

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

No. Acd./1205/Senate-86

Dated: March 09, 2021

NOTIFICATION

Subject: Structure of New Integrated M.Sc. Economics (Five Year Integrated) programme (86.14)

The Senate in its 86th meeting held on 09.02.2021 considered and approved the structure of New Integrated M.Sc. Economics (Five Year Integrated) programme **(Appendix-A)**.


Assistant Registrar (Curriculum)

Copy to (through e-mail):-

1. Chairman Senate & Director
2. All faculty
3. All Head of Departments/ Centres
4. Dean, Academic Affairs
5. Associate Dean of Academic Affairs (Curriculum)/(Evaluation)
6. Assistant Registrar (Admission)/(Evaluation)
7. Meeting Section
8. Channel I/ Acad portal/ Academic webpage of iitr.ac.in

Indian Institute of Technology Roorkee
Department of Humanities and Social Sciences

MSE (BS+MS in Economics)
(Five Year Integrated Programme)

Programme Overview

MSE (MS in Economics) programme will be of particular interest if one envisages a career which calls for advanced analytical skills, draws on advanced knowledge of economics, and shall ensure exposure to contemporary and emerging economic policy issues at the national and international levels. The programme is unique as it would help the students to apply various economic principles, theories and models, and understand the technical foundations behind them. This would enable students to alter, amend, empirically test and adapt them to the changing economic environment.

Programme Features

The MSE (MS in Economics) programme will be an in-depth programme that will equip students with the tools a professional economist needs to work in government or in international organisations, or to carry out economic research. This programme will give students rigorous training in the core areas of economics to make them proficient in the latest analytical and quantitative techniques. Students will also receive a firm grounding in mathematical and econometric techniques, microeconomics and macroeconomics, including their application to new economic problems.

Students want to have an exit degree may get it as BS (Economics) in completion of 4th year of the Programme.

Admission Eligibility/ Mode of Admission

Through IIT JEE Entrance Examination.

No. of Proposed Seats

The total number of seats proposed for the 5yr MSE (MS in Economics) programme is 33.

The breakup of the seats for this programme is: 16 (GEN) + 8 (OBC) + 3 (EWS) + 4 (SC) + 2 (ST)

Programme Duration

The MSE (MS in Economics) programme would be a five-year full-time programme, with each year comprising the autumn and spring semesters with complete programme spread over total of ten semesters. (Teaching Scheme attached)


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Note: Students want to have an exit degree may get it as BS (Economics) in completion of 4th year of the Programme.

Students want to have BS degree have to intimate to DAA about their Option before the commencement of the Autumn Sem of 3rd Year during their subject registration and they may exit the Programme at the end of 4th Year

Students want to have BS degree may exit the Programme at the end of 4th Year; Students with BS degree can opt for Project work as an elective under Department elective III and IV (total 6 credits, 3 credit each)

Programme Structure

	Autumn Semester		Spring Semester	
1 ST YEAR	Semester I	Courses taught are of the same Structure like all other Branches (BSC, ESC, HSSMEC, GSC), One PCC (Introduction to the Discipline)	Semester II	Three PCC- Level 1 Microeconomics, Level 1 Macroeconomics, Basic Statistics along with BSC and ESC Courses
2 ND YEAR	Semester III	Four PCC Courses along with One ESC course	Semester IV	Three PCC Courses along with One BSC Course and One HSSMEC Course
3 RD YEAR	Semester V	PCC and PEC Courses (Programme Elective)	Semester VI	PCC and PEC Courses (Programme Elective)
	- Students will have Programme Electives starting this year (from Autumn Semester). - Students will have Institute Open Elective (in Spring Semester). - Students can start opting for Minor Specialization Course from Other Departments/Courses (from Spring Semester).			
4 TH YEAR	Semester VII	PCC and PEC Courses (Programme Elective)	Semester VIII	PCC and PEC Courses (Programme Elective)
	- Students will have Programme Electives (in Autumn and Spring Semester). - Students can opt for Minor Specialization Course from Other Departments/Courses (in Autumn and Spring Semester).			
5 TH YEAR	Semester IX	PCC and PEC Courses (Programme Elective)	Semester X	PCC (Dissertation) and PEC Courses (Programme Elective)
	- Students will have Seminar (in Autumn Semester). - Students will have Dissertation (in Spring Semester).			



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	Students can start opting for Minor Specialization Course from Other Departments/Courses(in Autumn and Spring Semester).
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MSE (MS in Economics) Programme structure shall be according to minimum and maximum credit requirements in each semester. In each semester, the student shall require to fulfill maximum of 18-24 credits. Courses may be of credits ranging from 2 to 4.

Programme Evaluation

The programme course(s) evaluation would be based on mid-term, end-term and coursework including seminar presentations, group discussions, term papers and summer internship as per institute evaluation scheme.

Total Credits: as per other MS/MSc programmes of the Institute)

Career Prospects

Careers open to students who successfully complete the MS Economics degree include economic advisory at government and semi-government departments, financial analysts and advisors to national and international financial institutions, data analysts and researchers as well as consultancy. In addition, the programme may also offer a route into further study at the Ph.D. level at various international academic institutions. The institute placement and training Centre can arrange campus placements by prospective employers from:

Financial Services-Reserve Bank of India, American Express Bank, HSBC Bank, ICICI Bank, Roulac Global Investments, National Institute of Securities Markets (NISM), Fidelity Investments, Indian Credit Rating Association (ICRA), Industrial Development Bank of India (IDBI), Iflex Solutions, National Commodities & Derivatives Exchange Ltd., etc.

Government Departments-Planning Commission (NITI Aayog), Ministry of Finance, Indian Council for Social Science Research (ICSSR), etc.

Research and Consultancy-Crisil Research, Deloitte, Ernst & Young and PwC, Institute for Financial Management and Research, NCAER, etc.

International Agencies- Economic advisor and experts to World Bank, Asian Development Bank, International Monetary Fund, OECD, etc.

Development- Social sector, NGOs, MFIs, NABARD, etc.


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Teaching Scheme

Program Code: **MSE** (MS in Economics)

Department: Department of HSS, Code: ECO (Economics)

Year	Credits in Autumn Semester	Credits in Spring Semester	Credits (year-wise)
1	21	24	45
2	20	19	39
3	20	18/22	38/42
4	17/ 21	17/21	34/42
5	18/22	18/22	36/44
Total	96/104	96/108	192/212

Curricular Components	Credit Distributions	
	Credits as per Institute Structure	Credits for MS in Economics
Institute Core Courses		
HSSC	4	4
BSC	16	16
ESC	16	16
GSC	3	3
Total	39	39
Programme Core Courses (PCC)		
Class Contact Core Courses	104	102
Intro to Discipline	2	2
Tech Communication	2	2
Project	12	12
Seminar	2	2
Educational Tour	0	0
Total	122	120
HSS and Management Electives (HSSMEC)		
HSS	3	3
Management	3	3
Total	6	6
Open Elective Course	Total	3
Programme Elective Courses	Total	24-32
Co-curricular Activities		
(i) Discipline (To be awarded after Final Year)	2	2
(ii) NCC/NSO/NSS (First Year)	-	-
Total	2	2
Grand Total	192-200	194

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Program Code: **MSE (MS in Economics)**
 Department: Department of HSS
 Year: I

Teaching Scheme					Contact Hours/Week			Exam Duration (Hrs.)		Relative Weight (%)				
S. No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
Autumn														
1	MAN-001	Mathematics-1	BSC	4	3	1	0	3	0	20-35	-	20-30	40-50	-
2	HSN-101	Introduction to Economics	PCC	2	2	0	0	2	0	20-35	-	20-30	40-50	-
3	HSN-103	Computer Programming for Economists	ESC	4	3	0	2	3	0	10-25	25	15-25	30-40	-
4	PHN-001	Mechanics	BSC	4	3	0	2	3	0	10-25	25	15-25	30-40	-
5	HSN-002	Introduction to Psychology	HSSC	2	1	1	0	2	0	20-30	-	20-30	40-50	-
6	HSN-001A	Communication Skills (Basic)	HSSC	2	1	0	2	2	0	25	-	25	50	-
	HSN-001B	Communication Skills (Advance)	HSSC	2	1	0	2	2	0	25	-	25	50	-
7	CEN-105	Introduction to Environmental Studies	GSC	3	3	0	0	3	0	20-35	-	20-30	40-50	-
			Total	21										
Spring														
1	MAN-002	Mathematical Methods	BSC	4	3	1	0	3	0	20-35	-	20-30	40-50	-
2	HSN-102	Introductory Microeconomics	PCC	4	3	1	0	3	0	20-35	-	20-30	40-50	-
3	HSN-104	Introductory Macroeconomics	PCC	4	3	1	0	3	0	20-35	-	20-30	40-50	-
4	HSN-106	Basic Statistics	PCC	4	3	0	2	3	0	10-25	25	15-25	30-40	-
5	MAN-010	Optimization Techniques	BSC	4	3	1	0	3	0	20-35	-	20-30	40-50	-
6	CHN-112	Energy Engineering	ESC	4	3	1	0	3	0	20-35	-	20-30	40-50	-
			Total	24										


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Program Code: MSE (MS in Economics)

Department: Department of HSS

Year : II

Teaching Scheme					Contact Hours/Week			Exam Duration (Hrs.)			Relative Weight (%)				
S. No.	Subject Code	Course Title	Subject Area	Credits	Hours/Week			Theory	Practical	CWS	PRS	MTE	ETE	PRE	
					L	T	P								
Autumn															
1	EEN-112	Electrical Sciences	ESC	4	3	1	2/2	3	0	15-30	20	15-25	30-40	-	
2	HSN-201	Advanced Statistics	PCC	4	3	0	2	3	0	10-25	25	15-25	30-40	-	
3	HSN-203	Advanced Microeconomics	PCC	4	3	1	0	3	0	20-35	-	20-30	40-50	-	
4	HSN-205	Advanced Macroeconomics	PCC	4	3	1	0	3	0	20-35	-	20-30	40-50	-	
5	HSN-207	Elementary Development Economics	PCC	4	3	1	0	3	0	20-35	-	20-30	40-50	-	
			Total	20											
Spring															
1	MIN-102	Basic Manufacturing Process	ESC	4	2	0	4	3	0	15	15	30	40	-	
2	HSN-202	Monetary Economics	PCC	4	3	1	0	3	0	20-35	-	20-30	40-50	-	
3	HSN-204	Advanced Development Economics	PCC	4	3	1	0	3	0	20-35	-	20-30	40-50	-	
4	HSN-206	Introduction to Econometric Theory	PCC	4	3	0	2	3	0	10-25	25	15-25	30-40	-	
5	HSN-ELE	HSS Elective Course	HSSMEC	3	2	1	0	2	0						
			Total	19											

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Department Elective Courses (HSN Elective-I and HSN Elective-II) to be chosen in III Year; Some of the PEC Courses will have Lab component.

Note: Students want to have BS degree have to intimate to DAA about their Option before the commencement of the Autumn Sem of 3rd Year during their subject registration and they may exit the Programme at the end of 4th Year

Program Code: **MSE (MS in Economics)**

Department: Department of HSS

Year : IV

Teaching Scheme					Contact Hours/Week			Exam Duration (Hrs.)		Relative Weight (%)				
S. No.	Subject Code	Course Title	Subject Area	Credits	Hours/Week			Theory	Practical	CWS	PRS	MTE	ETE	PRE
					L	T	P							
Autumn														
1	HSN-501	Industrial Organisation & Financial Economics: Theory & Applications	PCC	3	2	1	0	2	0	20-35	-	20-30	40-50	-
2	HSN-503	Environmental Economics: Theory & Policy	PCC	4	3	0	2	3	0	10-25	25	15-25	30-40	-
3	HSN-505	Time Series Analysis and Applications	PCC	4	3	1	0	3	0	20-35	-	20-30	40-50	-
4	HSN-507	Department Elective III	PCC	3	2	0	2	2	0	10-25	25	15-25	30-40	-
5	HSN-ELE3	Minor Specialization Course	PEC	3	2	1	0	2	0	20-35	-	20-30	40-50	-
6	MSC-2	Total	MSC	4	3	1	0	3	-	-	-	-	-	-
Spring														
1	HSN-502	Public Policy	PCC	4	3	1	0	3	0	20-35	-	20-30	40-50	-
2	HSN-504	Econometrics Lab	PCC	4	2	0	4	3	0	10-25	25	15-25	30-40	-
3	HSN-506	Energy Economics	PCC	3	2	1	0	2	0	20-35	-	20-30	40-50	-
4	HSN-508	Institutional Economics	PCC	3	2	1	0	2	0	20-35	-	20-30	40-50	-
5	HSN-ELE4	Department Elective IV	PEC	3	2	1	0	2	0	20-35	-	20-30	40-50	-
6	MSC-3	Minor Specialization Course	MSC	4	3	1	0	3	0	-	-	-	-	-
		Total		17/21										

Department Elective Courses (HSN Elective-III and HSN Elective-IV) to be chosen in Fourth Year; Some of the PEC Courses will have Lab component. Note: Students want to have BS degree may exit the Programme at the end of 4th Year; Students with BS degree can opt for Project work as an elective under Department elective III and IV (total 6 credits, 3 credit each)

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Program Code: **MSE (MS in Economics)**
 Department: Department of HSS
 Year : V

Teaching Scheme					Contact Hours/Week			Exam Duration (Hrs.)		Relative Weight (%)				
S. No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
Autumn														
1	HSN-601	Welfare Economics	PCC	3	2	1	0	2	0	20-35	-	20-30	40-50	-
2	HSN-603	History of Economic Thought	PCC	3	2	1	0	2	0	20-35	-	20-30	40-50	-
3	HSN-605	Advanced Growth Theory	PCC	4	3	1	0	2	0	20-35	-	20-30	40-50	-
4	HSN-607	Seminar	PCC	2	0	0	0	-	-	-	-	30	70	-
5	HSN-600 A	Project (Stage-I)	PCC	3	0	0	0	-	-	-	-	30	70	-
6	HSN-ELE5	Department Elective V	PEC	3	2	1	0	2	0	20-35	-	20-30	40-50	-
7	HSN-ELE6	Department Elective VI	PEC	3	2	1	0	2	0	20-35	-	20-30	40-50	-
8	MSC-4	Minor Specialization Course	MSC	4	3	1	0	3	0	-	-	-	-	-
			Total	21/25										
Spring														
1	HSN-600 B	Project (Stage-II)	PCC	9	0	0	0	-	-	-	-	30	70	-
2	HSN-ELE7	Department Elective VII	PEC	3	2	1	0	2	0	20-35	-	20-30	40-50	-
3	HSN-ELE8	Department Elective VIII	PEC	3	2	1	0	2	0	20-35	-	20-30	40-50	-
5	MSC-5	Minor Specialization Course	MSC	4	3	1	0	3	0	-	-	-	-	-
			Total	15/19										

Department Elective Courses (HSN Elective-IV, V, VI, VII and VIII) to be chosen in Fifth Year
 Note: Subject Code for 4th year and 5th years subjects are of 5 and 6 series keeping in view that since it is a master's programme students from other masters programme/PhD can take these courses as elective/pre-PhD courses.
 Some of the PEC Courses will have Lab component.

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INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Humanities and Social Sciences

1. **Subject Code:** HSN-101 **Course Title:** Introduction to Economics
2. **Contact Hours:** **L:** 2 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 20-35 **PRS:** 0 **MTE:** 20-30 **ETE:** 40-50 **PRE:** 0
5. **Credits:** 2 6. **Semester:** Autumn
7. **Pre-requisite:** Nil 8. **Subject Area:** PCC
9. **Objective:** To provide basic understanding of economic principles/analysis.

10. Details of the Course

S.No.	Contents	Contact hours
1.	The Central Concepts of Economics: The Concepts of Scarcity, Choice, Opportunity Costs and Efficiency; The Modern Mixed Economy-Market and Government	5
2.	Microeconomic Concepts: Demand, Supply and Markets; Equilibrium and Surplus; Quotas, and Price Ceilings; Compare and Contrast Monopoly, Perfect Competition and Other Market Structures.	7
3.	Macroeconomic Concepts: Circular Flow, Measuring Economic Activity-Gross Domestic Product; Macroeconomic Challenges: Unemployment, Inflation and Macroeconomic Performance-Business Cycles	8
4.	Growth and Development: Sources of Economic Growth: Human Resources, Natural Resources, Capital, Technological Change and Innovation, The Challenge of Economic Development	4
5.	Global Economy: International Trade: The Nature of International Trade, The Principle of Comparative Advantage; Protectionism: Supply-and-Demand Analysis of Trade and Tariffs	4
Total		28

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Economics, Paul A. Samuelson, William D. Nordhaus, McGraw-Hill; 19 th Edition	2010
2.	Principles of Economics, N. Gregory Mankiw, Cengage Learning, 7 th Edition	2015
3.	Economics-A Very Short Introduction, Partha Dasgupta, Oxford University Press, 1 st Edition	2007
4.	Principles of Economics, Carl Menger, Ludwig von Mises Institute, 1 st Edition Reprint	2007
5.	Economics: Principles and Policy, William J. Baumol, Alan S. Blinder, Cengage Learning, 11 th Edition	2010



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INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Humanities and Social Sciences

1. **Subject Code:** HSN-102 **Course Title:** Introductory Microeconomics
2. **Contact Hours:** L: 3 T: 1 P: 0
3. **Examination Duration (Hrs.):** Theory: 3 Practical: 0
4. **Relative Weightage:** CWS: 20-35 PRS: 0 MTE: 20-30 ETE: 40-50 PRE: 0
5. **Credits:** 4 6. **Semester:** Spring
7. **Pre-requisite:** Nil 8. **Subject Area:** PCC
9. **Objective:** To provide an understanding of consumer and producer behavior, markets and competition, and tools of comparative statics and their application to price theory.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction: Key concepts in Microeconomics; Concepts of Scarcity and Wants; Models and Methodology; Positive and Normative Analysis	2
2.	Consumer Behaviour: Theories of consumer behavior - Total and Marginal Utility; Cardinal and Ordinal Utility; Preference orderings and Indifference Curves; Marginal Rate of Substitution; Budget Constraint; Utility Maximisation; Derivation of demand; Concepts of Elasticity; Changes in prices and income and individual demand curve; Substitution and Income effects; Revealed preference approach; Aggregate demand	8
3.	Producer Behaviour: Short-run vs Long-run analysis; Technology and production sets; Production with single variable; Production with two or more variables; Production functions (for competitive firm) and Isoquants; Returns to Scale; Technological progress; Cost Concepts; Expansion path and long-run cost curves; Output and Profit maximization; Cost minimization; Duality theory in production; Multiproduct firms and cost dynamics	8
4.	Competitive Market: Perfect Competition-Assumptions; Demand and supply curves; Market equilibrium, stability and comparative static properties; Impact of taxes and subsidies on market equilibrium; Consumer and producers surplus; Firm equilibrium and supply curve in the short-run; Firm and industry equilibrium in the long-run; Constant, Increasing and decreasing cost industries; General equilibrium and Pareto optimality - fundamental theorems of welfare economics; Externalities and market failures	8
5.	Imperfect Markets: Imperfect competition and market structure; Pure monopoly; Short-run and long-run equilibrium; Profit maximization; Price discrimination; Bilateral monopoly; Single product monopoly; Durable goods monopolist; Multi-plant monopolist; Barrier to entry and natural monopoly; Welfare loss from monopoly; Dumping, tying and bundling; Monopsony	8
6.	Monopolistic Competition and Oligopoly: Characteristics of monopolistic and oligopolistic competition; Advertising and monopolistic competition; Output, price, and profit of a monopolistic competitor; Long-Run equilibrium in a monopolistically competitive industry; Models of oligopoly behavior –	8



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	Cartel model, contestable markets; Oligopoly model with homogeneous products; Oligopoly model with differentiated products	
Total		42

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Intermediate Microeconomics with Calculus, H. R. Varian, W. W. Norton & Company, International Student Edition	2014
2.	Microeconomics, D. Acemoglu, D. Laibson and J. List, Pearson Education, 1 st Edition	2019
3.	Microeconomics, P. Jeffrey, Pearson Education, 7 th Edition	2019
4.	Microeconomic Theory: Basic Principles and Extensions, W. Nicholson and C. Snyder, Cengage India	2017
5.	Microeconomics, R. Pindyck and D. Rubinfeld, Pearson Education, 8 th Edition	2017
6.	Microeconomics, E. Mansfield and G. Yohe, Viva-Norton, 11 th Edition	2010
7.	Microeconomics, H. Gravelle and R. Rees, Pearson India, 3 rd Edition	2007
8.	Microeconomics: Theory and Applications, A. Sen, Oxford University Press, 2 nd Edition	2006


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NAME OF DEPARTMENT/CENTRE: Department of Humanities and Social Sciences

1. **Subject Code:** HSN-103 **Course Title:** Computer Programming for Economists
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 2
3. **Examination Duration (Hrs.):** **Theory:** 3 **Practical:** 0
4. **Relative Weightage:** CWS: 10-25 PRS: 25 MTE: 15-25 ETE: 30-40 PRE: 0
5. **Credits:** 4 6. **Semester:** Autumn
7. **Pre-requisite:** Nil 8. **Subject Area:** ESC
9. **Objective:** To provide an understanding of different programming techniques and integrating it with Economics.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction: Programming concepts and paradigm; Development of programming languages; Structures of programming languages: Lexical structure, Syntactic structure, Contextual structure, Semantic structure; Understanding programming: Data types, Data structures, Automation basics ; Programming as social science.	8
2.	Introduction to C/C++: Getting started with C/C++; Control structures: Operators, Basic selection structures, Iteration structures; Complex types: Arrays and string, Pointer, Constants; Compound data types: Union, Array of structures using static memory allocation; Input and output: Standard input and output, Variable-length argument lists, File access; Recursive structures and applications.	10
3.	Programming using Python: Basic elements of Python; Conditional logic, Loops; Debugging Python code; Reading and writing to files: Working with database files, Text and CSV files; Obtaining data from the web: Using python to read from HTML files, JSON, API queries; Statistical calculations; Data visualization; Machine learning and text mining.	10
4.	Programming using R: Fundamentals of R; R and Rstudio: Working directory, Script, Vectors, Matrices, Data frames; Getting data into R; R for data science: Exploratory data analysis, Statistical simulation; R for machine learning: Lazy learning, Probabilistic learning, Forecasting numeric data.	7
5.	MATLAB Programming: Basic Matlab and introductory examples; Writing scripts and functions: Functions, Plotting curves, Root finding, Interpolation and extrapolation; Solving differential equations and Simulations; Data Input/Output: Importing from excel, text, and native Matlab files; User written functions: Function m-files, Anonymous functions.	7
Total		42


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11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Brooker, Phillip. Programming with Python for Social Scientists, Sage.	2020
2.	Guttag, John. Introduction to Computation and Programming Using Python: With Application to Understanding Data, Second Edition, MIT Press.	2016
3.	Kaefer, F. & Kaefer, P. Introduction to Python Programming for Business and Social Science Applications, Sage.	2020
4.	Chen, Y. Introduction to Programming Languages, Sixth Edition, Kendall Hunt Publication Company.	2019
5.	Mueller, J., & Massaron, L. Machine Learning for Dummies, John Wiley & Sons.	2016
6.	Vries A., & Meys, J. R for Dummies, Second Edition, John Wiley and Sons.	2015
7.	Dayal, V. An Introduction to R for Quantitative Economics, Springer, India.	2015
8.	Kendrick, D., Mercado, R., Amman, H. Computational Economics, Princeton University Press.	2006

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INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Humanities and Social Sciences

1. **Subject Code:** HSN-104 **Course Title:** Introductory Macroeconomics
2. **Contact Hours:** **L:** 3 **T:** 1 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 3 **Practical:** 0
4. **Relative Weightage:** **CWS:** 20-35 **PRS:** 0 **MTE:** 20-30 **ETE:** 40-50 **PRE:** 0
5. **Credits:** 4 6. **Semester:** Spring
7. **Pre-requisite:** Nil 8. **Subject Area:** PCC
9. **Objective:** To provide students a basic understanding of the principles of macroeconomics as they relate to how a country's economy works including the outputs, unemployment, inflation, fiscal policy, monetary policy and international trade of the economy.

10. Details of the Course

S.No.	Contents	Contact hours
1.	National Income Accounting: Structure, Key concepts, Measurements, and Circular flow of Income- for Closed and Open Economy; Money, Fiscal and Foreign Sector Variables- Concepts, Measurements	6
2.	Behavioural and Technological Functions: Consumption Functions- Absolute Income Hypothesis, Lifecycle and Permanent Income Hypothesis; Investment Functions-Keynesian; Money Demand and Supply Functions; Production Function	9
3.	Business Cycles and Economic Models: Business Cycles-Facts and Features; The Classical Model of the Business Cycle; The Keynesian Model of the Business Cycle- Simple Keynesian Cross Model of Income and Employment determination and the multiplier (in closed economy);	10
4.	Business Cycles and Economic Models: IS-LM Model -Hicks' IS-LM Synthesis; Fiscal and Monetary Policy: Role of Fiscal Policy and Monetary Policy in taming Business Cycles	9
5.	Inflation and Unemployment: Inflation-Theories, Philips Curve; Monetary Policy; Government Debt and Ricardian Equivalence; Measurement, Causes, and Effects; Unemployment-Types, Measurement, Causes, and Effects	8
Total		42

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Macroeconomics, N. Gregory Mankiw, 10 th Ed, Macmillan	2019
2.	Macroeconomics, Rudiger Dornbusch and Stanley Fischer and Richard Startz, 13 th Ed., McGraw-Hill	2018
3.	Macroeconomics, Robert J. Gordon, 12 th Ed., Pearson	2012
4.	Macroeconomics: Theories and Policies, Richard T. Froyen, 10 th Ed., Pearson	2013
5.	Macroeconomics: Theory and Applications, G.S. Gupta, 4 th Ed., McGraw Hill Education	2017

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NAME OF DEPARTMENT/CENTRE: Department of Humanities and Social Sciences

1. **Subject Code:** HSN-106 **Course Title:** Basic Statistics
2. **Contact Hours:** L: 3 T: 0 P: 2
3. **Examination Duration (Hrs.):** Theory: 3 Practical: 0
4. **Relative Weightage:** CWS: 10-25 PRS: 25 MTE: 15-25 ETE: 30-40 PRE: 0
5. **Credits:** 4 6. **Semester:** Spring
7. **Pre-requisite:** Nil 8. **Subject Area:** PCC
9. **Objective:** To provide an understanding of interpretation of elementary statistics and analyze statistical data.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Introduction: Samples versus Populations; Descriptive Statistics: Measures of Central Tendency, Measures of Dispersion, Measures of Position and Outliers; Graphical Summaries of Data and Some Related Issues: Relative Frequencies, Histograms, Boxplots; Distributions, Percentiles, and Percentile Ranks	6
2.	Probability and Sampling Distribution: The Meaning of Probability; Expected Values; Conditional Probability and Independence; The Binomial Probability Function; Discrete Probability Distributions; The Normal Probability Distribution: Properties of the Normal Distribution, The Standard Normal Distribution, Applications of the Normal Distribution; Sampling Distributions: Sampling Distribution of a Binomial Random Variable, Sampling Distribution of the Mean Under Normality, Non-Normality and the Sampling Distribution of the Sample Mean, Sampling Distribution of the Median	10
3.	Estimation and Hypothesis Testing: Hypotheses about Single Means (z and t); Estimation: Confidence Interval for the Mean: Known Variance, Confidence Intervals for the Mean: σ Not Known, Confidence Intervals for the Population Median; Hypothesis Testing: Testing Hypotheses about the Mean of a Normal Distribution, σ Known, Testing Hypotheses about the Mean of a Normal Distribution, σ Not Known	8
4.	Correlation and Regression: Simple Linear Regression: Ordinary Least Squares Regression, Inferences about the Slope and Intercept, The Coefficient of Determination, Testing the Significance of the Least-Squares Regression Model; Correlation	10
5.	Inferences on Two or More than Two Samples: Comparing the Means of Two Independent Groups, Comparing Two Dependent Groups, The ANOVA F Test for Independent Groups, Two-Way ANOVA; Chi-Square Goodness of Fit Test: Chi-Square Test for Independence and Homogeneity of Proportions	8
Total		42


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11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Basic Statistics, Rand R. Wilcox, Oxford University Press, 1 st Edition	2009
2.	The Basic Practice of Statistics, David S. Moore, W. H. Freeman and Company New York, 1 st Edition	2010
3.	Introduction to Mathematical Statistics, Robert V. Hogg, Joseph W. McKean, Allen T. Craig. Pearson Education, 7 th Edition	2013
4.	A Modern Introduction to Probability and Statistics: Understanding Why and How, F.M. Dekking, C. Kraaikamp H.P. Lopuhaa L.E. Meester, Springer- London, 1 st Edition	2005
5.	Statistics-A Very Short Introduction, David J. Hand, Oxford University Press, 1 st Edition	2008



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