C & Leeds, S J, "Investment Analysis and Portfolio Management", 11 th ed., Cengage	2018
4.	Marshall, John, F & Bansal, Vipul, "Financial Engineering" PHI Learning	1992
5.	Cuthbertson, Keith & Nitzsche, Dirk, " Financial Engineering: Derivatives & Risk Management" John Wiley	2001

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-690 **Course Title:** Banking and Bank Finance
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To provide a comprehensive overview of banking operations and risk management in banks

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction to Banking Operations: Commercial Banking, Investment Banking, Retail and Rural banking, etc.; Contemporary issues in banking (Shadow banking)	3
2.	Introduction to Risk in Banking: Default risk, interest risk, liquidity risk; Liquidity and solvency	3
3.	Risk management of Banks: Interest Rate Risk Management (Duration and Dollar GAP, SWAPs, FRAs); Credit Risk Models in Banks (Altman Z-Score, Merton's Option Pricing Model)	3
4.	Capital Adequacy and Liquidity Management in Banks: Asset liability management (Management of deposits, reserve requirements); BASEL I, II, & III regulations	3
5.	Theories of Loan pricing: Introduction to credit risk analysis; Mathematics of loan pricing, expected loss, loss given default, default on single loan & loan portfolios; Deposit insurance, loan pricing and moral hazard	3
6.	Project Finance: Cash flow securitization; Structuring the project finance transaction, advantages and risks associated with a project finance transaction, key counter-parties and their roles in project finance risk management	3
7.	Theories of bank capital structure: Leverage in banks, option model of bank leverage; Discipline of debt theory and monitoring theory	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Anthony Saunders; “Financial Institutions Management: A Risk Management Approach”, McGraw Hill Education., 7 th Edition.	2017
2.	Joel Bessis, “Risk Management in Banking”, Wiley, 4 th Edition,	2015
3.	Frederic S. Mishkin, “The Economics of Money, Banking and Financial Markets”, Pearson, 11 th Edition	2019
4.	Cooperman “Managing Financial Institutions”, Routledge, 1 st Edition	2016
5.	Donald and Koch, “Bank Management”, Cengage Learning, 8 th Edition	2014

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-692 **Course Title:** Behavioral Finance
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To acquaint the students with the influence of psychology on the behaviour of investors or financial analysts

10. Details of the Course

S.No.	Contents	Contact hours
1.	Behavioural finance – Introduction- Psychology and market people - Investors, portfolio managers, analysts; Bounded rationality in real market conditions. Decision-making process and behavioural biases. Simple experiments on anchoring.	2
2.	Rational market hypothesis and Challenges of Behaviouralists	2
3.	Foundations of rational finance – Expected utility theory, MPT, CAPM, EMH, AT, The influence of Psychology.	4
4.	Heuristics and Biases – Working of human mind, Familiarity and Related Heuristics, Representativeness and related biases, Anchoring.	4
5.	Self-Deception – forms of overconfidence, causes of overconfidence, Other forms of self-deception.	2
6.	Prospect theory and mental accounting, Neuroscientific and evolutionary perspective.	4
7.	Challenges to EMH, Emotional factors and social forces, Investor behavior, value investing	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Prasanna Chandra, “Behavioural Finance” 2 nd edition, McGraw Hill Publication.	2020
2.	<u>Baker</u> , H.K., <u>Filbeck</u> G., & <u>Nofsinger</u> J.R., “Behavioural Finance: What Everyone Needs to Know”, Reprint edition, Oxford University Press.	2019
3.	Pompain M.M., “Behavioural Finance and Wealth Management: How to Build Investment Strategies That Account for Investor Biases”, 2 nd edition, John Wiley & Sons Publishing.	2019
4.	Statman M., “Behavioural Finance”, 2 nd Generation, CFA Institute research foundation.	2019
5.	Pompain M.M., “Behavioral Finance and Your Portfolio: Manage Your Biases to Make Better Investment Decisions” John Wiley & Sons Publishing.	2020

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-693 **Course Title:** Business Valuation
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To acquaint the students with the concepts and process of business/corporate valuation.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Business valuation: An overview - context and approaches of valuation, intrinsic and stock market value.	2
2.	Enterprise DCF Model, Cost of capital.	4
3.	Other DCF models- Equity DCF model, adjusted present value model, economic profit model, Relative valuation.	4
4.	Non-DCF approaches to valuation – book value approach, stock and debt approach, strategic approach to valuation	3
5.	Valuation of real options – Black & Scholes model, Binomial model for option valuation.	4
6.	Valuation of intangible assets, Advanced issues in valuation, Regulatory oversight on valuation	4
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Prasanna Chandra, “Corporate Valuation”, 2 nd edition, McGraw Hill Publications.	2020
2.	Vikash Goel, “Business Valuation - A practitioner’s guide to valuation of companies”, Bloomsbury Professional India.	2021
3.	Christopher M.Z. & Harms T.W., “Business valuation-An Integrated theory”, 3 rd edition, John Wiley & Sons.	2020
4.	Koller T., Marc G. & David W. “Valuation – Measuring & managing the value of companies”, 7 th edition, Mckinsey & Company.	2020
5.	Vijay P.K., & Sawheny C. “Business valuation in India – Beyond the numbers”, 2 nd edition, Wolters Kluwer Publishing	2019
6.	Damodaran A. “Damodaran on Valuation”, 2 nd edition, John Wiley & Sons	2016

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-694 **Course Title:** Infrastructure and Project Finance
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To acquaint the students with the concepts of infrastructure finance and financing of the projects, both greenfield and brownfield.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Definition of infrastructure and projects, project life cycle/ phases, stakeholders, organization and skills	2
2.	Create value through project and infrastructure finance, Understanding project versus corporate finance	2
3.	Project feasibility and appraisal, Project cost estimation and control	3
4.	Capital budgeting, project financing and managing cash flows,	3
5.	Financing sector specific projects.	4
6.	Understanding the public-private partnership (PPP) and private finance initiatives (PFI)	2
7.	Optimal restructuring of projects under distress	2
8.	Analyse project risk and rewards	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Chandra, P., "Projects - Planning, Analysis, Selection, Financing, Implementation and Review", 9 th edition., McGraw Hill Publishing	2018
2.	Paul D. Clifford, "Project Finance: Applications and Insights to Emerging Markets Infrastructure", Wiley & Sons publishers.	2020
3.	John E. Triantis, "Project Finance for Business Development", Wiley & Sons publishers.	2018
4.	Yescombe E.R. & Edward F., "Public-Private Partnerships for Infrastructure: Principles of Policy and Finance, 2 nd edition, Butterworth-Heinemann publishing.	2018
5.	Anthony Higham, Carl Bridge, Peter Farrell, "Project Finance for Construction, 1 st edition, Routledge publishing.	2017

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-695 **Course Title:** Money and Central Banking
1. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
2. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
3. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
4. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To provide a comprehensive overview of monetary management of Central Bank and its implications for the Indian financial system.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction to money and credit: Hierarchy of money and credit, different prices of money	3
2.	Introduction to Central Banking: Evolution of global central banking, role of central banking around financial crisis	3
3.	Currency system in India: Currency issuance, Types of Money supply and monetary aggregates (M0, M1, M2, M3), factors affecting supply of money	3
4.	Money market operations of RBI: Introduction to key policy terminology Repo, reverse repo, LAF, MSF, CRR, SLR, etc.	3
5.	Evolution of monetary policy in India: Evolution of central banking and monetary policy framework in India (monetary targeting, multiple indicator approach, inflation targeting, etc.)	3
6.	Introduction to liquidity management in India: Historical perspective, attributes of surplus and deficit liquidity management, contemporary aspects of liquidity management	3
7.	Conventional and unconventional monetary policies in the modern financial system: TLTRO, LTRO, Operation Twist, etc., crisis management by RBI	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Anthony Saunders; "Financial Institutions Management: A Risk Management Approach", McGraw Hill Education., 7 th Edition.	2017
2.	Joel Bessis, "Risk Management in Banking", Wiley, 4 th Edition,	2015
3.	Mishkin & Eakins, "Financial Markets and Institutions", Pearson, 9 ^h Edition.	2018
4.	Cooperman "Managing Financial Institutions", Routledge, 1 st Edition	2016
5.	Frederic S. Mishkin, "The Economics of Money, Banking and Financial Markets", Pearson, 11 th Edition	2019

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-696 **Course Title:** Portfolio Management
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/VVI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To provide a comprehensive view of Portfolio Management for investment decisions.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Economic theory of choice under uncertainty- Investment and consumption behavior, Utility theory and risk (Risk averse, risk-neutral, risk-loving, indifference curves)	3
2.	Portfolio Optimization in the Mean-Variance Framework – Two Security Case- Correlation, covariance, diversification	3
3.	Portfolio Optimization in the Mean-Variance Framework – Multi Security Case- Region of feasibility, short-sale constraints, efficient frontier description, techniques for computing efficient frontier	3
4.	Single Index & Arbitrage Pricing Model- Assumptions and derivation of expected return, variance, and covariance	3
5.	Capital Asset Pricing Model and its variants- Mathematical derivation of CAPM and simple graphical approach to understand CAPM, non-standard versions of CAPM (zero-beta, riskless lending and borrowing, short-sale, etc.)	3
6.	Mutual Funds and Portfolio Performance Appraisal- Closed-end and open-end funds, index funds, ETFs; Performance measures (Sharpe ratio, Teynor’s measure, Jensen’s alpha), performance measurement with downside risk, Selection and timing	3
7.	Fixed Income Portfolio Management: Duration and convexity, portfolio immunization, active and passive portfolio management	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Brealy, Myers, Allen; “Principles of Corporate Finance”, McGraw Hill Education., 12 th Edition.	2018
2.	Elton & Gruber, “Modern Portfolio Theory”, Wiley, 9 th Edition	2014
3.	Reilly, Frank,K., “Investment Analysis and Portfolio Management”, Cengage , 10 th Edition.	2017
4.	Mishkin & Eakins, “Financial Markets and Institutions”, Pearson, 9 th Edition.	2018
5.	Frederic S. Mishkin, “The Economics of Money, Banking and Financial Markets”, Pearson, 11 th Edition	2019

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-697 **Course Title:** Foreign Exchange Risk Management
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge on various aspects of foreign exchange risk management and provide exposure to the tools and techniques of forex management.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Unique challenges in International finance, International Monetary System, Balance of Payment, Various economic Currency Crisis.	3
2.	Foreign Market: Basics, Forex Market Working, Spot Exchange Rates, Currency Arbitrage, Exchange Rate Quotations, Exchange rate systems.	4
3.	Forex and Parity: International Parity Relationships: Interest rate parity, purchasing power parity, Forecasting Foreign Exchange Rates.	4
4.	Currency Markets: Currency Futures, Currency Option, Currency Swaps.	4
5.	Foreign Exchange Exposure and Management: Management of Transaction Exposure, Management of Economic Exposure, Management of Translation Exposure.	6
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	A.Alviniussen, H. Jankensgård, L. Oxelheim.” Corporate Foreign Exchange Risk Management”, Wiley.	2020
2.	M.S.V. Prasad, G.V. Satya Sekhar. “Currency Risk Management”, Vernon Press.	2018
3.	Cheol S Eun, Bruce G Resnick. “International Financial Management ”, McGraw Hill	2017
4.	Jeff Madura., “International Financial management” Cengage Learning	2018
5.	Ghassem A. Homaifar. “Managing Global Financial and Foreign Exchange Rate Risk”, Wiley Finance Book	2004

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. Subject Code: BMN-631 **Course Title:** Human Resource Planning and Development

2. Contact Hours: **L:** 3 **T:** 0 **P:** 0

3. Examination Duration (Hrs.): **Theory:** 2 **Practical:** 0

4. Relative Weightage: **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0

5. Credits: 1.5 **6. Term:** IV/V/VI/VII

7. Pre-requisite: Nil **8. Subject Area:** PEC

9. Objective: To develop skills for Human resource planning and development.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Manpower Planning – introduction and objectives, labor market analysis and labor supply, process, challenges, responsibility of HRP; Organizational human resource planning, Attraction and retention of talent	2
2.	Career management, Career planning vs human resource planning, career development, succession planning and management, career planning vs succession planning, Career Stages, Career Anchors	3
3.	Models and techniques of manpower demand and supply forecasting, staffing table, markov analysis, skills inventory, replacement chart	3
4.	Recruitment-concept, constraint and challenge, source of recruitment, methods of recruitment, evaluation of the source of recruitment, recruitment policies and procedures, Diversity & Inclusion, Employee Wellness, Employee Engagement, Contingent Workforce, Gig-Work Network	3
5.	Behavioral factors in human resource planning, redeployment and exit strategies, job analysis, behavioral factors in job analysis, job description, job specification, job evaluation	4
6.	HR challenges in IT industry, technology and Human resource planning and development, HR Bots – chatbots Digital HR, Augmented HR Practices, HR Innovation Labs, Personalisation in HR	2
7.	Human resource development, evolution of Human resource development, HRD vs HRM, Human resource development subsystems, principles of HRD, HRD in Indian industries, HRD survey, TQM and HRD strategies, HRD in strategic organizations, HRD climate	2
8.	Human resource information system (HRIS), significance of HRIS, human capital management, human capital valuation: methods and models of valuation, human capital valuation in manufacturing and service industry	2
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	McBey, K., "Strategic Human Resources Planning", 5 th Edition, Cengage Learning.	2015
2.	Belcourt, M., Strategic Human Resources Planning, 6 th Edition, Cengage Learning.	2015
3.	Dessler, G. "Human Resource Management", 11 th Edition, Pearson Education.	2009
4.	Herman, A., "Performance Planning", 2 nd Edition, Pearson Education	2009
5.	Flippo, E.B., "Personnel Management", 6 th Edition, McGraw Hill	2006
6.	Peel, "Career Development and Planning", Tata McGraw Hill	1992

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-632 **Course Title:** Organisational Development
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge about different steps of organizational development.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Designing Interventions –Effective Interventions and their design; Overview of various Interventions, OD Practitioner – Competencies and Skills of Organization Development	2
2.	Techniques of Organizational Development Intervention – Human Process Interventions: Interpersonal and group process interventions, organizational process approaches	2
3.	Human Process Interventions: Interpersonal and group process interventions, organizational process approaches	4
4.	Technostructural interventions: Restructuring organizations, Employee involvement, Work Design	3
5.	Technostructural interventions Continued: Restructuring organizations, Employee involvement, Work Design	3
6.	Human Resources Management Interventions: Performance management, Developing Talent, managing workforce diversity and wellness, Human Resources Management Interventions continued: Performance management, Developing Talent, Managing workforce diversity and wellness	4
7.	Strategic change interventions: Transformational change, Continuous change, Trans organizational change	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Palmer, Dunford, and Akin, Managing Organizational Change, Tata McGraw Hill, Edition	2011
2.	Cummings, T. G. & Worley, C. Theory of Organization Development and Change, Cengage Learning.	2009
3.	French, W. L. & Jr. Bell, C. H., Organization Development: Behavioural Science Interventions for Organization Improvement. Prentice-Hall of India Private Ltd.	2008
4.	Radha Sharma, Change Management and Organizational Transformation, Tata McGraw Hill, 2 nd Edition.	2014
5.	Radha Sharma, Change Management: Concepts and Applications, Tata McGraw Hill.	2010

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-633 **Course Title:** Labour Legislation and Industrial Relations
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** The course discusses Historical reasons for the formation of combinations of workers, legal impediments Constitutional freedom to form associations and unions – Constitution of India.

10. Details of the Course

S.No.	Contents	Contact hours
1.	The Factories Act ,1948	2
2.	Trade Unions Act ,1926	2
3.	The Payment of Wages Act,1948	2
4.	The Payment of Bonus Act, 1965. Workmen's Compensation Act,1923.	2
5.	ESI Act,1948, Employee Provident Fund Act,1952	2
6.	Maternity Act,1961, Contract Labour,1970	2
7.	Introduction and Importance of Industrial Relations	2
8.	Workers Participation In Management	3
9.	Payment of Gratuity Act,1972	1
10.	Collective Bargaining, Industrial Dispute Act,1947	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Seema Priyadarshini Shekhar, P. R. N. Sinha, InduBala Sinha. Industrial Relations, Trade Unions and Labour Legislation. McGraw-Hill Education, USA.	2017
2.	P L Malik., Law Relating to Trade Unions and Unfair Labour Practices in India (25th Edition).Eastern Book Company.	2017
3.	S. C. Srivastava (Rev. (2012) Labour Law and Labour Relations: Cases and Materials. Vikas Publishing	2012
4.	Piyali Ghosh and Shefali NandaN. Industrial Relations and Labour Laws. McGraw-Hill Education.	2015
5.	Bare Acts of Labour Laws. Manchanda & Sons. Eastern Books Company.	2020

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. Subject Code: BMN-634 **Course Title:** Career Planning and Performance Management

2. Contact Hours: **L:** 3 **T:** 0 **P:** 0

3. Examination Duration (Hrs.): **Theory:** 2 **Practical:** 0

4. Relative Weightage: **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0

5. Credits: 1.5 **6. Term:** IV/V/VI/VII

7. Pre-requisite: Nil **8. Subject Area:** PEC

9. Objective: To develop skills for career planning and development.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Concept of career, stages, choices, anchors, development, Career Exploration, development programs, counseling, patching, career planning and performance	3
2.	Career information systems (CIS), management and supervisory development, organizational assessment programs- assessment centers, Networking Search Strategies, Influencing Networking Partners	2
3.	Psychological testing, training, special groups issues, development of different career stages, career development problems and issues, Career Planning: Self-Assessment, Identifying Professional Talents, Professional Communications	2
4.	Performance audit and its rationale, appraisal systems, rating scales, human errors in ratings, employees' participation in appraisal process, performance management systems - benefits, steps, importance, features, processes, dimensions, conceptual framework, performance-based career planning.	3
5.	PM and mentoring, Importance of selection of PM criteria, integrated PM systems, Performance matrix and models, productivity indices, team PM, principles of team PM, approaches to change team behaviors	3
6.	Frequency of appraisals, appraisal counseling, analyzing existing appraisal system, designing new appraisal system, methods of calculation of appraisals	4
7.	International performance management – structure and strategy, effect of culture on performance, diversity management and training, performance management in international assignments, compensation management	2
8.	Ethical and legal issues of performance management – concepts, perspectives, objectives, benefits, dilemmas; contemporary issues of performance management, organizational development tools as drivers of PM, lean management and culture	2
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Bhattacharya, D. K., “Performance Management Systems and Strategies”, Pearson Education, 1 st Edition	2011
2.	Peel, “Career Development and Planning”, Tata McGraw Hill	1992
3.	Career Management and Succession Planning Study Paperback – 1 , By Great Britain: Cabinet Office	1993
4.	Herman, A., “Performance Planning”, 2 nd Edition, Pearson Education	2009
5.	Rao, V.S.P., “Human Resource Management”, 2 nd Edition, Excel Books	2009
6.	Dessler, G. “Human Resource Management”, 11 th Edition, Pearson Education.	2009
7.	Flippo, E.B., “Personnel Management”, 6 th Edition, McGraw Hill	2006

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-635 **Course Title:** Training and Talent Development
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** The course discusses how an organization can create a culture to develop employee talent through various talent management processes.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Creating a talent Management Program for Organizational Excellence: Designing the Building Blocks for Organization Excellence: The Talent Management Model , Strategies of success of leading companies – Case Discussions	3
2.	Competency Models: Fundamentals of competency modeling to create workforce for future, Designing performance appraisal for driving organizational success; Conducting Performance Review to Improve Quality of the Talent Base	3
3.	Succession and Career Planning: Integrating Succession Planning and Career Planning; Determining Employees Potential for Growth, Coaching, Training and Development Approaches to Drive Talent Management Processes	3
4.	Training and development: A new Context of Learning: Strategic training, Models of training, Globalization and training practices in Indian organizations	3
5.	Training needs assessment: Methods for need assessment, process of need assessment- organizational analysis, person analysis, task analysis, competency model of need assessment	3
6.	Organizational strategies for employee development: E-Learning and use of technology in training, E-learning and employee development, developing effective online learning, blended learning	3
7.	Training methods and techniques: use of technologies for training delivery, training for virtual work arrangements, sharing of intellectual capital through information technologies	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Larry Isrealite, Talent Management: strategies for success From Six leading Companies, (American society of Talent and Development), Cengage Learning,	2011
2.	Lance Berger, Dorothy Berger, The Talent Management Handbook: Creating a Sustainable Competitive Advantage by Selecting, Developing, and Promoting the Best People	2010
3.	Raymond, A. N. and Kodwani A.D., Employee Training and Development, 4th Edition, Tata McGraw Hill	2008
4.	Janice Caplan, The Value of Talent: Promoting Talent Management Across Organizations, Kogan Page	2011

Involvement of Stakeholders in assessment; Assessment process; Assessment Guidelines; Paradigm shift in Assessment. History of Assessment Centres; Early stages of Assessment Centres; Characteristics, Elements of Assessment Centres; Tools & Technique deployed in Assessment Centres; Training of Assessors; Role of Assessor in Assessment centre; Competency Coaching Skills and Mentoring.	3
Total	21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Sanghi S., "The Handbook of Competency Mapping: Understanding, Designing and Implementing Competency Models in Organizations", Sage Publications India Private Limited (3rd edition)	2016
2.	Shermon G. and Shermon A., "Talent Mapping - Competency Based Workforce Planning", lulu.com, 1 st Edition	2016
3.	Bhatawdekar S. and Bhatawdekar K., "Competency Management: Competency Matrix and Competencies", Create space Independent Publishing, 1 st Edition	2015
4.	Gupta B., "Competency framework for human resources management", Concept Publishing Company, 1 st Edition	2011
5.	Mukherjee S., "Competency mapping for superior results", Tata McGraw-Hill Education, 1 st Edition	2011
6.	Holt J. and Perry S.A., "A Pragmatic Guide to Competency", BCS, The Chartered Institute for IT".	2011
7.	Shermon G., "Competency based HRM: A strategic resource for competency mapping, assessment and development centres", Tata McGraw-Hill Education.	2004

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-637 **Course Title:** Management of Change
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge regarding planning and managing change and provides framework and tools to implement it.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction to Organizational Change: Reasons of organizations' change, Forces of change, elements of changes in organizations: types of change, Recent developments and theoretical frameworks.	3
2.	Perspectives of Organizational Change: Environment dependent organizational perspective, contingency perspective, population ecology, resource dependence, and process oriented perspectives	3
3.	Diagnosis for Change: Models and approaches based on process, content, evolving managerial interpretations, and integration of change models	3
4.	Readiness to change: Factors contributing to resistance, mechanism underlying resistance: individual factors, group, and organizational factors, Human, behavioral, cognitive and affective processes underlying resistance to change, Strategies for introducing planned change: Empirical-rational, normative-reductive, power-coercive strategies, techniques to manage resistance	3
5.	Leaders and change agents in managing change: Six roles of change managers, Managing Resistance, Managing change in self and others, Leading change	3
6.	Organizational Development interventions to manage change: Designing Interventions, Objectives, Definition, Organizational development interventions and classifications, Overview of various Interventions, OD Practitioner – Competencies and Skills of Organization Development	3
7.	Human Process Interventions: Human Resource Interventions, Technostructural Interventions, Strategic interventions: Organizational learning and knowledge management	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Palmer, Dunford, and Akin, Managing Organizational Change, Tata McGraw Hill,	2011
2.	Cummings, T. G. & Worley, C. Theory of Organization Development and Change, Cengage Learning.	2009
3.	French, W. L. & Jr. Bell, C. H. Organization Development: Behavioural Science Interventions for Organization Improvement. Prentice-Hall of India Private Ltd.	2008
4.	Radha Sharma, Change Management and Organizational Transformation, Tata McGraw Hill, 2 nd Edition.	2014
5.	Radha Sharma, Change Management: Concepts and Applications, Tata McGraw Hill.	2010

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-638 **Course Title:** Managing Innovation and Creativity
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** The course aims to develop an understanding of creative processes and creative problem solving techniques.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Managing Creativity: An Overview , Introduction to Creativity and Innovation, Nature of Creativity: Person, Process, Product and Environment, Nature of Innovation: Making the Idea a Reality, Strategies for Innovation	3
2.	Understanding Creativity: Need for Creativity and Innovation in Organizations, Role of Creativity and Innovation in the Organisation Dynamics that underlie Creative Thinking	3
3.	Creative insight: Source of good ideas, Idea evaluation, handling available ideas, Creativity in Teams	4
4.	Developing and Contributing to a Creative-Innovation Team Managing for Creativity and Innovation Tools and Techniques in Creativity, Creativity Techniques (Brainstorming; lateral Thinking; Morphological Analysis; Attribute Listing, etc.)	5
5.	Managing Creativity in Organisation: Evolving a Culture of Creativity and Innovation in Organizations, Creativity in the Workplace Creativity and Change Leadership	3
6.	Global Perspectives on Creativity including popular cases	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Allan Afuah, Innovation Management: Strategies Implementation & Profits, Oxford Publications	2009
2.	Steve Conway & Fred Steward, Shaping Innovation, Oxford Publications	2010
3.	Rogers Everett, Diffusion of Innovations, 5th Edition	2003
4.	Clayton M. Christensen, The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail.	2016

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-640 **Course Title:** Strategic Human Resource Management
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To develop the perspective of strategic human resource management and understand the relationship of HR strategy with overall corporate strategy.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Overview of Strategic Management: Need and Importance, The resource-based view of the firm, Strategic Fit: A conceptual framework, Mission, Values and Objectives, Analysis of organizational resources and capabilities	3
2.	Strategic Human Resource planning: Classification of organizations based on the purpose of HR plan, Integration of HR plan and business plan, Activities related to strategic HR planning, Techniques of HR planning, Significance of HR planning in Indian industries	3
3.	Strategic approach to manpower acquisition and selection: Strategic recruitment, Location based employee market segmentation: Internal vs. External market, HR strategy driven employee market choice, Business strategy driven external employee market choice, Segmenting employee market, Developing knowledge stock for future use. Managerial selection for supporting the strategy of diversity.	3
4.	Strategic approach to management structure, job design and work systems: Introduction to organizational structure, Evolution of structure, Structure when market knowledge assets are more valuable than purchased assets, Structure and organizational culture, Job Design, Alternative and high-performance work systems, Developing knowledge resource for management of manpower.	3
5.	Strategic management of performance: Introduction to Strategic management of performance, linking strategy to results at different levels, assessing performance at different levels, Assessing the performance of organization's human infrastructure, developing effective performance management systems, Correcting the performance gaps.	4
6.	Strategic approach to compensations and benefits: Introduction to employee compensation, Generic approach to strategic compensation, Strategic approach to compensation, Trends in Top-level Executive Compensation, Business Strategy and Compensation, Total Compensation and Rewards Strategy, Executive compensation.	3
7.	Developing HR as strategic value addition Function: Gaining competitive advantage through HR, HR as a strategic business partner, the VRIO framework, Changing role of HR, Future challenges of HR	2
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Gary Dessler., Gary Varkkey, Biju. Human Resource Management, Pearson Education; Sixteenth edition	2020
2.	Mello, Jeffrey A., Strategic human resource management. 4 th Edition, Cengage Learning.	2019
3.	Das, Pulak. "Strategic Human Resource Management", 3 rd Edition, Cengage Learning	2012
4.	Agarwala, T., "Strategic Human Resource Management", 4 th Edition, Oxford University Press	2007
5.	Mello, Jeffrey A. "Strategic Human Resource Management", 3 rd Edition, Cengage Learning	2010
6.	Armstrong, M., "Armstrong's Handbook of Strategic Human Resource Management", 5 th Edition, Kogan Page	2011
7.	Stewart, L. Greg and Brown, Kenneth, "Human Resource Management: Linking strategy to practice, 2nd edition, John Wiley	2012
8.	Bratton, J.; Gold, J., "Human Resource Management: Theory and Practice", 5 th Edition, Palgrave Macmillan	2012
9.	Mondy, W. "Human Resource Management", 10th Edition, Pearson	2009

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-641 **Course Title:** Human Resource Analytics
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To discuss use of predictive analytical techniques in the hiring and effective management of workforce management, and illustrates design and implementation of strategies in a competitive business.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction to human resource analytics: HR Decision making and HR Analytics, Concepts, definition, importance, and benefits of HR analytics. Steps to implement HR Analytics. Critical HR decision making and HR Analytics, HR analytics and changing role of HR managers	3
2.	Aligning human resources to business through HR Analytics: Alignment of HR Analytics with Business Goals and Strategies, Application of HR and Predictive Analytics, HR Analytics Frameworks and Models	3
3.	HR Business process and HR Analytics : Statistics and Statistical Modelling for HR Research and HR Decision making, HR Research tools and Techniques, Data analysis for Human Resources, Parametric and Non-parametric Tests	3
4.	HR Analytics for Decision making: HR Metrics, Recruitments Metrics, Metrics for Training and Development Functions, HR Scorecard, HR Dashboards, HR Analytics as a Better tool for HR Decisions	3
5.	HR Value propositions with HR Analytics: Value proposition and HR Decisions, HR Analytics and HR Value Propositions, HR Optimisation through HR Analytics, HR Forecasting, HR Plan and HR Analytics, Predictive HR Analytics	3
6.	HR Analytics and Data: HR Data and Data Quality, HR Data collection, Big Data for Human Resources, Transforming HR Data into Information, Process of Data Collection for HR Analytics, Data Collection for Effective HR Measurement, HR Reporting	3
7.	HR Analytics Predictive Modelling : Different phases of HR Analytics or HR Predictive Modelling, Examples of Predictive Analytics, Data and information for HR Predictive Analysis, Predictive Analytics Tools and Techniques, Scenario modelling and business cases, Predictive modelling scenarios, Modeling the potential impact of a training program	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Martin R. Edwards and Kirsten Edwards, Predictive HR Analytics: Mastering the HR Metric. Kogan Page.	2016
2.	Dipak Kumar Bhattacharya, HR Analytics: Understanding Theories and Applications, Sage Publications.	2017
3.	Jack Fitz-enz, The New HR Analytics: Predicting Economic Value of Your Company's Human Capital Investments	2010
4.	Jean Paul Isson and Jesse S. Harriott, People Analytics in the Era of Big Data: Changing the Way You Attract, Acquire, Develop, and Retain Talent. Wiley.	2016
5.	HBR Guide to Data Analytics Basics for Managers: Understand the numbers, Make better decisions, Present and persuade, Harvard Business Review Press	2018

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-643 **Course Title:** Leadership and Team Management
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To provide a framework to understand the importance of Leadership and team management, interpersonal processes, group dynamics.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Leadership Foundations: Meaning of Leadership, Leadership development, Skills for developing oneself as a leader, Leadership styles: Charismatic and Transformational styles	2
2.	Matching leadership to the situation: The Situation, Contingency theories of Leadership	2
3.	Leadership and Change, The dark side of Leadership, Skills for optimizing leadership as situations change	2
4.	Leadership and culture: Creating culture by leaders, Leadership in the Indian context, Leadership in Eastern and Western culture	2
5.	Leadership under a crisis situation: Crisis behavior, Leadership judgment and decision under crisis, Leadership Skills in crisis and uncertainty	2
6.	Teams: conceptual foundations, Team effectiveness	2
7.	Leading teams: Enhancing teamwork within a group: The leader's role in team-based organizations.	2
8.	Virtual teams, managing multicultural teams, Building great teams.	2
9.	Understanding team processes and Team Coaching, Team decision making and conflict management	2
10.	Leader actions that foster teamwork, Offsite training and team development, the leader-member exchange model, and teamwork	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Hughes, R.L., Ginnett, R.C., & Curphy, G.J., Leadership: Enhancing the lessons of experience, 9 th Edition, McGraw Hill Education	2019
2.	Northouse, P., Leadership: Theory and Practice. Sage	2019
3.	Bass, B., The Bass Handbook of Leadership: Theory, research, and managerial applications. Free Press	2009
4.	Harvard Business Essentials, Creating teams with an edge, Harvard Business School Press	2004
5.	Uday Kumar Haldar , Leadership and Team Building, Oxford University Press	2010

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-644 **Course Title:** Talent Acquisition and Management
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To familiarize the Students with Talent Management and help them understand the Acquisition, Retention, Development and Compensation practices also enhances understanding of the Talent Management Practices in India, USA, Europe and Asia.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction to Talent Acquisition Attracting Talent Easy to approach Top Talent ,Creating Work place to attract Talent	2
2.	Six Principles of Talent Management, Role satisfaction and psychological empowerment as determinants of Talent Management	2
3.	Nurturing Talent Leadership for Talent Management, Engaging Talent Preparing Talent through on Boarding World-class Talent Management Practices	2
4.	The Secrets of Leadership and Talent Management- Talent Management Leadership Differentiating different Leadership Styles, Leadership for Talent Employees	2
5.	Dynamic Approach to Talent Management, Talent Analytics Understanding and Motivation, Talent Success Drivers	2
6.	Trends and Comparison of Hr Practices Across Asia, Europe and USA, Growing Talent Adapting Changing Workforce, Talent Bidding	2
7.	Talent Engagement, Talent Mobility, Big Data _Talent Analytics, Embedding and sustaining Talent Power.	2
8.	Employment to Consultation, Impact of Globalization on Talent Management	2
9.	Talent Enhancement & Drivers of Success, Model of Integrated Talent Management	2
10.	Building sustainable talent through Talent Management, Feeling and Sentiments analysis, Talent powered Organization, Critical Issues in Talent Management Organizational Culture-Sustainable Talent and Talent Retention	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Lance A. Berger & Dorothy R. Berger, Talent Management Handbook (Third Edition), McGraw-Hill Education, USA.	2018
2.	Terry Bickham, (Editor), Talent Management Handbook, Viva Books Private Limited, India.	2017
3.	Robert F. Silzer& Ben Dowell (Editors), Strategy Driven Talent Management: A Leadership Imperative, Jossey-Bass Inprint, USA.	2010
4.	Peter Cheese, Robert J Thomas and Elizabeth Craig, The Talent Powered Organization: Strategies for Globalization, Talent Management and High Performance, British Library Cataloguing-in-Publication Data, USA.	2008

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-645 **Course Title:** Future of Work
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To develop skills that are future ready.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Future of Work – introduction and objectives, Future of work and technological changes, dimensions shaping Future of work, Drivers and challenges; Disruption in work, Artificial and Augmented Intelligence, creation of new jobs	3
2.	Labour model for Future of work – development and future of gig and contractor economy; Gig workforce, regulatory issues around the gig workforce; business responsibility towards employees, employee-centric organizations; workforce ecosystems; flexible work solutions	3
3.	Skills and education in the future workplace – Automation of the workforce; human and automation, transitions in skills in the age of automation; AI and robotics in work; workforce transformation – concept and model; Education for workplace readiness	3
4.	Remote working – concept and evolution; telework, telecommuting, remote work, and virtual work; current trends in remote working, challenges; digital employee well-being, work-life challenges of remote working; Future of remote work	3
5.	Virtual workspace – traditional and virtual work, challenges; transitioning to a virtual workspace; managing a virtual workspace; Virtual teams and collaboration; communication in virtual teams; management and challenges in virtual teams; culture values of a virtual workforce; Diversity and inclusion issues in a virtual space	3
6.	Designing the future of work – cultural transformation, role and challenges; digital transformation, employee experience and its evolution, employee engagement, trends reshaping employee experience; people management, the role of employers.	3
7.	Developing economies and future of work – developing vs developed economies shaping future of work; technological changes and developing economy, disruption and labour factors, the role of government; quality of jobs	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Fred Oswald, Tara S. Behrend, Lori Foster, Workforce Readiness and the Future of Work. Taylor & Francis. 1 st Edition.	2019
2.	Adrian Wilkinson, Michael Barry, The Future of Work and Employment. Edward Elgar Publishing. 1 st Edition.	2020
3.	Jacob Morgan, The Future of Work: Attract New Talent, Build Better Leaders, and Create a Competitive Organization”. Wiley. 1 st Edition.	2014

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-646 **Course Title:** Managing Workforce Diversity
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To recognize importance of skills required for effective management of workplace diversity.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction to workplace diversity , Learning: Individual Perspectives of Diversity Prejudice, stereotypes, discrimination Privilege Differences and conflict Organizational diversity	3
2.	Primary Dimensions of Diversity: Race, ethnicity, age, gender, sexual orientation, physical and mental challenges, Differences between primary and secondary dimensions of diversity, Group memberships-social identity Organizational adaptation-culture, practice, policies Effective communication among cultures	3
3.	Secondary Dimensions of Diversity Social class, religion, appearance/weight, language/communication, military service Impact on work and personal experiences Ramifications of social class privileges	3
4.	Ethical, legal, media and marketing issues in managing diversity Ethical and legal implications in managing diversity	3
5.	Business opportunities and diverse consumers Media effectiveness in reaching diverse consumers	3
6.	Organizational Strategies for Managing Workforce Diversity , Workplace inclusion strategies through corporate leadership	3
7.	Diversity training , mentoring, employee resource groups, supplier diversity programs, corporate social responsibility initiatives Flexible work programs Workplace bullying Inclusion and benefits	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Carol P. Harvey and M. June Allard, Understanding and Managing Diversity: Readings, Cases, and Exercises, Pearson International Edition	2014
2.	Managing Diversity, Harvard Business School Publishing Corporation, Boston.	2001
3.	Gardenswartz, Lee, Rowe, Anita, Digh, Patricia and Bennett, Martin, The Global Diversity Desk Reference: Managing an International Workforce, Wiley.	2005
4.	Loden, Marilyn, Implementing Diversity, McGraw-Hill.	1996

5.	Stockdale, Margaret S. and Crosby Faye J. ed., The Psychology and Management of Workplace Diversity. Blackwell Publishing	2009
6.	Mor Barak, Michalle E, Managing Diversity: Toward a Globally Inclusive Workplace, Sage Publications.	2005
7.	Sparke, Matthew Malden, introducing globalization: ties, tensions, and uneven integration.: Wiley-Blackwell.	2013

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-611 **Course Title:** Knowledge Management
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To give perspectives on utilization of knowledge in contemporary organizations to have a sustainable competitive advantage.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction to Knowledge Economy: Context and relevance of KM in the changing landscape of business, Emergence of Knowledge economy, Demanding knowledge driven strategic approach	3
2.	Data, Information, and knowledge: Data, information, Knowledge, Business intelligence, Types of knowledge, tacit and explicit knowledge, Knowledge: a driver for creativity and innovation, Knowledge a strategic resource, Business benefits of knowledge	3
3.	Knowledge management: Knowledge Management, Knowledge Development Cycle, Thematic analysis of knowledge Management, Knowledge transformation and its dynamics, SECI model, Business Cases on Knowledge Management	3
4.	Knowledge management design and architecture: Generic model of knowledge management system, Challenges in developing knowledge management system, KM system design and architecture, Knowledge Construction architecture, Implementation of KMS	3
5.	Business strategy and (Identification, validation, creation, and acquisition of knowledge: KM business strategy and knowledge link, A knowledge strategy framework, Validation of knowledge through knowledge models, Creation and acquisition of knowledge, Knowledge Capturing tacit knowledge: Knowledge capture techniques	3
6.	Knowledge codification and system implementation, Knowledge transfer and knowledge sharing	2
7.	Management of human capital: Organizational Learning and Learning Organization, Concept of building a learning organization; Five core disciplines of a learning organization, Organization learning, Human resource management for KM and paradigm shift in HRM functions	2
8.	Case illustrations of knowledge management: KM in Indian organizations and MNC, sharing tacit knowledge, case studies of companies	2
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Waman S Jawadekar, knowledge Management: Text & Cases, Tata Mc Grawhill	2011
2.	Elais M Awad and Hassan M Ghaziri., Knowledge Management, 2 nd Edition, PHI Learning	2013
3.	Shelda Debowski, Knowledge Management, Wiley Publications	2007
4.	Barnes, S., “Knowledge Management Systems: Theory & Practice”, Thomson Learning Press	2002
5.	Maier, R., “Knowledge Management System”, Springer	2002
6.	Tiwana, A., “Knowledge Management Tool Kit”, Pearson Education	2002
7.	Thomas H. Davenport, Laurence Prusak, Working Knowledge. Harvard Business School Press.	2000
8.	Sultan Kermally , Effective Knowledge Management; A Best Practice Blueprint , John Wiley & Sons Inc	2002
9.	Peter F. Drucker, David Garvin, Leonard Dorothy, Straus Susan, John Seely Brown Harvard Business Review on Knowledge Management.	1998

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-671 **Course Title:** Advanced Consumer Behavior Analysis
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To develop an understanding of the consumer decision making process, various factors influencing the decision-making process and the strategic applications of understanding consumer behavior in marketing functions of firms.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Consumer behavior introduction: Nature, scope, understanding core marketing concepts - market segmentation, targeting, and positioning, customer value, satisfaction, and retention. Consumer Decision Making Process	4
2.	Individual determinants of consumer behavior –consumer motivation, personality, and perception: The dynamics of motivation, theories of needs, personality and self-perception, personality traits, personality development, personality theories and application, sensory information, absolute and differential thresholds, perceptual selection, organization, and interpretation.	4
3.	Individual determinants of consumer behavior – consumer learning, attitude formation and change: Elements of consumer learning-motives, cues, reinforcement; classical conditioning, instrumental conditioning, observational learning, cognitive learning; information processing; outcomes and measures of consumer learning -recognition and recall, brand loyalty and brand equity; characteristics and functions of attitude ,attitude theories and models.	4
4.	Environmental influences on consumer behavior: Role of culture in understanding consumer behavior, cultural values, subcultures, ethnicity, cross-cultural consumer behavior, social class, process of social stratification, family and household influences, consumer socialization, family life cycle, family decision- making and role of members.	5
5.	Influencing Consumer Behavior: Persuading consumers- elements of communication, channels of communication; shaping consumers’ opinion-reference groups and communities, endorsers, spokesperson, opinion leaders, and word-of-mouth.	4
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Blackwell, R.D., Miniard, P.W. and Engel, J. F, Rahman, Z., "Consumer Behavior",10 th Ed.,Cengage India	2017
2.	Schiffman, L. and Kanuk, L., "Consumer Behavior", 12 ed., Prentice Hall	2018
3.	Jain, V., and Seth, J, "Consumer Behaviour: A Digital Native", Pearson	2019
4.	Solomon,M.R.,"ConsumerBehavior",13 Ed., Prentice Hall	2020

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-672 **Course Title:** Brand Management
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge on complexities of a company's market offer and Product and Brand Management.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Concept and role of brand management in current dynamic environment, value creation through brand management, branding challenges and opportunities	3
2.	Customer brand equity and positioning, brand resonance and brand value chain	3
3.	Brand Image, brand identity and brand valuation and conceptual implications of the approaches to brand loyalty	4
4.	Understanding brand life cycle and brand marketing, designing marketing programs to build brand equity covering aspects of integrated marketing communications	4
5.	Designing and implementing brand architecture strategies, new products and brand extensions, managing brands over time, geographic boundaries and market segments	4
6.	Developing a brand equity measurement and management system, brand equity source measurement and measuring outcomes	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Keller, K.L. and Swaminathan V., "Strategic Brand Management: Building, Measuring, and Managing Brand Equity", 5 th Ed., Prentice Hall	2019
2.	Kapferer, J., "The New Strategic Brand Management: Advanced Insights and Strategic Thinking", 5 th Ed., Kogan Page	2012
3.	Trott, P., "Innovation Management and New Product Development", 4 th Ed., Prentice Hall	2008
4.	Donald, R.L. and Russell S.W., "Product Management", 3 rd Ed., Tata McGraw Hill	2002
5.	Reis, A. and Trout, J., "Positioning: The Battle for Your Mind", McGraw Hill Education	2001

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-673 **Course Title:** Integrated Marketing Communications
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge on integrated role of marketing communications.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction to IMC, role in the marketing process and its various components, emerging trends in IMC. Fundamental IMC planning background and decisions, determination of promotion mix and its relevance and interrelationship in IMC process	3
2.	Communication process and consumer behaviour, role of persuasion in IMC. Objective setting and understanding budgeting decisions. Role of advertising agencies and other media organizations in defining and redefining integrated marketing communication	3
3.	Developing IMC program; planning, development, implementation and evaluation of creative strategy, understanding media planning and strategy	3
4.	Advertising media- traditional and modern, function and integration with support media	3
5.	Direct Marketing/database marketing, role, functions, application and comparative advantages. Sales promotion- scope, role, growth and techniques, integration of sales promotion with other promotion elements. Personal selling- role in IMC, advantages, steps, selling activities and types of selling jobs	4
6.	Public relations, word-of-mouth influence and sponsorships. The Internet: Mobile advertising, digital and social media.	3
7.	Measurement of effectiveness of IMC program, evaluation of social ethical and economical aspects of promotional strategies	2
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Belch, G.E. and Belch, M.A., "Advertising and Promotion: An Integrated Marketing Communications Perspective, 11 th Ed., McGraw-Hill Higher Education	2017
2.	Terence, A.S. and Andrews, J.A., "Advertising, Promotion and other aspects of Integrated Marketing Communications", 10 th Ed., Cengage Learning	2017
3.	Clow, K.E. and Baack, D., "Integrated Advertising, Promotion and Marketing Communications", 8 th Ed., Pearson	2017
4.	Shah, K., "Advertising and Integrated Marketing Communications", McGraw Hill Education	2017
5.	Wind, Y. and Hays, C.F., "Beyond Advertising: Creating Value through all Customer Touchpoints", Wiley	2016
6.	Berger, J., "Contagious: Why Things Catch On", Simon & Schuster	2013
7.	Cialdini, R.B., "Influence: The Psychology of Persuasion", HarperCollins	2009
8.	Heath C. and Heath D., "Made to Stick: Why Some Ideas Survive and Others Die", Random House	2007

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-674 **Course Title:** Sales and Distribution Management
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge of sales and distribution channel management in coherence with complete supply chain management system.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction: Meaning, Evolution, Objectives and Scope of Sales Management, Types and Role of Sales Managers, Emerging Trends in Sales Management	2
2.	Personal Selling, Sales Management and Salesmanship: Buyer-Seller Dyads, Theories of Selling, Phases in the Selling Process	3
3.	Personal Selling Objectives: Types of Personal Selling Objectives, Analyzing Market Potential, Sales Forecasting Methods	2
4.	Sales Related Marketing Policies and Strategy Formulation: Product, Distribution and Price Related Marketing Polices, Formulating a Personal Selling Strategy	2
5.	Sales Organization: Purpose, Types of Sales Organizations Structure, Setting up a Sales Organization, Interdepartmental Coordination	3
6.	Sales Force Management: Recruitment and Selection, Training, Motivation and Compensation	3
7.	Controlling Sales Effort: Evaluation and Control, Targets and Sales Management, Territory Management	2
8.	Channel Management: Channel functions, Managing Channel Partners, Conflict Management, Logistics and Supply Chain Management	4
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Still, R. Cundiff, E.F., Govoni, A.P.N. and Puri, S., "Sales and Distribution Management, 6 th Edition, Pearson	2017
2.	Havaldar, K.K. and Cavale, V.M., "Sales and Distribution Management - Text and Cases" 3rd Edition, McGraw Hill India	2017
3.	Nag, A., "Sales and Distribution Management", 1 st Ed., McGraw Hill India.	2013
4.	Jobber, D. and Lancaster, G., "Selling and Sales Management", 9 th Ed., Pearson.	2012
5.	Tanner, J., Honeycutt, E.D., and Erffmeyer, R.C., "Sales Management.	2008
6.	Venugopal Pingali, Sales and Distribution Management: An Integrative Approach, Sage Publishing	2021

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-675 **Course Title:** Pricing Strategies
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge of importance of pricing strategies and its effect on the overall sales and profitability of a company.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction: Importance of Pricing, The role of pricing in value creation, Conventional approaches – and their limitations, Course overview and administrative issues , Break-even analysis, Economic Value and Pricing Economic value to the consumer, Willingness-to-Pay.	3
2.	Pricing to Maximize Profits: Primarily review topics from the core with an emphasis on their relationship to pricing, Pricing for profit-maximization, The Prospect Theory of Daniel Kahneman; St. Petersburg’s paradox and the related issues, The Role of Costs.	3
3.	Measuring Willingness to Pay: Measuring price sensitivity using surveys, Brief discussion of designing surveys for pricing research, Methods to elicit willingness-to-pay, Conjoint analysis to estimate elasticity.	3
4.	Pricing a new product/Multi Product pricing: Using regression to estimate elasticity, Pricing multiple products, Complements and substitutes, Cross-price elasticity.	3
5.	Segmentation & Product Line Pricing: Benefits of segmented pricing, Techniques for segmented pricing	3
6.	Pricing over Time: Role of promotions to achieve price objectives , Hi-Lo vs. EDLP pricing strategy, Skimming and penetration pricing, Experimentation, and mark-downs.	3
7.	Competition and Pricing: Incorporating competition into pricing strategy, Effective responses to competitive pricing moves, Managing price wars, Pricing and the Law, Legal constraints on pricing, Antitrust laws, Discussion of recent merger and antitrust cases	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Vohra and Krishnamurthy, Principles of Pricing, Cambridge Publications	2012
2.	Tim J Smith, Pricing Strategy: Setting Price Levels, Managing Price Discounts and Establishing Price Structures, Cengage Learning	2015
3.	Hermann Simon, Confessions of the Pricing Man: How Price Affects Everything, Springer	2015

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-676 **Course Title:** Business to Business Marketing
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge of B2B marketing with knowledge of the realities of industrial market place, cross-functional decision-making processes, supply chain management, e-commerce and related areas.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction to B2B Marketing: Introduction, B2B versus B2C, Understanding the B2B market environment	3
2.	Buying Behaviour: Growth, Trends, Competition and Organizational Buying Behavior	3
3.	Product Strategy in B2B Markets: Segmentation, Position & Targeting Business to Business Branding	3
4.	Pricing: Pricing Strategy in B2B Markets	3
5.	Channel Management: Marketing Channels, Supply Chain Management, Developing and Managing Channels of Distribution	3
6.	Communication Strategy: Communication Strategy in B2B Markets, Managing the Personal Selling Function	3
7.	Sales Force Management: Sales Force Design and Management in B2B Markets	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Sharma Dheeraj, Michael D. Hutt, Thomas W. Speh, B2B Marketing: A South-Asian Perspective, Cengage, 8th edition	2015
2.	James C. Anderson, Business Market Management (B2B), Pearson Publications.	2010
3.	K.K. Havaldar, Business Marketing: Text and Cases, McGraw Hill Publications 4 th edition	2017

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-677 **Course Title:** Services Marketing
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge of marketing of services.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction: Characteristics of services compared to goods, services marketing mix.	2
2.	Focusing on the customer: Consumer behavior in services; consumer experience, post purchase evaluation, customer expectations, factors influencing customer expectations, customer perceptions, service quality, service encounters.	4
3.	Customer requirement analysis: Market research for services, customer relationship management and service recovery.	3
4.	Service design and standards: Service development, design and standards, physical evidence and servicescape.	3
5.	Delivering services: Employees' and customers' roles in service delivery, delivering services through intermediaries and electronic channels, managing demand and capacity.	3
6.	Managing service promises: Managing integrated marketing communications and pricing services.	3
7.	Economic and financial impact of service: Customer retention, balanced performance scorecard, strategy maps.	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Zeithaml, VA., Bitner, M.J., "Services Marketing - Integrating Customer Focus Across the Firm", 8 th Ed., McGraw-Hill Higher Education	2019
2.	Wirtz, J., Lovelock, C., "Services Marketing People Technology Strategy", 8 th ed, Pearson Education.	2017
3.	K. Douglas H, John E.G. B, "Services Marketing: Concepts, Strategies and Cases, 6 th Ed. , Cengage India	2017

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-679 **Course Title:** Retail Management
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge of retail management.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction to the World of Retailing: Meaning, Functions of Retailing, Economic Significance of Retailing, Retailing Management Decision Process, Traditional vs. Organized Retailing in India, Ethical aspects in Retailing	2
2.	Retail Formats and the Marketing Environment: Key Retailing Formats, Understanding the Retail Environment, Overview of Private Label Brands and National Brands	3
3.	Understanding the Retailing Consumer: Factors influencing Retail Shoppers, Consumer Decision Making Process, Understanding Multi-channel Shopping Behaviour	2
4.	Retail Marketing Strategies: Target Market and Retail Formats, Building a Sustainable Competitive Advantage, Strategic Retail Planning Process, Overview of Financial Strategy	3
5.	Store Location and Layout: Types of Retail Stores Location, Factors Affecting Retail Location Decisions, Location Based Retail Strategies	2
6.	Retail Merchandising: Understanding Merchandising Management, Merchandising Management Process and Merchandise Buying	3
7.	Store Design, Layout and Visual Merchandising: Concept, Principle and Elements of Store Design, Visual Merchandising	2
8.	Retail Pricing: Establishing Pricing Policies, Factors Influencing Pricing and Popular Pricing Strategies	2
9.	Retail Distribution: Role of Distribution in Retailing, Role of Technology in Retailing, Factors Influencing the Retail Supply Chain, E-tailing	2
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Robert F. Lusch, James R. Carver, Patrick M. Dunne, Retailing, Cengage, 8th edition	2015
2.	Barry Berman, Joel R Evans, Patrali Chatterjee, Ritu Srivastava, Retail Management: A Strategic Approach, Pearson, 13th edition	2018
3.	Michael Levy, Barton A. Weitz, Ajay Pandit , Retailing Management, McGraw Hill, 8th edition	2017
4.	J.K. Nayak & Prakash Dash, Retail Management, Cengage	2016
5.	Swapna Pradhan, Retail Management: Text and Cases, McGraw Hill, Edition 6e	2020

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-680 **Course Title:** Rural Marketing
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To provide knowledge of rural markets, consumers, rural products, and services and to promote entrepreneurship and help in the development of new startup's in the field of rural marketing.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction to rural marketing: Rural Marketing Concept, Nature, scope and significance of Rural Marketing, factors contributing to growth of rural markets, Rural Market vs. Urban Market, e-rural marketing, rural economic structure, rural infrastructure, rural consumer behavior, buying decision making of rural consumers.	4
2.	Product, pricing, and promotional strategy for rural consumers: Rural marketing research, 4A's of rural marketing, Segmenting and targeting rural markets, product strategy for rural markets, Pricing in rural markets, advertising and promotion for the rural consumers, Rural Marketing Information System.	5
3.	Marketing of Agri-related products and services: Marketing of Agricultural Produce and Inputs, Regulated markets, Cooperative Marketing & Processing Societies, Corporate Sector in Agri-Business: Cultivation, Processing & Retailing, Rural Marketing of FMCGs, Durables & Financial Services.	4
4.	Channel management for rural markets: Channel dynamics and rural channel members, Distribution models in rural markets, communication strategies for rural markets, Logistics Management - Problems encountered - selection of appropriate channels - New approaches to reach out rural markets, Distribution System in Rural Marketing, warehousing.	3
5.	Incubation and Start-ups: Start-up Village Entrepreneurship Development Programme (SVEP), Skill development, Entrepreneurship, Innovations, popular case studies of new startup's, agencies supporting and funding startup's, AI and IoT based startups in rural marketing (Escorts, TCS), Digital revolution, Special initiatives taken by government of India, Agriculture Technology Incubation – Prospects of future functioning of start-ups in Agriculture space.	5
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Rural marketing by Pradeep Kashyap, 3 rd Edition, Pearson Publication.	2016
2.	Rural marketing: challenges and opportunities by Dinesh Kumar and Punam Gupta, Sage Publications.	2017
3.	Rural marketing: text and cases by Krishnamacharyulu, 2 nd edition, Pearson Publication	2010
4.	Rural marketing concepts and practices by Balram Dogra and Karminder Ghuman, McGraw Hill Publication.	2007

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-623 **Course Title:** Global Marketing Management
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To acquaint the students with environmental procedural, institutional and decisional aspects of cross border marketing with an emphasis on the global nature of marketing.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction to Global Marketing: Globalization Imperative, Understanding the Global Consumer, Globalization of Markets, Evolution of Global Marketing	3
2.	Global Marketing Environment: Economic Environment, Country Competitiveness, Trading Agreements, Financial Environment, Political and Legal Environment, Law and Legal Requirements, Issues transcending national boundaries	4
3.	Developing Competitive Marketing Strategies: Global Market Research, Segmentation, Targeting and Positioning in Global Markets, Regionalization of Global Markets, Market Entry and Exit Strategies, Global Sourcing Strategies and Value chain	4
4.	Global Marketing Strategy Development 1: New Product Development in Global Markets, Managing Products and Services Globally, Branding in International Markets, International Pricing	4
5.	Global Marketing Strategy Development 2: Global Distribution and Logistics, Global Retailing and Communicating with Global Customers and Media Decisions in International Markets, Export and Import Management	3
6.	Managing Global Operations: Planning, Organizing and Control of Global Marketing Operations, Using Technology for Global Marketing	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Kotabe, Masaaki and Helsen, Kristiaan, "Global Marketing Management", 8 th ed, Wiley	2021
2.	Alon, I and Jaffe, E., "Global Marketing: Strategy, Practice, and Cases", 3 rd Ed, Routledge	2020
3.	Beveridge, I, "Intercultural Marketing: Theory and Practice", 1st Ed Routledge	2020
4.	Keegan, W J, "Global Marketing", 9th ed, Pearson Education	2018

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-651 **Course Title:** Manufacturing Strategy
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge regarding use of manufacturing and operations activities for improving the competitiveness of the organization.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Strategic issues in manufacturing, Competing through manufacturing	2
2.	Developing an operations strategy: Principles and Concepts	4
3.	Concept of order winners and qualifiers: Basic characteristics and specific dimensions	4
4.	Developing an operations and manufacturing strategy: Methodology	3
5.	Process Choice – overview, business implications, hybrid processes, technology strategy	3
6.	Focus: Principles, concepts and methodology	3
7.	World Class Manufacturing – concepts and cases	2
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Hill T and Hill A, “Manufacturing Operations Strategy” 3 rd Edition, Palgrave Macmillan	2009
2.	Todd, J. “ World Class Manufacturing”, 2 nd Ed, McGraw Hill	2008
3.	Schonberger R J, “World Class Manufacturing: The Lessons of Simplicity Applied”, 3 rd Ed. The Free Press	2008
4.	Slack N and Lewis M, “Operations Strategy”, 2 nd Edition, Pearson	2009
5.	Sahay B S, Saxena K B C and Kumar A, “World Class Manufacturing- A Strategic Perspective” Macmillan	2009
6.	Skinner W., “Manufacturing in the Corporate Strategy”, Wiley	1978

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-652 **Course Title:** Service Operations Management
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge on various aspects of services operations management and provide exposure to tools and techniques to gain strategic advantage through service operations.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Understanding services economy, global trends in services sector, Rising service sector in India	2
2.	Understanding the challenges for operations managers, developing and using the service concept	3
3.	Understanding customers and relationships, managing customer expectations and perceptions, managing supply networks and supplier relationships	5
4.	Designing the customer experience and service process, measuring, controlling and managing operations and managing service resources	5
5.	Driving continuous improvement, learning from other operations-benchmarking, Service quality- Servqual	4
6.	Building a world class service organization	2
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Fitzsimmons J A and Fitzsimmons M J, "Service Management: Operations, Strategy and Information Technology", McGraw Hill	2008
2.	Johnston R., Clark G., and Shulver M., "Service Operations Management", 4 th Ed., Pearson	2020
3.	Haksever C., Render B., Russel S.R. and Murdick R.G., "Service Management and Operations", 2 nd Ed, Prentice Hall	2007

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-653 **Course Title:** Supply Chain Analytics
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge about using of different analytical models for supply chain decision making.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Different aspects of supply chain decision making and various tools for real time analysis	3
2.	Designing global supply chain networks	2
3.	Demand forecasting in a supply chain, role of IT in forecasting, Use of AI tools in forecasting for supply chain	5
4.	Sales and Operations planning, Use of different tools	4
5.	Managing economies of scale and uncertainties in a supply chain	5
6.	Optimal level of product availability	2
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Sunil Chopra, Peter Meindl, Supply Chain Management, Pearson	2019
2.	D. Simchi-Levi, P. Kaminsky, E. Simchi-Levi, Ravi Shankar, Designing and Managing the Supply Chain, Tata McGraw Hill	2017
3.	Shah Janat, Supply Chain Management, Pearson Education	2016

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-654 **Course Title:** Operations Analytics
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge of operations analytics for managers.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Foundations of descriptive analytics for operations, historical demand data to build forecasts for future demand, news vendor problem	2
2.	Evaluation and comparison of decisions when their impact is uncertain-simulation models, measurement of risk and reward	2
3.	Decision trees, Using Simulation with Decision Trees, Using Optimization together with Simulation	2
4.	Revenue management-Quantity-based: introduction, Single-resource capacity Control	2
5.	Revenue management-Quantity-based: network capacity control, overbooking	2
6.	Revenue management: price-based- dynamic pricing	2
7.	Revenue management: price-based- auctions	2
8.	Multi attribute decision making techniques: Analytic Network Process and Fuzzy Analytic Network Process, Simple Additive Weighting Method	4
9.	Multi attribute decision making techniques: TOPSIS and VIKOR, ELECTRE Method, Structural Models	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Nahmias, S., & Olsen, T. L., Production and operations analysis. Waveland Press.	2015
2.	Talluri, K. T., Van Ryzin, G., & Van Ryzin, G. The theory and practice of revenue management (Vol. 1). Boston: Kluwer Academic Publishers.	2004
3.	Tzeng, G. H., & Huang, J. J. Multiple attribute decision making methods and applications. CRC press.	2011

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-655 **Course Title:** Essential AI for Managers
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To build foundation on essential AI for managers.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Essential programming in python	5
2.	An overview of multi-armed bandits, contextual bandits, restless bandits, Algorithms such as UCB, greedy etc. Applications in dynamic pricing and online advertisement.	6
3.	Google search engine analytics, application of the PageRank algorithm, Analytics for kidney allocation, Layout design.	3
4.	Fraud detection, reducing healthcare fraud, AI in asset management	3
5.	Introduction to Reinforcement Learning, Model free prediction, Q-learning in warehouse management	4
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Sugiyama, Masashi. Statistical reinforcement learning: modern machine learning approaches. CRC Press.	2015
2.	Sutton, Richard S., and Andrew G. Barto. Reinforcement learning: An introduction. MIT press.	2018
3.	Bertsimas, Dimitris, and Robert Michael Freund. Data, models, and decisions: The fundamentals of management science. South-Western Pub.	2010
4.	Bertsimas, Dimitris, K. O. Allison, and William R. Pulleyblank. The analytics edge. Charlestown, MA: Dynamic Ideas LLC.	2016
5.	OR Tools library by google developers	2020

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-656 **Course Title:** Advanced AI for Managers
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** The objective of this course is to introduce students advanced concepts in AI and analytics that are relevant to managers.

10. Details of the Course

S.No.	Contents	Contact hours
1.	End to end regression project: predicting housing prices, area burned, bike demand in future. End to end classification projects.	5
2.	Ensemble Learning - Hard Voting, Soft Voting, Criteria, Accuracy, Ensemble - Classification or Regression, CNNs - Why CNNs Shine Now RNNs - Language Translation.	4
3.	Challenges in Machine learning projects, time series data imputation, Principle component analysis, Advantages of dimensionality reduction, Pre-trained neural network models.	4
4.	Case of missing value, overfitting or underfitting, methods to avoid overfitting. Pre-trained neural network models	4
5.	Unsupervised learning, Generalized AI and real life large projects, Increasing revenue with analytics, Recommendations worth a million, online advertising.	4
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Sugiyama, Masashi. Statistical reinforcement learning: modern machine learning approaches. CRC Press.	2015
2.	Bertsimas, Dimitris, and Robert Michael Freund. Data, models, and decisions: The fundamentals of management science. South-Western Pub.	2010
3.	Bertsimas, Dimitris, K. O. Allison, and William R. Pulleyblank. The analytics edge. Charlestown, MA: Dynamic Ideas LLC.	2016
4.	U Dinesh Kumar “Business Analytics – The Science of Data Driven Decision Making”, Wiley,	2017
5.	Manaranjan Pradhan and U Dinesh Kumar, “Machine Learning Using Python”, Wiley.	2019

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-657 **Course Title:** Game theory for strategic advantage
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To build foundation on strategic thinking applied to managerial situations.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Key notions in Game theory: preferences, utilities, rationality. Classification of Games: extensive and strategic form games.	4
2.	Dominant strategy equilibrium, Pure and mixed strategy Nash equilibrium.	4
3.	Bargaining, Dynamic Price Competition, Introduction to Repeated Interaction, Long-run Relationships	4
4.	Introduction to mechanism design, Social choice function, Incentive compatibility.	5
5.	Introduction to Auctions, online auctions, designing optimal auctions, Sponsored search auctions.	4
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Y. Narahari, Game theory and Mechanism Design, Vol. 4. World Scientific	2014
2.	Dixit, Avinash, Susan Skeath, and David Reiley. Games of Strategy. 4th ed. W. W. Norton & Company.	2015
3.	Nisan, Noam, Tim Roughgarden, Eva Tardos, and Vijay V. Vazirani. "Algorithmic Game Theory." Cambridge University Press.	2010
4.	José Luis Ferreira, Game Theory: An Applied Introduction, 1st edition International Higher Education.	2020
5.	M. Osborne, An Introduction to Game Theory, Oxford Univ. Press	2003

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-658 **Course Title:** Quality Management
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To provide an introduction to quality management and the basic methods to implement it.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Quality Improvement in the Modern Business Environment: The Meaning of Quality and Quality Improvement, Brief History of Quality and Quality Improvement, Statistical Methods of Quality Control and Improvement, Other Aspects of Quality Control and Improvement, Six Sigma, DMAIC	3
2.	Modeling Process Quality: Describing Variations, Important Discrete Distributions, Important Continuous Distributions, Some Useful Approximations	3
3.	Inferences about Process Quality : Statistics and Sampling Distributions, Point Estimations of Process Parameters, Statistical Inference for a Single Sample, Statistical Inference for Two Samples, ANOVA	2
4.	Methods and Philosophy of Statistical Process Control (SPC): Introduction, Chance and Assignable Cause of Quality Variation, Statistical Basis of the Control Chart, The Rest of the “Magnificent Seven”, Implementing SPC, Application of SPC, Non-manufacturing application of SPC	3
5.	Control charts for variables and attributes: Control charts for x and R, x and s, fraction non-conforming, non-conformities	3
6.	Process and Measurement System Capability Analysis: Introduction, Process Capability Analysis Using a Histogram or a Probability Plot, Process Capability Ratios, Process Capability Analysis Using a Control Chart, Process Capability Analysis Using Designed Experiments, Gauge and Measurement System Capability Studies, Setting Specification Limits on Discrete Components, Estimating the Natural Tolerance Limits of a Process	4
7.	Cumulative Sum and Exponentially Weighted Moving Average Control Charts: The Cumulative Sum Control Charts, The Exponentially Weighted Moving Average Control Charts, The Moving Average Control Charts	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Douglas C. Montgomery," Introduction to Statistical Quality Control" Wiley; 7 th edition	2012
2.	Dale H. Besterfield, C.B. Michna, G. H. Besterfield, M.B. Sacre, "Total Quality Management", Pearson Prentice Hall, 4 th Edition	2015
3.	Juran J. M. and Gryna, Jr. F.M., "Quality Planning and Analysis", Tata McGraw Hill, 5 th Edition	2005
4.	Ronald G Day, "Quality Function Deployment", Tata McGraw Hill, 1 st edition	1997
5.	Howard Gitlow, Alan Oppenheim, Rosa Oppenheim, David Levine, "Quality Management", Tata McGraw Hill, 3 rd Edition	2017
6.	I. Marash ,Marilyn Block, "Integrating ISO 14001 into a Quality Management System", Tata Mc Graw Hill, 1 st Edition	2002

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-660 **Course Title:** Advanced Quality Management
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To survey advanced techniques in quality management and methods to implement it.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Univariate Statistical Process Monitoring and Control Techniques : SPC for Short Production Runs, Modified and Acceptance Control Charts, Control Charts for Multi-Stream Processes, SPC with Auto correlated Process Data, Adaptive Sampling Procedures, Economic Design of Control Charts, Overview Other Procedure	3
2.	Multivariate Process Monitoring and Control: The Multivariate Quality Control Problem, Description of Multivariate Data, The Hotelling T ² Control Chart, The Multivariate EWMA control Chart, Regression Adjustment, Control Charts for Monitoring Variability, Latent Structure Methods.	3
3.	Engineering Process Control (EPC) and SPC: Process Monitoring and Process Regulation, Process Control by Feedback Adjustment, Combining SPC and EPC	3
4.	Factorial and Fractional Experiments for Process Design and Improvement: Experimental Design, Example of Experimental Design in Process Improvement, Guidelines for Designing Experiments, Factorial Experiments, The 2 ^k Factorial Design, Fractional Replication of 2 ^k Design	3
5.	Process Optimization with Designed Experiment: Response Surface Methods and Design, Process Robustness Studies, Evolutionary Operation	3
6.	Lot-by-Lot Acceptance Sampling for Attributes: The Acceptance Sampling Problems, Single-Sampling Plans for Attributes, Double, Multiple and Sequential Sampling, Military Standard 105E (ANSI/ASQCZ1.4, ISO2859), The Dodge-Roming Sampling Plans	3
7.	Other Acceptance Sampling Techniques: Acceptance Sampling by Variables, Designing a Variables Sampling Plan With a Specified OC Curve, IL STD 414 (ANSI/ASQCZ1.9), Other Variables Sampling Procedure, Chain Sampling, Continuous Sampling, Skip-Lot Sampling Plans	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Douglas C. Montgomery, " Statistical Quality Control" Wiley; 7 th edition	2012
2.	Dale H. Besterfield, C.B. Michna, G. H. Besterfield, M.B. Sacre, "Total Quality Management", Pearson Prentice Hall, 4 th Edition	2015
3.	Juran J. M. and Gryna, Jr. F.M., "Quality Planning and Analysis", Tata McGraw Hill, 5 th Edition	2005
4.	Ronald G Day, "Quality Function Deployment", Tata McGraw Hill, 1 st edition	1997
5.	Howard Gitlow, Alan Oppenheim, Rosa Oppenheim, David Levine, "Quality Management", Tata McGraw Hill, 3 rd Edition	2017
6.	I. Marash ,Marilyn Block, "Integrating ISO 14001 into a Quality Management System", Tata Mc Graw Hill, 1 st Edition	2002

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-669 **Course Title:** Case studies in application of decision models
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Basic knowledge of mathematical programming **8. Subject Area:** PEC
9. **Objective:** To use modelling techniques through hands-on data analysis in a variety of application domains.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction about advanced decision making models	1
2.	The Duckworth-Lewis-Stern method: For setting targets in shortened limited overs cricket matches	4
3.	Mars orbit: From Tycho Brahe's observations to the conclusion that Mars moves in an elliptical orbit	4
4.	Renewable energy integration: Power purchasing agreements; Feed in tariffs, RE certificates, Spot markets: Day ahead market, real time markets; Power procurement portfolios; Dispatch optimization: Ramping, cold start, warm start hot start, start-up cost; Generation capacity expansion planning.	6
5.	Decarbonization: Carbon markets; Carbon capture, storage and utilization, CO2 transportation: pipelines & Shipping; Shipping terminal catchment areas; Source sink matching	3
6.	Select topics in water management: Forecasting; sectoral allocation; conflict characterization	3
Total		21

11. Suggested Reading:

There is no textbook for this course. Slides of lectures and the relevant papers will be provided. Cases will be updated as the course evolves.

Following research papers will be primary reference source:

1. Duckworth, F. C., and Lewis, A.J. "A fair method for resetting the target in interrupted one-day cricket matches" Journal of the Operational Research Society, (Mar 1998)
2. Duckworth, F. C., and A. J. Lewis. "A successful operational research intervention in one-day cricket." Journal of the Operational Research Society, (Jul 2004). Sharma, T., & Balachandra, P. (2015). Benchmarking sustainability of Indian electricity system: An indicator approach. Applied Energy, 142. <https://doi.org/10.1016/j.apenergy.2014.12.037>

3. Sharma, Tarun, & Balachandra, P. (2019). Model based approach for planning dynamic integration of renewable energy in a transitioning electricity system. *International Journal of Electrical Power & Energy Systems*, 105, 642–659. <https://doi.org/10.1016/J.IJEPES.2018.09.007>
4. Sharma, Tarun, Gallachóir, B., & Rogan, F. (2020). A new hybrid approach for evaluating technology risks and opportunities in the energy transition in Ireland. *Environmental Innovation and Societal Transitions*, 35 (February), 429–444. <https://doi.org/10.1016/j.eist.2020.01.012>

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-670 **Course Title:** Circular supply chain for Sustainability
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart the knowledge of circular supply chain for sustainability in business.

10. Details of the Course

S.No.	Contents	Contact hours
1.	The limits of linear consumption, From linear to circular, seven pillars of circular Economy, Case examples of circular products	2
2.	Circular Economy Principles, basic circular economy framework, Growth and Sustainability	2
3.	Waste and Systems-Level Thinking, Biological Cycles- cycles for biological materials	2
4.	Material and Product Design, circular Supply Chains	2
5.	Business Models- offering products “as a service” instead of selling products and transferring ownership to consumers, opportunities, and challenges of circular business models.	2
6.	Policy - existing and potential policy changes to encourage greater circular flows, taxing material resource consumption	2
7.	Role of Consumers, sharing Economy for circular Economy	2
8.	Technological developments for circular Economy, IoT and 3D printing for circular Economy	2
9.	Financing requirement for circular Economy, innovative funding models	2
10.	Circular economy indicators and measurements, metrics of the circular economy company, city, and country levels	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Webster, K. The circular Economy: A wealth of flows. Ellen MacArthur Foundation Publishing.	2017
2.	Grant, D. B., Wong, C. Y., & Trautrim, A. Sustainable logistics and supply chain management: principles and practices for sustainable operations and management. Kogan Page Publishers.	2017
3.	Genovese, A., Acquaye, A. A., Figueroa, A., & Koh, S. L. Sustainable supply chain management and the transition towards a circular economy: Evidence and some applications. Omega, 66, 344-357.	2017
4.	Stahel, W. R., & MacArthur, E. The circular Economy: A user’s guide. Routledge.	2019

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-620 **Course Title:** Industrial Internet of Things for Managers
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart the knowledge of different cyber-physical systems for industrial applications.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction to IoT, Sensing & actuation, IoT Connectivity, The Fourth Revolution, industry 4.0	3
2.	Smart and connected business perspective, Smart factories, Cyber-Physical Systems and Next Generation Sensors	2
3.	Collaborative Platform Product Lifecycle Management, Augmented Reality and Virtual Reality, Artificial Intelligence	3
4.	Big Data and Advanced Analysis, Cybersecurity in Industry 4.0	2
5.	Industrial Internet systems, Industrial Sensing & Actuation, Industrial Process	2
6.	Business Models and Reference Architecture for IIoT, Enablers of IIoT: Sensing, connectivity, processing, and process control	2
7.	IIoT Analytics and Data Management: Machine Learning and Data Science	2
8.	Cloud computing in IIoT, data centre networks, Software-defined networking (SDN)	3
9.	Industrial IoT- Application Domains: Manufacturing and service industries	2
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Gilchrist, A., Industry 4.0: the industrial internet of things. Apress.	2016
2.	Rawat, D. B., Brecher, C., Song, H., & Jeschke, S. Industrial Internet of Things: Cybermanufacturing Systems. Cham, Switzerland: Springer.	2017
3.	Misra, S., Roy, C., & Mukherjee, A. Introduction to Industrial Internet of Things and Industry 4.0. CRC Press.	2021

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-621 **Course Title:** Spreadsheet Modelling
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To introduce the participants to advanced interactive features of the popular spread sheet packages and the programming languages such as Visual Basic for Applications (VBA), embedded in some popular spreadsheet packages.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Recap of Basics of Excel and Database Arithmetic – VLOOKUP, HLOOKUP, Advanced Filtering, PIVOT Table	2
2.	TEXT and DATE Handling – Code, Char, and Date Functions	2
3.	Array Functions, Matrix Operations and Regression	2
4.	Simulation, Macros and Solver Feature – Introduction to VBA Environment, Sub and Functions in VBA – Introduction using elementary examples	4
5.	If Then, Else Condition in VBA – Introduction to control constructs, Loops in VBA – For .. NEXT, Loops in VBA – Do ..LOOP, Select Case Control Construct	4
6.	Arrays in VBA, Declaring arrays and Elementary Examples, Solving Travelling Salesman Problem and Bin Packing problem using a heuristic, User Forms in VBA	5
7.	Examples to enhance the usage of interactive version of spreadsheet – Goal Seek, Generalized VLOOKUP, etc.	2
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Winston Wayne, Microsoft Excel 2019 Data Analysis and Business Modelling, Microsoft	2019
2.	Ragsdale Cliff, Spreadsheet Modelling & Decision Analysis, 6 th Ed, Cengage	2010
3.	Spreadsheet Through Examples: Microsoft Excel 2010 Version. (IIMA)	2013
4.	https://www.excelfunctions.net/excel-vba-tutorial.html VBA tutorial	WebLink
5.	https://powerspreadsheets.com/create-excel-userforms/ User Forms tutorial	WebLink

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-622 **Course Title:** Business Analytics
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To familiarize the participants with new and state of the art modelling techniques to typical business decision making problems with the aid of software like MS Excel, R and/or Python.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Review of Basics of Probability, Linear Algebra and Statistics for Analytics, Data Visualization	3
2.	Confidence Interval, Hypothesis Testing	3
3.	Logistic Regression	3
4.	Clustering and Factor Analysis using Python	3
5.	Naïve Bayes Classifier	2
6.	K-Nearest Neighbor	2
7.	Artificial Neural Networks	2
8.	Text Analytics using Python	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Galit Shmueli, Peter Bruce and Nitin R. Patel, “Data Mining for Business Analytics – Third Edition” Wiley	2016
2.	Dimitris Bertsimas, Allison O'Hair, William Pulleyblank, “The Analytics Edge”, Dynamic Ideas LLC	2016
3.	Foster Provost and Tom Fawcett, “Data Science for Business” by O'Reilly Media	2013
4.	Larose, D. T. and Larose, C. D., “Data Mining and Predictive Analytics”, Wiley	2015

The titles of following existing PECs have been revised:

1. Finance Area

Course Code	Existing Name in the structure	Approved Revised Name
BMN-681	Quantitative Analysis for Financial Management	Basics of Quantitative Finance
BMN-683	Security Analysis and Portfolio Management	Security Analysis for Investment
BMN-685	International Financial Management	International Corporate Finance
BMN-686	Financial Management Control Systems	Financial Engineering
BMN-687	Taxation and Tax Planning	Applications of Quantitative Finance
BMN-688	Merchant Banking and Financial Services	Financial Risk Management
BMN-689	Financial Statement Analysis and Reporting	Financial Modelling

2. Human Resource Management

Course Code	Existing Name in the structure	Approved Revised Name
BMN-634	Career Planning and Performance	Career Planning and Performance Management
BMN-635	Management of Training and Talent Development	Training and Talent Development
BMN-636	Compensation Management and Reward System	Competency Management
BMN-641	H R Analytics	Human Resource Analytics

3. Marketing Electives

Course Code	Existing Name in the structure	Approved Revised Name
BMN-671	Internet Marketing	Advanced Consumer Behavior Analysis
BMN-675	International Marketing	Pricing Strategies
BMN-676	Industrial Marketing	Business to Business Marketing

4. Operations Electives

Course Code	Existing Name in the structure	Approved Revised Name
BMN-654	Computer Integrated Manufacturing	Operations Analytics
BMN-655	Operations Planning and Control Systems	Essential AI for Managers
BMN-656	Total Productive Maintenance	Advanced AI for Managers
BMN-657	Productivity Management	Game theory for strategic advantage

5. Courses BMN-655: Essential AI for Managers, BMN-656: Advanced AI for Managers, BMN-657: Game theory for strategic advantage, BMN-669: Case studies in application of decision models, BMN-620: Industrial Internet of Things for Managers, BMN-621: Spreadsheet Modelling and BMN-622: Business Analytics to be considered for Operations and Information System specialization.