Sr. No.	Programme	Name of Course	Course ID
1	M.Com.	Financial analysis for stock market	241/COM/MD301
2	MA Education	Assessment and Learning	241/MEDU/MD 301
3	M.A. History	Environmental History of India	241/HIS/MD301
4	Master of Science (Environmental Science)	Natural Hazard and dessaster Management	241/EVS/MD301
5	M.Sc. Neurosciences	Neurocognitive Science	241/NEU/MD301
6	Master of Computer Applications	Probability and Statistics	241/MCA/MD301
7	Master of Computer Applications	Fundamentals of Electrical and Electronics Science	241/MCA/MD302
8	MBA 2 Year (3rd Semester)	Strategic Management	241/MBA/MD301
9	M.A. (Advertising & Public Relations)	Basics of Advertisement Designing	241/APR/MD301
10	M.A. (Journalism & Mass Communication)	Media and Society	241/JMC/MD301
11	M.A. Economics	Drivers of Indian Economy towards Vikshit Bharat	241/ECO/MD301
12	Master of Social Work	NGO Management	241/MSW/MD 301
13	M.A. Geography	Geography in Everyday Life	241/GEO/MD301
14	M.Sc. Chemistry	Instrumental Methods of Analysis	241/CHE/MD301
15	M.A. Public Policy, Administration and Governance	An Introduction to Indian Constitution	241/PPAG/MD301
16	M.A Political Science and International Relations	Geo-Politics	241/MPSIR/MD301
17	M.A. Political Science	Understanding Nationalism in India	241/MPS/MD301
18	MSc Physics	Radiation Safety	241/PHY/MD301
19	M.Sc. (Computer Science)	Programming with C	241/CS/MD301
20	M.Sc. Mathematics	Fundamentals of Mathematic	241/MAT/MD301
21	M.A. Sociology	Contemporary Problems in India	241/SOC/MD301
22	M.Sc Botany	Biophysical & Biochemical Techniques	241/BOT/MD301
23	M.Sc Zoology	Aquaculture-I	241/ZOO/MD301
24	M.A. English	Modern Indian English Novel	241/ENG/MD301
25	Master of Public Health	Health planning, administration and management	241/MPH/MD301

26	Msc Psychology	Climate Change & Mental Health	241/MPSY/MD301
27	MA Music	PRINCIPLES OF INDIAN CLASSICAL MUSIC	241/MUS/MD301
28	M.A. Hindi	भारतीय और पाश्चात्य रंगमंच	241/HIN/MD301
29	M.A Sanskrit (May be repeat)	Basic Principles of Āyurveda	251/SKT/MD301
30	M.A. Applied Economics	International Trade	241/AE/MD301

241/COM/MD301

Semester 3

Name of Subject: Financial Analysis for stock market	Maximum Theory Marks: 75 (50+ 25) (TE+TI+PE+PI=50+25+0+0)
Course ID: 241/COM/MD301	Time Allowed: 2 hours
Credits: 03 (L-T-P=2-1-0)	Course Type: Multidisciplinary Course

Instructions for Paper Setter: The question paper shall be divided into two sections. Section 'A' shall comprise 6 short answer type questions from the syllabus carrying 1 mark each, which shall be compulsory. The answer to each question should not exceed 50 words normally. Section 'B' shall comprise 8 questions (2 questions from each unit). All the questions need to be mapped with Course Outcomes (COs) and need to be specified in the question paper against each question. The students will be required to attempt four questions by selecting one question from each unit. All questions will carry equal marks.

Course Outcomes: After completion of the course, learners will be able to:

CO1: Understand the theory and functions of the monetary and financial sector as career paths.
CO2: Apply knowledge of the functioning of local capital markets.
CO3: Analyze the operations of the share market and develop research skills.
CO4: Evaluate the effectiveness of skills through participation in share market analysis activities.

Course Content:

Unit 1: Introduction, Nature, Scope and basics of stock market analysis. Stock exchanges in India BSE, NSE and MCX. Security market indices: Nifty, Sensex and sectoral indices.	10 Lectures
Unit 2: Fundamental Analysis-Based on Company's Records and Performance-EPS Ratio Price to Sales Ration-P/Earnings Ratio, P/Equity Ratio, ROI, D/P Ratio- Intrinsic Value	10 Lectures
Unit 3: Technical Analysis- Based on Share Price Movement and Market Trends-Bullish Pattern-Bearish pattern. Do's & Don't s of Investing in markets.	10 Lectures
Unit 4: Importance and the role of Mutual Fund –Types of Mutual Funds-Various schemes in India Growth Fund, Income Fund, Growth and Income Fund, Tax planning schemes, other categories, Asset Management Mutual Funds-its method of analysis's.	10 Lectures

Suggested Readings:

1. . Khan.M.Y. Financial Management, Vikas Publishing House
2. Bhole.L.M. Financial Markets and Institutions, Tata McGraw Hill Publishing House
3. Prasanna Chandra, Investment Analysis and Portfolio Management, Tata McGraw Hill
4. DamodharanAswath, Valuation: Security Analysis for Investment and corporate Finance.,Johnwiely, Newyork
5. Francis.J.C., Investment Analysis and Management, Tata Mc Graw Hill

Mapping Matrix of Course: 241/COM/MD305
CO-PO & CO-PSO Matrix for the Course: Financial Analysis for stock market

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	3	2	2	3	1	2	2	2	2	2
CO2	3	3	3	3	2	3	3	3	3	3
CO3	2	2	3	3	2	3	3	3	3	3
CO4	2	2	2	3	3	3	3	3	3	3
Average	2.50	2.25	2.50	2.75	2.00	2.75	2.75	2.75	2.75	2.75

M.A. Education

Semester- III

241/MEDU/MD301

Course Code: MDC-3
Course Title: ASSESSMENT AND LEARNING
Credits: 3
Course ID: 241/MEDU/MD 301

Maximum Marks:75
Theory Examination: 35
Internal Assessment: 15
Practical Examination: 20
Practical Assessment: 05
Time:3hrs.

Instructions for Paper Setters (Theory Paper – 35 Marks)

1. A total of **Seven questions** shall be set in the question paper.
2. **Question No. 1** will be **compulsory** and shall consist of **5 short answer type questions**, each carrying **1 mark**, covering the **entire syllabus**. *(5 × 1 = 5 marks)*
3. The remaining **six questions** shall be divided into **three units**, with **two questions from each unit**.
4. Students will be required to **attempt one question from each unit**. *(3 × 10 = 30 marks)*

COURSE OUTCOMES:

After completion of the course, the students will be able to:

1. Define technical terms related to measurement, assessment, and evaluation.
2. Identify various cognitive, affective, and psychomotor learning outcomes.
3. Differentiate between formative and summative evaluation, self-assessment and peer-assessment.
4. Explore the usage of online tools, e-assessment methods, and open book examinations.
5. Utilize rubrics, portfolios, and reflective diaries for effective assessment.
6. Analyze tools and techniques of measurement, evaluation, and assessment.

Unit 1: Foundations of Measurement, Assessment, and Learning Outcomes

1.1. Concepts of Measurement, Assessment, and Evaluation

1.2. Domains of Learning: Cognitive, Affective, and Psychomotor

1.3. Types of Assessment:

- Assessment of Learning
- Assessment for Learning
- Assessment as Learning
- Assessment in Learning

Unit 2: Methods and Tools for Evaluation

2.1 Qualitative and Quantitative Methods of Evaluation
2.2 Formative and Summative Evaluation
2.3 Self-Assessment and Peer-Assessment
2.4 Continuous and Comprehensive Evaluation (CCE)
2.5 Diagnostic Testing and its Uses
2.6 Types of Test Items: Essay Type, Short Answer Type. Objective Type

Unit 3: Innovative Practices and Digital Tools in Assessment

3.1. Purpose and Principles of Reporting Student Learning

3.2. Tools for Assessment:

- Tests, Checklists, Rating Scales, Interview Schedules
- Use of Rubrics, Portfolios, and Reflective Diaries

3.3 Technology Integration in Assessment:

- Web Resources for Evaluation
- Online Tests and E-Assessments
- Open Book Examinations

Transaction Mode

Lecture, Seminar, e-team teaching, e -tutoring, dialogue, peer group discussion, mobile teaching, self-learning, Collaborative learning, Cooperative learning and Role play

Core Readings

- **Anastasi, A., & Urbina, S.** (2005). *Psychological Testing*. Singapore: Pearson Education.
- **Ebel, R.L., & Frisbie, D.A.** (2009). *Essentials of Educational Measurement*. New Delhi: PHI Learning Pvt. Ltd.
- **Gronlund, N.E., & Linn, R.L.** (2003). *Measurement and Assessment in Teaching*. Singapore: Pearson Education.
- **Miller, M.D., Linn, R.L., & Gronlund, N. E.** (2009). *Measurement and Assessment in Teaching* (10th ed.). Upper Saddle River, NJ: Pearson Education, Inc.
- **Popham, W. J.** (2000). *Modern Educational Measurement: Practical Guidelines for Educational Leaders* (3rd ed.). Needham, MA: Allyn & Bacon.
- **NCERT.** (2014). *Assessment for Learning*. New Delhi: Department of Teacher Education, NCERT.
- **NCERT.** (2015). *Learning Indicators*. New Delhi: National Council of Educational Research and Training.
- **Stiggins, R. J.** (2005). *Student-Involved Assessment FOR Learning* (4th ed.). Upper Saddle River, NJ: Pearson.
- **Wiliam, D.** (2011). *Embedded Formative Assessment*. Bloomington, IN: Solution Tree Press.

- **Edwards, A. L.** (1957). *Techniques of Attitude Scale Construction.* New York: Appleton-Century-Crofts.

Advanced Readings:

- **Boud, D., & Falchikov, N.** (2007). *Rethinking Assessment in Higher Education: Learning for the Longer Term.* London: Routledge.
- **Redecker, C., & Johannessen, Ø.** (2013). *Changing Assessment—Towards a New Assessment Paradigm Using ICT. European Journal of Education*, 48(1), 79–96.
- **JISC.** (2010). *Effective Assessment in a Digital Age: A Guide to Technology-Enhanced Assessment and Feedback.* Available at: https://www.jisc.ac.uk
- **Bennett, R. E.** (2002). *Inexorable and Inevitable: The Continuing Story of Technology and Assessment. The Journal of Technology, Learning and Assessment*, 1(1).
- **Reynolds, C. R., Livingston, R. V., & Willson, V.** (2006). *Measurement and Assessment in Education.* Boston, MA: Pearson.
- **Thorndike, R.M.** (2010). *Measurement and Evaluation in Psychology and Education.* New Delhi: PHI Learning Pvt. Ltd.
- **Freeman, F. S.** (1965). *Theory and Practice of Psychological Testing.* New York: Rinehart and Winston.
- **Newman, F. M.** (1996). *Authentic Achievement: Restructuring Schools for Intellectual Quality.* San Francisco, CA: Jossey-Bass.
- **Stanley, J.C., & Hopkins, K.D.** (1978). *Educational and Psychological Measurement and Evaluation.* New Delhi: Prentice Hall of India.

Suggested Activities and Assignments

Task 1: Digital Assessment Tool Demonstration
Students will explore any one online assessment tool (e.g., Google Forms, Kahoot, Quizizz, Edmodo). They will design a 10-question quiz and demonstrate its working in class.

Task 2: Rubric Design for a Project
Design a rubric to assess a group project on a topic of your choice. The rubric must include at least 5 assessment criteria and 4 levels of performance.

Task 3: Peer Assessment Activity
Conduct a peer assessment exercise in small groups. Each group will assess another based on a given checklist and discuss the feedback.

Task 4: Case Study on CCE or Diagnostic Testing
Write a case study highlighting the implementation of CCE or diagnostic testing in a school setting. Include benefits, challenges, and student responses.

Task 5: Reflective Diary
Maintain a weekly reflective diary for four weeks documenting how assessment strategies are being applied in your own or observed teaching sessions.

241/HIS/MD301

MDC-03	Environmental History of India

Credits:3

Maximum Marks :75
Theory Examination:50
Internal Assessment: 25
Examination Time:3 hrs

Learning Outcomes: After completing this course, students should be able to:

CO1: Understand the historical methodologies and concepts to explain the environmental contexts of the past social and cultural transformations.

CO2: Develop a historical perspective on the complex relationship between society and nature from prehistory to the present in the context of the Indian subcontinent.

CO3: Discuss how societies developed technologies, sources of energy, and modes of organizing lives to adapt to varied ecological landscapes.

CO4: Discuss environmental issues within a socio-cultural framework.

Note : The students will be required to attempt four questions in all.
Question No.1 will be compulsory comprising of 7 short answer type question of 2 marks each and will cover the entire syllabus 7x2=14 marks. In addition to it Question Nos. II to VII will consist of long answer (essay type) questions ,two Questions from each Unit with internal choices carrying 12 marks each Ie 3x12= 36 marks thus making it the total weight age to 50 marks. Three long questions to be attempted. One from each unit .

UNIT I.

Social Perspectives on Environment
Studying human-nature interactions and its Recent trends
Land, Forests, Pastures, Monsoon, river systems and oceans in Pre-Colonial Times.
The New Regimes: Colonial policies of Land, Forests, Water and Irrigation in Colonial period

UNIT II.

Contemporary Environment Issues: India and World
Forests: Human-wildlife conflict, threat to Bio-diversity, Protest movements , Water Dams, Displacement, Pollution Degradation Mitigating Hunger, Green Revolution
Climate change and global efforts: Industrial Disasters, Alternative visions.
Resistances to New Regimes in India : Peasants, Tribal and Pastoralist communities

ESSENTIAL READINGS

- Agarwal Anil and S. Narain, eds. The Fifth Citizen's Report on the Environment in India. Delhi: Centre for Science and Environment, 1999.
- Agarwal Anil and S. Narain,eds. The Second Citizen's Report on the Environment in India, 1984-85. Delhi: Centre for Science and Environment, 1985.

- Agarwal, Anil, et al, eds. The First Citizens' Report on the Environment in India. Delhi: Centre for Science and Environment, 1982. (Hindi translation Available)
- Divyabhanusinh. The End of a Trail: History of Cheetah in India. New Delhi: Oxford University Press, 1990.
- Gadgil Madhav& Ramachandra Guha. This Fissured Land: An Ecological History of India. New Delhi: Oxford University Press, 1992.
- Grove, Richard, Vinita Damodaran and Satpal Sangwan, eds. Nature and the Orient: The Environmental History of South and Southeast Asia. New Delhi: Oxford University Press, 2000.
- Guha R. Environmentalism: A Global History. New Delhi: Oxford University Press, 2001.
- Lahiri Nayanjot. ed. The Decline and Fall of the Indus Civilization. Ranikhet: Permanent Black, 2002.
- McNeill J.R., Something New Under the Sun: An Environmental History of TwentiethCentury World. New York & London: W.W. Morton & Company, 2000.
- Rajan S. Ravi. Towards a metaphysic of Environmental Violence: The Case of the Bhopal Gas Disaster. In Violent Environments. Edited by Nancy Lee Peluso and Michael Watts, 380-98. Ithaca and London: Cornell University Press, 2001.
- Rangarajan Mahesh, ed. Environmental Issues in India. New Delhi: Pearson, 2007. (Hindi translation available)
- Rangarajan Mahesh and K. Sivaramakrishnan, eds. India's Environmental History. Two Volumes. Ranikhet: Permanent Black, 2012.
- Ratnagar Shereen. Understanding Harappa: Civilization in the Greater Indus Valley. New Delhi: Tulika, 2001.
- Shiva Vandana. The Violence of the Green Revolution. London and New Jersey: Zed Books, 1993

241/EVS/MD301

M.Sc. ENVIRONMENTAL SCIENCE – SEMESTER- III
SUBJECT NAME: NATURAL HAZARDS AND DISASTER MANAGEMENT
Course code: MDC-3
Course ID: 241/EVS/MD3
NO. OF CREDITS: 3

L	T	P
3	0	0

TI	:	25
TE	:	50
Total	:	75

Note: 1. Nine questions will be set in all. All questions will carry equal marks.
2. Question no. 1 which will be short answer type, covering the entire syllabus will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each unit I to IV. The candidates will be required to attempt question no.1and four more questions.

COURSE OUTCOMES:
On completion of the course, the students will be able to:
CO1: Describe hazard, emergency, disaster, vulnerability, disaster management and risk,
CO2: Gain insight into different types of disasters/hazards, their implication on environment and to identify the main hazards to which our region is, or may be, vulnerable.
CO3: Differentiate, assess and apply the theoretical knowledge of disaster and emergency management activities and risk assessment to reduce the effects of disasters on vulnerable groups.
CO4: Critically analyze the influence of new emergent technologies on the disaster management.

UNIT-I: INTRODUCTION TO DISASTERS
Introduction to Natural and Manmade Disasters; Floods, flood hazards, urbanization and flooding, flood hydrographs, Drought, Landslides; Coastal hazards – tropical cyclone, coastal erosion, sea level changes, coastal zone management; Earthquakes - Seismic waves, quake resistant buildings; Tsunamis; Volcanoes; Wild fires; Oil spills; Urban hazards and disasters.

UNIT-II: RISK ASSESSMENT
Pre-Disaster Management activities; Hazard and vulnerability analysis; capability assessment; emergency/contingency planning and post-disaster management activities; Development planning, types of plans, MBO, SWOT analysis.

UNIT-III: GEOINFORMATICS IN DISASTER MANAGEMENT
Role of GPS, GIS and Remote Sensing in disaster management - Landslides, Volcanoes, Tsunami, Cyclones, Urban and Forest fires, Landslides; Decision-making models and processes; Hazard monitoring, tracking and modelling; Early warning systems; Indian space programme, future satellites for disaster management; Case studies.

UNIT-IV: LEGISLATIONS AND POLICIES FOR DISASTER MANAGEMENT
India Disaster Resource Network; Organization and structure for Emergency

Management; Principles and Practice of Disaster Relief and Recovery; Disaster management policy; Role of legislations in Disaster Management, Disaster Management Act 2005 and amendments, National Green Tribunal, Environment Protection Act, 1986, Explosive Substances Act, 1908, Atomic Energy Act, 1962, Local Administration and disaster risk reduction; Relief and Rehabilitation.

REFERENCE BOOKS:

1. William H. D and Bruce R. M., *Geology and Engineering*, WCB Publishers, Iowa, 1986.
2. Sushmitha Bhaskar and R. Bhaskar, *Natural Disasters*, Unicorn Books, 2011.
3. Bell, F.G.2003, *Geological Hazards, Their Assessment Avoidance and Mitigation*, CRC Press
4. Smith, K. 2003, *Environmental Hazards: Assessing Risk and Reducing Disasters*. Routledge.
5. John M. Wallace and Peter V. Hobbs, *Atmospheric Science: An Introductory Survey*, Academic Press, New York, 1977.
6. Barbar W. Murk et. al., *Environmental Geology*, John Wiley & Sons, New York, 1996.
7. Bohle, H. G., Downing, T. E. and Watts, M. J. *Climate change and Social vulnerability: the sociology and geography of food insecurity*, Global Environmental Change. No.4, pp. 37-48.
8. Collins Larry R. and Schneid Thomas D., *Disaster Management and Preparedness*, Taylor and Francis 2000
9. Goel S.L. and Kumar Ram, *Disaster Management*, Deep and Deep Publications, 2001
10. Kukal, S. S., Kingra, P. K. (2019). *Introduction to Environmental and Disaster Management,* Kalyani Publishers.
11. Parasuraman S., *India Disasters Report: Towards a Policy Initiatives*, Oxford University Press, 2004.

SUGGESTED WEB SOURCE:

1. https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=14
2. https://nptel.ac.in/courses/105/104/105104183/

MODE OF TRANSACTION:

Lecture, demonstration, E-tutoring, discussion, assignments, case study, power point;

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(Semester III) MULTIDISCIPLINARY COURSE: NEUROCOGNITIVE SCIENCE

Multidisciplinary Course (Lectures 40)	Maximum Theory Marks: 75
Time Allowed: 3 Hrs	External Marks: 50
Credits: 3	Internal Assessment: 25

Instructions for Paper Setter: The examiner will set nine questions in all with two questions from each section. Q. No. 1 consisting of very short answer type questions and covering the entire syllabus will be compulsory. Each question will be divided into parts and the distribution of marks will be indicated part-wise. The candidates will be required to attempt Q. No. 1 & four others, selecting one from each section.

Unit-I: Introduction to Brain and Cognition **Lectures: 10**

Basics of cognitive neuroscience; Brain structure and evolution; Brain development across the lifespan

Unit-II: Brain Functions and Perception **Lectures: 10**

Aging and cognitive disorders; Movement and motor system; Visual and spatial perception

Unit-III: Learning and Memory **Lectures: 10**

Types and models of memory; Learning processes in animals and humans; Brain areas involved in memory

Unit-IV: Higher Mental Functions **Lectures: 10**

Attention and focus; Language and communication; Decision-making and consciousness

Suggested books:

1. Squire, Fundamental Neuroscience (4th Edition), Elsevier, 2013
2. Kandel, Principles of Neural Science (5th edition), McGraw Hill,2013
3. Banich, Cognitive neuroscience (3rd Edition) Wordsworth, 2011
4. Gazzaniga, Cognitive Neuroscience (4th Edition) Norton, 2014

241/MCA/MD301

Course code	MDC-03			
Category	Multidisciplinary Course			
Course title	**Probability and Statistics**			
Course ID	241/MCA/MD301			
Scheme and Credits	L	T	P	Credits
	3	-	-	3
Theory Internal	25			
Theory External	50			
Total	75			
Duration of Exam	**3 hrs**			

Note: *The examiner will set nine questions in total. Question one will have seven parts from all units and the marks of first question will be of 20% of total marks of Question Paper and the remaining eight questions to be set by taking two questions from each unit and the marks of each question from Question no. 2 to 9 will be 20% of total marks of Question paper. The students have to attempt five questions in total, the first being compulsory and selecting one from each unit.*

COURSE OUTCOMES:

CO1: Elucidate the basic principles of statistics

CO2: Apply the correlation and regression analysis to engineering problem

CO3: Apply the principles of probability to thermodynamic problems

CO4: Explain probability distribution and solve problems

Unit –I

Statistical Methods: Definition and scope of Statistics, concepts of statistical population and sample. Data: Quantitative and qualitative, attributes, variables, scales of measurement nominal, ordinal, interval and ratio.

Measures of Central Tendency: Mean, Median, Mode. Measures of Dispersion: range, quartile deviation, mean deviation, standard deviation, coefficient of variation, Moments, skewness and kurtosis.

Unit – II

Statistical Methods: correlation and regression –Karl Pearson's coefficient of correlation and rank correlation problems, regression analysis-lines of regression, problems.

Curve fitting: curve fitting by the method of least square-fitting the curves of the form

Unit –III

Probability: Introduction, random experiments, sample space, events and algebra of events. Definitions of Probability – classical, statistical, and axiomatic. Conditional Probability, laws of addition and multiplication, independent events, theorem of total probability, Bayes' theorem and its applications.

Unit –IV

Probability Distributions: Random variables (discrete and continuous), probability mass/density function, Binomial, Poisson, Exponential and normal distributions

Textbooks & References:

1. Gupta, S. C., & Kapoor, V. K. . Fundamentals of Mathematical Statistics. Sultan Chand & Sons.
2. Hogg, R. V., Tanis, E. A., & Rao, J. M. Probability and Statistical Inference (7th ed.). Pearson Education, New Delhi.
3. Goon, A. M., Gupta, M. K., & Dasgupta, B. Fundamentals of Statistics, Vol. I & II. The World Press, Kolkata.
4. Ross, S. M. Introduction to Probability and Statistics for Engineers and Scientists. Academic Press.

241/MCA/MD302

Course code	MDC-03			
Category	Multidisciplinary Course			
Course title	**Fundamentals of Electrical and Electronics Engineering**			
Course ID	241/MCA/MD302			
Scheme and Credits	L	T	P	Credits
	3	-	-	3
Theory Internal	25			
Theory External	50			
Total	75			
Duration of Exam	**3 hrs**			

Note: *The examiner will set nine questions in total. Question one will have seven parts from all units and the marks of first question will be of 20% of total marks of Question Paper and the remaining eight questions to be set by taking two questions from each unit and the marks of each question from Question no. 2 to 9 will be 20% of total marks of Question paper. The students have to attempt five questions in total, the first being compulsory and selecting one from each unit.*

COURSE OBJECTIVES

CO1. To provide basic knowledge of different elements of electrical and electronics engineering field.

CO2. To familiarize the students with the concepts of electrical circuits and network Analysis.

CO3. To understand the basics of AC and DC circuits.

CO4. To familiarize students to the analysis and design of analog electronic circuits which form the basic building blocks of almost any electronic system.

CO5. To introduce p-n junction theory, operation of the semiconductor devices and their use in basic electronic circuits.

UNIT-I

DC Circuits: Role and importance of circuits in Engineering, Concept of fields, charge, current, voltage, energy and their interrelationships. Electrical circuit elements (R, L and C), voltage and current sources (ideal &Controlled) series and parallel circuits, Network reduction: voltage and current division. Kirchhoff current and voltage laws with their applications (Nodal and Mesh Analysis), Source transformation - star delta conversion. Superposition theorem, Thevenin and Norton Theorems, Millman, Substitution and Reciprocity theorem.

UNIT-II

AC Circuits: Representation of sinusoidal waveforms, average, peak and rms values, complex representation of impedance, phasor representation, complex power, real power, reactive power,

apparent power, power factor and Energy, Analysis of single-phase ac circuits consisting of R, L, C, RL. RC, RLC combinations (series and parallel),Resonance; Introduction to three- phase circuits

UNIT-III

Introduction to p-n junction diode and its applications. Half wave & full wave rectifiers. clipping and clamping circuits, Varactor, Varistor, Voltage Regulator Bipolar junction transistors and its biasing BJT operation, BJT voltages and currents, CE, CB and CC characteristics, DC load line and bias point, base bias, emitter feedback bias, collector feedback bias, voltage divider bias, Thermal stability, biasing BJT switching circuits, transistor power dissipation and switching time, Testing of bipolar junction transistor with multi-meter, Reading datasheet of BJT.

UNIT-IV

Field Effect Devices: JFET: basic Operation and characteristics, drain and transfer characteristics, pinch off voltage, parameters of JFET: Transconductance (gm), ac drain resistance (rd), amplification factor(μ), Small Signal Model & Frequency Limitations. MOSFET: basic operation, depletion and enhancement type, pinch-off voltage, Shockley equation and Small Signal Model of MOSFET, MOS capacitor.

Textbooks & References:

1. Hughes, E. Electrical Technology. ELBS.
2. Millman, J., &Halkias, C. Integrated Electronics (2nd ed.). McGraw Hill.
3. Mano, M. M. Digital Logic Design. Phi.
4. Kothari, D. P., &Nagrath, I. J. Basic Electrical Engineering. Tata McGraw Hill.
5. Del Toro, V. Principles of Electrical Engineering. PHI.
6. Sedra, A., & Smith, C. Microelectronic Circuits: Theory and Applications (6th ed.). Oxford University Press.
7. Boylestad, R., &Nashelsky, L. Electronic Devices and Circuit Theory (10th ed.). Pearson.
8. Jain, R. P. Modern Digital Electronics. Tmh.
9. Malvino, A. P., & Leach, D. P. Digital Principles and Applications (8th ed.). TMH Publishers.
10. Tyagi, M. S. Introduction to Semiconductor Materials and Devices. John Wiley & Sons.

241/MBA/MD301

Detailed Syllabus

Strategic Management

24MGMDC3

Credits: 3

External Marks: 50 (TE)
Internal Marks: 25(TI)
Time Allowed: 2 Hrs

Type of Course: Multidisciplinary Course

Course Objectives:
The course aims at imparting knowledge of formulation, implementation and evaluation of business strategies, for effective planning and to introduce key strategy concepts to the students for facilitating better decision making.

Course Outcomes:
On the completion of this course the student will be able to:
CO1: Develop understanding of the type of decisions taken at different levels of management. .
CO2: Apply various tools and techniques for strategic decision making and problem solving through critical thinking.
CO3: Analyze the significance of strategies and policies for gaining competitive advantage globally.
CO4: Evaluate the strategy which best fits in achieving the organizational goals under various scenarios.

Detailed Syllabus:

UNIT I
Strategy: Concept and Levels, Strategic Decision Making; Strategic Management: Elements of Strategic Management Process; Strategic Intent, Vision, Mission, Goals and Objectives, Strategic Business Unit.

UNIT II
Strategy Formulation: Environmental Appraisal, Organizational Appraisal, Corporate Level and Business Level Strategies.

UNIT III
Strategic Analysis and Choice: Strategic Analysis, Tools and Techniques for Strategic Analysis - BCG Matrix, Porter's Model, SWOT Analysis; Strategic Choice - Process of Strategic Choice, Factors in Strategic Choice.

UNIT IV

Strategy Implementation: Activating Strategies, Structural, Behavioural, Functional and Operational Implementation; Strategic Evaluation and Control.

SUGGESTED READINGS:

1. Gupta, Gollakota and Srinivasan, Business Policy and Strategic Management –Concepts and Applications, PHI, New Delhi.
2. Jauch and Glueck, Business Policy and Strategic Management, TMH, New Delhi.
3. Kazmi, Azhar, Strategic Management and Business Policy, Tata McGraw Hill Publishing Company Ltd., New Delhi.
4. Pearce and Robinson, Strategic Management–Formulation, Implementation and Control, McGraw Hill Publishing, New Delhi.

Mapping Matrix of Course: Strategic Management

Table 1: CO-PO & CO-PSO Matrix for the Course: Strategic Management

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	3	2	1	2	2	3	1	2	2	2
CO2	3	3	1	2	3	3	1	2	3	2
CO3	1	2	2	3	2	2	2	2	3	2
CO4	2	2	2	2	2	2	2	3	2	2
Average	2.25	2.25	1.5	2.25	2.25	2.5	1.5	2.25	2.5	2

Entrepreneurship and Innovation

24MGMDC4

Credits: 3

External Marks: 50 (TE)
Internal Marks: 25(TI)
Time Allowed: 2 Hrs

Type of Course: Multidisciplinary Course

Course Objectives:

The course provides a framework for comprehending the process of forming and leading creative businesses. This will prepare students to deal effectively with changing market and client needs as they become more sophisticated and knowledgeable. Entrepreneurship has a significant impact on the country's economic growth and development. The dynamic of the corporate world is shifting in tandem with the global economy. The goal of this course is to instill and ignite an entrepreneurial spirit in pupils.

Course Outcomes:
On the completion of this course the student will be able to:

CO1: Identify and understand various constituents and environmental factors for innovation and entrepreneurship development.
CO2: Apply SWOT analysis for internal and external environmental assessment for devising a creative strategy for feasible business plans, within ethical boundaries.
CO3: Analyze feasibility of businesses under the constantly changing global environment for sustainable global competitiveness.
CO4: Evaluate the alternatives in order to be able to create successful business plans.

Detailed Syllabus:

UNIT-I

Entrepreneurship: India's startup evolution, Concept, trends, benefits; Rural entrepreneurship, social entrepreneurship, women entrepreneurship; role of entrepreneurship in economic development; Entrepreneur:- characteristics, Entrepreneurial decision process, functions, need for an entrepreneur, types of entrepreneurs.

UNIT-II

Starting the venture: generating business idea – sources of new ideas, methods of generating ideas, creative problem solving, opportunity recognition; environmental scanning, competitor and industry analysis; feasibility study – market feasibility, technical/operational feasibility, financial feasibility: drawing business plan.

UNIT-III

Entrepreneurial Planning: Financial Plan, Need for finance, sources of finance, Functional Plans: Marketing Plan- Market Segmentation, Market sizing, pricing strategy; Organizational Plan- form of ownership, designing organization structure, manpower planning.

UNIT-IV

Project Planning & Project appraisal; legal issues – intellectual property rights patents, trademarks, copyrights, trade secrets, licensing and franchising; Role of Government in Promoting Entrepreneurship; Entrepreneurial environment: factors affecting entrepreneurship growth, entrepreneurial motivation; Digital economy as a resource.

Suggested Readings:

1. Holt, David H. Entrepreneurship: New venture creation. Prentice Hall, 1992.
2. Entrepreneurship in Action, PHI B.K. Mohanty, Sangram Publication, 2005
3. Jayshree Suresh, Entrepreneurial Development, Margham Publications, 2015
4. Poornima M Charantimath, Entrepreneurship Development Small Business Enterprises, Pearson Education, 2006.
5. Mohanty, Sangram Keshari. Fundamentals of entrepreneurship. PHI Learning Pvt. Ltd., 2005.

Mapping Matrix of Course: Entrepreneurship and Innovation

Table 1: CO-PO & CO-PSO Matrix for the Course: Entrepreneurship and Innovation

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1	3	2	2	2	2	3	2	2	2	2
CO2	3	3	3	3	3	3	3	2	2	3
CO3	2	2	2	3	3	2	3	2	3	2
CO4	2	2	2	2	2	2	2	3	2	2
Average	2.5	2.25	2.25	2.5	2.5	2.5	2.5	2.25	2.25	2.25

241/APR/MD301

MA Advertising and Public Relations

SEMESTER -3

Name of Subject: **Basics of Advertisement Designing**		Maximum Theory marks: 75 (25+50)
Subject Code: MDC-03	Course ID: 241/APR/MD-303	

Instructions for Paper Setter: This question paper shall be divided in two sections. Examiner is requested to set section A as compulsory question containing 14 marks and from the entire syllabus (can be either objective or subjective). Section B will be in choice from two of the questions from each unit; these questions will be of 12 marks each. The students will be required to attempt one question from each unit.

Objective: To provide students with a thorough understanding of the principles and concepts of advertising, enabling them to develop effective advertising strategies and manage successful advertising campaigns.

Course Outcomes:

Students will be able to:

1. Understand the foundational principles of advertising.
2. Develop skills to create compelling advertising messages.
3. Apply advertising concepts to various media platforms.

COURSE CONTENTS:

Unit 1: Introduction to Advertising
1.1 Definition and Evolution of Advertising 1.2 Types and Classifications of Advertising 1.3 Role and Functions of Advertising 1.4 Ethical and Legal Issues in Advertising
Unit 2: Creative Strategy and Execution
2.1 Creative Process in Advertising 2.2 Developing the Idea 2.3 Copywriting for Print, Electronic, and Digital Media 2.4 Visual Elements in Advertising
Unit 3: Advertising Media and Evaluation
3.1 Media Planning and Selection 3.2 Digital Advertising and Social-Media Advertising 3.3 Advertising Research and Effectiveness Measurement 3.4 Case Studies of Successful Advertising Campaigns

Suggested Readings

1. Sandage C H, Fryburger Vernon Advertising Theory and Practice: A.I.T.B.S. & Rotzoll Kim Publishers & Distributors, Delhi
2. Mohan Mahender Advertising Management: Concepts & Cases; Tata McGraw Hill Publishers
3. Ogilvy David Ogilvy on Advertising; Prion Books Ltd.
4. Lewis Herschell Gordion The Complete Advertising and Marketing Handbook: East West Books (Madras) Pvt. Ltd., Chennai
5. Little Field James E & Kirkpatrik C.A.: Advertising: Mass Communication in Marketing; Vakils, Feffer & Simons Pvt. Ltd., Bombay

241/JMC/MD301

MA(JMC)

SEMESTER -3

Name of Subject: **Media and Society**		Maximum Theory marks: 75 (25+50)
Subject Code: MDC-03	Course ID: 241/JMC/MD-303	

Instructions for Paper Setter: This question paper shall be divided in two sections. Examiner is requested to set section A as compulsory question containing 14 marks and from the entire syllabus (can be either objective or subjective). Section B will be in choice from two of the questions from each unit; these questions will be of 12 marks each. The students will be required to attempt one question from each unit.

Objective: To provide an understanding of the intricate relationship between media and society, focusing on the socio-cultural, economic, and political contexts.

Course Outcomes:

Students will be able to:

1.Understand the basic concepts of media and society.
2.Analyze the relationship between media and socio-political power.
3.Evaluate media content and its representation in society.
4.Explore the dynamics between media and audiences.

COURSE CONTENTS:

Unit 1: Introduction to Society and Media
1.1 Basic Concepts 1.2 Relationship Between Media and Society 1.3 Media in Socio-Cultural Context 1.4 Cultural Imperialism
Unit 2: Media and Power
2.1 Communication and Social Order 2.2 Socio-Political Power 2.3 Democracy and the Internet 2.4 Media Ownership and Control
Unit 3: Media Content and Representation
3.1 Concept of Representation 3.2 Construction of Media Content 3.3 Stereotypes in Media 3.4 Impact of Globalization on Local Media

Suggested Reading:

1. Media/Society: Industries, Images, and Audiences" by David Croteau
2. Media Convergence: Networked Digital Media in Everyday Life" by Tim Dwyer
3. Western Media Narratives on India: From Gandhi To Modi by Umesh Upadhyay
4. The Media and Modernity: A Social Theory of the Media" by John B. Thompson

241/ECO/MD301

MDC	Drivers of Indian Economy towards Viksit Bharat

Max. Marks: 75 **Written Exam: 50**
Credits: 3 **Internal Assessment: 25**

Note for the paper Setter

1. Seven Questions will be set in all and students will be required to attempt 4 questions.
2. Question No. 1 will be compulsory and will consist of 7 short answer type questions of 2 marks spread over the entire syllabus (2x7=14 marks).
3. From the remaining six questions, students will attempt 1 out of 2 questions from each of the three units (12 marks each).

Course Learning Outcomes: After completing this course, the learner will be able to:

CLO 1: Analyses the foundational and emerging drivers of India's economic growth.
CLO2: Evaluate the role of education, healthcare, infrastructure, and innovation in development.
CLO3: Critically assess national missions and policy frameworks like Atmanirbhar Bharat, Digital India, and Make in India.
CLO4: Propose innovative models and reforms to support India's development journey.

UNIT-I

Historical overview of India 's development journey since 1947
Viksit Bharat vision 2047: Vision, objectives, and its implications for different sectors. Growth engines for Viksit Bharat, difference from previous growth models of India

UNIT–II

Agriculture and Rural economy transformation under Viksit Bharat and key challenges, Need and features of Agriculture Subsidy Reforms in Viksit Bharat, Agri-Tech and Entrepreneurship.
MSMEs as a growth engine and challenges, Opportunities and challenges in Education, Healthcare and Infrastructure. Housing and urban planning for inclusive growth.

UNIT–III

Key Initiatives of Viksit Bharat, Digital India and Technology- Impact of Technology on various sectors. Role of Startups and Innovation ecosystems. Digital Transformation, Role of Smart City Mission, Make in India: objective and outcomes

Reading list -

- Economic Survey of India (latest edition)
- NITI Aayog Vision Documents (especially Viksit Bharat @2047)
- Government Schemes Portals (PM Gati Shakti, Digital India, etc.)
- World Bank, IMF & UNDP Reports on India
- Books:
  - *"India Unbound"* by Gurcharan Das
  - *"Restart: The Last Chance for the Indian Economy"* by Mihir Sharma
  - *"India's Long Road"* by Vijay Joshi

241/MSW/MD301

Master of Social Work
Semester – III
NGO Management

MDC-3
Credits: 2 (Hrs./Week: 2)
Maximum Marks: 73
Theory Examination: 50

Internal Assessment: 25

Course Outcomes:

- Understanding the Importance and Significance of NGO
- Proficiency in navigating legal requirements and frameworks governing NGOs in India and South Asia.
- Effective planning, implementation, and evaluation of development projects using various approaches and techniques.
- Skills to mobilize and manage internal and external resources to support organizational objectives.

Unit-I
Introduction to Development Organizations

- Conceptual Understanding: Definition, functions and Forms of Not for Profit Sector
- Growing Roles, Importance, and the need of NGO Sector
- Globalization and NGO

Unit-II
Legal Consideration

- Legal Frameworks: Registration Acts - Society's Registration Act and Indian Trust Act, Memorandum of Association and Bye Laws
- Charitable Endowment Act and FCRA
- Tax Relief Under Various Acts

Unit-III
Approaches to Project Planning

- Programme Planning
- Monitoring and Evaluation
- Project Management

Unit-IV
Resource Mobilization and Communication

- Human Resource Management
- Financial Management and Public Relations
- Networking and Collaboration

Suggested Readings:

Chakravarty, S. (Ed.). (2019). Understanding civil society: Perspectives from South Asia. Routledge.

Chandra, S., & Trollope, A. K. (2015). Non-governmental organizations: Origin and development. Routledge.

Desai, P. (2022). Transforming communities: The role of NGOs in rural India. Oxford University Press.

Desai, R. (2016). Non-governmental organizations in India: Challenges and opportunities. Routledge.

Desai, V., & Kulkarni, V. (Eds.). (2018). NGOs in India: The challenges of women's empowerment and accountability. Springer.

Lumde, N. (2024). SG and CSR: Strategies for career success and corporate responsibility (Kindle Edition).

Sarangi, N., & Srivastava, R. (Eds.). (2017). Handbook of NGOs in India: Development, issues and perspectives. Springer.

241/GEO/MD301

Gurugram University Gurugram, Haryana(India)

M.A. Geography (Semester-III) Syllabus (as per NEP 2020 w.e.f session 2024-25)

GEOGRAPHY IN EVERYDAY LIFE

Paper Code: **MDC-03 (Theory and Practical Paper)**
Course Id: **241/GEO/MD301**

Credit: 03 (2+0+2) L+T+P Hrs/Week	**Total Marks**	**75**
Time: 3 Hours Theory	End Semester Exam:	35 Marks
	Internal Assessment:	15 Marks
	(Attendance)	5
	(Assignment)	5
	(Mid-Sem. Exam)	5
Note: Theory Exam: as the instructions mentioned under **Practical Exam:** as the instructions mentioned under Practical Exam Time: 4 Hours	Practical Exam: Internal Assessment: (Attendance)	20 Marks 5 Marks

Course Outcomes:

CO-01: The Students will be able to know about mother earth and identify the Earth's Coordinate system, Their significance, location of India and its impact.
CO-02: They will understand the General Physical Geography fundamentals and the Population features.
CO-03: They will apply Geographical knowledge to study climatic issues/problems present in their Surrounded Environment day to day life.
CO-04: They will learn the use of climatic/Population data diagrammatically, Navigation and Basics of Cartography in Practical way.

Theory

UNIT-I

Mother Earth: Movements- Rotation and Revolution; Major Oceans and Continents; Latitudes: Major Latitudes and their Significance, Heat Zones of Earth; Longitude: Major Longitudes and their Significance, International Date Line. India: Location and Extent, States and Capitals, Neighbouring Countries, Natural Vegetation.

UNIT-II

Major Relief Features of India: Mountains, Plateau, Plains, Rivers, Lakes, and Desert: Cold and Hot desert. Earth's Movements: Volcano, Earthquake, Flood, Drought, Landslides India Specific. Major Population Features of India.

UNIT-III

Climate and Weather: Affecting Factors, Elements and Types. Seasonal and Local winds of India: Monsoon, Loo. Rainfall: Types; Distribution in India. Cyclone: Nomenclature, Impact; Tornado, Typhoon, Hurricane, Willy willies, Taifu, Tropical Cyclone. Oceans: Future Storehouse of Resources, Tsunami.

Practical

UNIT-IV

Data Presentation: Bar Graphs, Line Graphs and Pie Diagrams (Climatic and Population data). Understanding Location System: GPS and IRNSS. Navigation and Rout Management on google map. Exploring ISRO-Bhuvan/ Bhoonidhi and google earth/Map. Maps: Major Conventional Signs, Map scale. Classification of Maps. Identification of Physical and Cultural Features on map.

Note: Theory Exam

1. **Part-I:** The Question one of paper is compulsory. Question one of paper will contain short answer type of questions having one (1) mark each and total five (5) marks covering entire course.
2. **Part-II:** The question paper will comprise two questions from each Unit (Unit-1,2 & 3) total six question in all. Candidates are required to attempt one question from each unit having ten (10) marks each, which will be of total thirty (30) marks.

Note: Practical Exam

1. The question paper of unit four will comprise Practical part only. Candidates (s) are required to prepare one comprehensive Practical Record from the unit IV only.
2. File record will be of Maximum 15 Marks.
3. Viva Voce will be of Maximum 5 Marks.

Recommended Readings:

- Anand, D.M. (2006). *Fundamentals of Geography*. Delhi: Sublime Publications.
- Barry, R. G. and Chorley, R. J. (1998). *Atmosphere, Weather and Climate*. London: Routledge.
- Lake, P. (1979): *Physical Geography* (Eng./Hindi). Cambridge: Cambridge University Press.
- Bunnett, R.B. (2003). *Physical Geography in Diagrams*. Fourth GCSE edition, Singapore: Pearson Education Pvt. Ltd.
- McKinney, Kevin (2003). *Everyday Geography of World: An Entertaining Review of the Land, Climate, People & History of Our World*. New York: Black Dog & Leventhal Publisher.
- Negi, B.S.(1993). *Physical Geography*. Meerut: S.J. Publication.
- Kelton, Gabriel (2014). Geography of Everyday Life. London: LAP Lambert Academic Publishing.
- Lal, D.S.(1998). Climatology. Allahabad: Chaitnya Publishing House.
- Siddhartha, K. (2013). *Basic Physical Geography*. New Delhi: Kitab Mahal Publisher.
- Strahler, A.H. (2013). *Introducing Physical Geography*. New York: John Wiley & sons.
- Tikka, R.N.(2002). *Physical Geography*. Meerut: Kedarnath Ramnath & Co.
- Doberstein, Dan (2011). *Fundamentals of GPS Receivers: A Hardware Approach*. New York: Springer.
- Mishra, R.N. and Sharma, P.K. (2019). *Prayogic Bhoogol* (Hindi). Jaipur: Rawat Publicatoins.

241/GEO/MD401

Gurugram University, Gurugram, Haryana (India)

M.A. Geography (Semester-IV) Syllabus (as per NEP 2020 w.e.f session 2024-25)

URBAN ENVIRONMENT CHALLENGES

Paper Code: **MDC-04** (Optional: Theory and Practical Paper)
Course Id: **241/GEO/MD401**

Credit: 03 (2+0+2) L+T+P Hrs/Week	**Total Marks**	**75**
Time: 3 Hours Theory	End Semester Exam:	35 Marks
	Internal Assessment: (Attendance) (Assignment) (Mid-Sem. Exam)	15 Marks 5 5 5
Note: Theory Exam: as the instructions mentioned under **Practical Exam:** as the instructions mentioned under Practical Exam Time: 4 Hours	Practical Exam: Internal Assessment: (Attendance)	20 Marks 5 Marks

Course Outcomes:

CO-01: The students will understand the Urban environment and ecology properly.
CO-01: They will be able to understand with systems of city and rural-urban interaction.
CO-01: They will develop the skill to expose the latest trend and patterns of urbanization.
CO-01: They will able to assess urban issues, their planning and management.

Theory

UNIT-I

Urban Environment: Concept, Nature, Scope, Types and Dynamics; Land Use Pattern; Urban Ecology and Ecosystem; Environmentally Sensitive Areas; Urban Heritage Conservation; Concepts of Eco Cities, Healthy Cities and Sustainable Cities.

UNIT-II

Urban infrastructure: Blue-Green Infrastructure (BGI); Basic Services: Roads, Drainage, Electricity, Telecommunication, Educational, Medical and Recreational Facilities; Urban Development and Natural Resources; Urban Water Management; Urban Forestry.

UNIT-III

Sustainable Urban Management: Issues and Strategies in Air, Water, Sold Waste, Slums, Disaster Management; Concept and Mitigation: Smog, Acid Rain, Floods, Droughts, Flash Flood; Urban Heat Island; Sustainable Development Goals (SDGs).

Practical

UNIT-IV

Urban environmental planning and management: Urban Governance, Major Issues and Management: Air Quality, Water availability, Sanitation, Transport, Housing, Solid Waste, e-Waste; Pollution: Water, Air, Soil, Noise, Thermal, Nuclear; Urban Heat Island: Case Studies from any part of India.

Note:-

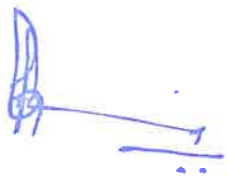
- The students shall visit content & research objectives based Field survey of the out campus study area/place, Industry, institution situated in urban area and collect data for the comprehensive study under guidance and supervision of supervisor/teacher incharge, along with supporting accompanying staff Viz. Lab Attendant etc. There shall be a teacher in-charge on a group of 12 students. They shall be paid TA/ DA as per Govt. /university rules. Duration of the urban study based field survey will not be exceeding 4 days in normal circumstances.
- The students are required to prepare a typed report on any topic and fields of syllabus on his /her interest area in consultation with the supervisor/teacher incharge (practical group wise). They shall collect the data by Observation, Interview and Questionnaire methods, Lab Testing, Secondary Sources etc.
- In survey report writing the components will be as follows: Introduction, Problem Statement, Aim and Objectives, Study Area with Key Map, Data Collection and Methodology, Results (with graphs, diagrams, maps & images) and Analysis, Conclusion and Suggestions, Annexure and References(Harvard style) etc.
- The students shall submit two typed, duly signed copies of Survey Report (should not exceed 8,000 words) in Article/Research Paper format in the department. Page Size A-4, 1.5 Spacing between lines, Font- Times New Roman, Font Size 12 main body typing.

Note: Theory Exam

1. **Part-I:** The Question one of paper is compulsory. Question one of paper will contain short answer type of questions having one (1) mark each and total five (5) marks covering entire course.
2. **Part-II:** The question paper will comprise two questions from each Unit (Unit-1,2 & 3) total six question in all. Candidates are required to attempt one question from each unit having ten (10) marks each, which will be of total thirty (30) marks.

Note: Practical Exam

1. The question paper unit four will comprise practical part. Candidates (s) are required to prepare one comprehensive analytical **Practical Field Survey Report** any of topic from the unit IV only.
2. Field survey report file will be of Maximum 15 Marks.
3. Viva Voce will be of Maximum 5 Marks.



Books Recommended:

- Ahuja, Ram (2003). *Social Survey and Research* (Hindi). Jaipur: Rawat Publications.
- Allan, S., et. al.(2000). *Environmental Risks and the Media*. London: Routledge.
- Bansal, S.C. (2017). *Urban Geography*. Meerut: Meenakshi Prakashan.
- Bhattacharya, B. (1979). *Urban Development in India*. New Delhi: Shree Publishing House.
- Creswell J. (2018). Research Design: Qualitative and Quantitative Approaches. New Delhi: Sage Publications
- Dodman, D., McGranahan, G. and Dalal-Clayton, B. (2013). *Integrating the Environment in Urban Planning and Management: key principles and applications in the 21st century*. UNEP, Nairobi.
- Gupta, S.P. (2021). *Statistical Methods*. New Delhi: Sultan Chand and Sons.
- Hall P. (1992). *Urban and Regional Planning*. London: Routledge.
- Hanaki, K. (2008). *Urban Environmental Management and Technology*. Tokyo: Springer.
- Josef, L. (1999). *Sustaining Cities: Environmental Planning and Management in Urban Design*. New York: McGraw Hill.
- Siddharth, K. and Mukherji S. (2019). *Cities, Urbanizations and Urban Systems*. New Delhi: Kitab Mahal.
- Singh. K. and Steinberg. F. (1998). *Urban India in Crisis*. Delhi: New Age International.
- Stoddard, R. H. (1982). *Field Techniques and Research Methods in Geography*. Kendall/Hunt.Subhash Anand (2010). *Solid Waste Management*. New Delhi: Mittal Publication.
- Verma, L.N. (2008). *Urban Geography*. Jaipur: Rawat Publications.
- Van Bueren, E.M., Van Bohemen, H., Itard, L.and Visscher, H. (Ed) (2012). *Sustainable Urban Environments: An Ecosystems Approach*. New York: Springer.
- Yadav, Vinita. (2011). *Urban Poverty: Issues and Remedies for Inclusive Development*. Spatio-Economic Development Record. 18. 96-100.

241/CHE/MD301

Course Code			Course Title				Course ID				
MDC-03			Instrumental Methods of Analysis				241/CHE/MD/301				
L	T	P	L	T	P	Total Credits	MARKS				
(Hrs)			Credits				TI	TE	PI	PE	Total
3			3			3	25	50	-	-	75
Examination Duration:			Theory: 2 Hrs								

Course Objectives	1 Understand the fundamentals of qualitative and quantitative analysis, including sampling, data evaluation, and error management. 2 Develop a thorough understanding of statistical techniques for evaluating analytical data and expressing accuracy and precision. 3 Explore the principles of IR and UV-spectroscopy, including the interaction of radiation with matter and the application of Beer-Lambert's law. 4 Learn thermal methods of analysis, including thermogravimetry, differential thermal analysis, and their applications in quantitative estimation. 5 Understand principle and application of atomic absorption spectroscopy and flame photometry. 6 Study the principles and applications of electroanalytical techniques such as pH metric, potentiometric, conductometric titrations. 7 Acquire an understanding of polarography, including its principles, instrumentation, and applications.
Course Outcomes:	After the completion of this course, student will be able to: 1 Apply the principles of qualitative and quantitative analysis to evaluate and interpret analytical data effectively. 2 Perform error analysis and statistical testing using F, Q, and t-tests and calculate confidence intervals. 3 Analyze spectral data using the principles of UV-Visible and infrared spectrometry and interpret structural information. 4 Demonstrate proficiency in using thermal analysis techniques (TGA, DTA, DSC) for quantitative estimation and material characterization. 5 Learn atomic absorption spectroscopy and flame photometry principles and uses. 6 Conduct pH metric, potentiometric, and conductometric titrations to determine equivalence points and pKa values. 7 Use polarography for the analysis of various samples and

	understand its role in analytical chemistry.

COURSE SYLLABUS

Note: 1. Question no. 1 is compulsory, which contains short answer type questions and to be set from the entire syllabus.

2. Eight questions will be set, two from each of the units I, II, III & IV. The candidates are required to attempt four questions in all selecting at least one question from each section. All questions shall carry equal marks.

3. The question paper must be set in consonance with course outcomes.

Unit No.	Contents	Contact Hrs
I	**QUALITATIVE AND QUANTITATIVE ASPECTS OF ANALYSIS** Sampling, evaluation of analytical data, errors, accuracy and precision, methods of their expression, normal law of distribution if indeterminate errors, statistical test of data; F, Q, and t-test, rejection of data, and confidence intervals. Origin of spectra, the interaction of radiation with matter, fundamental laws of spectroscopy and selection rules, validity of Beer-Lambert's law.	11
II	**OPTICAL METHODS OF ANALYSIS** UV-Visible spectrometry: Basic principles of instrumentation (choice of source, monochromator and detector) for single and double beam instrument. Infrared spectrometry: Basic principles of instrumentation (choice of source, monochromator & detector) for single and double beam instruments; sampling techniques. Structural illustration through interpretation of data, Effect and importance of isotope substitution.	11
III	**THERMAL METHODS OF ANALYSIS** Thermogravimetric Analysis (TGA): Instrumentation, thermogram, factors affecting thermograms, application of thermogravimetry; Differential Thermal Analysis (DTA): Instrumentation, DTA curves, factors affecting DTA curves, applications of DTA. Differential Scanning Calorimetry (DSC): Introduction, Instrumentation, DSC curves, factors affecting DSC curves, applications. **ATOMIC ABSORPTION SPECTROSCOPY** Atomic Absorption Spectroscopy: Principle, instrumentation, Hollow cathode lamp, Application of atomic absorption spectroscopy, Advantages and Disadvantages of Atomic Absorption Spectroscopy. **FLAME PHOTOMETRY** Theory of flame photometry, Effect of Solvents in Flame photometry, Factors that influence the intensity of emitted Radiation in Flame photometry, limitations, application of flame photometry, Interferences in Flame photometry.	12
IV	**ELECTROANALYTICAL METHODS**	11

	Classification of electroanalytical methods, basic principle of pH metric, potentiometric and conductometric titrations. Techniques used for the determination of equivalence points. Techniques used for the determination of pKa values. Polarography: General principles, diffusion-controlled current, dropping mercury electrode, Ilkovic equation (without proof), Half-wave potentials, application of polarography, Amperometry: principle and application.	
Suggested Books	1. Mendham, J., A. I. Vogel's (2009) Quantitative Chemical Analysis 6th Ed., Pearson. 2. Willard, H.H. et al. (1988) Instrumental Methods of Analysis, 7th Ed. Wardsworth Publishing Company: Belmont, California, USA. 3. Christian, G.D. (2004) Analytical Chemistry, 6th Ed. John Wiley & Sons: New York. 4. Sesták J. Thermal Methods of Analysis: Principles, Applications and Problems 5. Chatwal G.R. and Anand. S.K. Instrumental Methods of Analysis 6. Skoog, D.A. Holler F.J., Crouch. S. R. Atomic Absorption Spectrometry 7. Harris, D.C.: Exploring Chemical Analysis, 9th Ed. New York, W.H. Freeman, 2016. 8. Khopkar, S.M. Basic Concepts of Analytical Chemistry. New Age International Publisher, 2009. 9. Skoog, D.A. Holler F.J. & Nieman, T.A. (1979) Principles of Instrumental Analysis, Cengage Learning India 10. Mikes, O. (2008) Laboratory Hand Book of Chromatographic & Allied Methods, Elles Harwood Series on Analytical Chemistry, John Wiley & Sons. 11. Ditts, R.V. (1974) Analytical Chemistry; Methods of separation, van Nostrand.	
	Assessment and Evaluation	
Theory	Internal Assessment: 25 Marks	• Class Participation: 05 Marks • Seminar/Presentation/ Assignment: 05 Marks • Mid Term Exam: 15 Marks
	External Assessment: 50 Marks (02 Hours)	• End Term Exam: 50 Marks

241/PPAG/MD 301

Semester III

MDC-3: An Introduction of Indian Constitution

Course ID:	**An Introduction of Indian Constitution**
Semester III	**Maximum Marks: 75**
Credits: 3 (Hrs./week:3)	**Theory Examination: 50**
Time: 2 hours	**Internal Assessment: 25**

Course Outcome:

Understand: Students will explain the philosophy of the Preamble and the Basic Structure Theory of the Indian Constitution.

Analyze: Students will analyze the powers and functions of the Parliament, President, Prime Minister, and the judiciary.

Evaluate: Students will evaluate Centre-State relations and the roles of Panchayats and Municipalities in federalism.

Assess: Students will assess and propose improvements to federal and decentralization mechanisms in India.

Note for External Examiner:

1. **Seven Questions will be set in all and students will be required to attempt 4 questions.**
2. **Question No. 1 will be compulsory and will consist of 7 short answer type questions of 2 marks spread over the entire syllabus (2x7=14 marks).**
3. **For the remaining six questions, students will attempt 1 out of 2 questions from each of the three units (12 marks each).**

Unit 1: Philosophy of Indian Constitution

a) Preamble of the Constitution
b) Basic structure theory

Unit 2: Organs of the Government

a) The Legislature: Power and functions of Parliament, Debates on representation in Parliament
b) The Executive: Power and functions of President and Prime Minister
c) The Judiciary: Appointment of judges in High Courts and the Supreme Court of India, Powers and functions of the Supreme Court

Unit 3: Federalism and Decentralisation

a) Centre-State relations, asymmetrical features of federalism
b) The Panchayats and Municipalities

Suggested Readings:

1. Agarwal, R. K. (2015). *Indian Constitutional Law* (6th ed.). Eastern Book Company.
2. Austin, G. (2017). *The Indian Constitution: Cornerstone of a Nation*. Oxford University Press.

3. Chandhoke, N. (2001). *State and Civil Society: Explorations in Political Theory*. Sage Publications.

4. Dey, S. (2020). *The Indian Parliament: Powers and Functions*. *Journal of Political Science and Public Affairs, 8*(4), 223-234.

5. Jain, M. P. (2017). *Indian Constitutional Law* (7th ed.). LexisNexis.

6. Kumar, R. (2018). *Centre-State Relations in India: An Analysis*. *Indian Journal of Federal Studies, 7*(2), 145-160.

7. Mishra, A. (2015). *Decentralization and Local Governance in India: The Role of Panchayats and Municipalities*. *Local Governance Review, 14*(3), 112-128.

8. Rao, B. S. (2019). *The Judiciary in India: Appointments and Functions*. *Indian Law Review, 11*(1), 67-80.

9. Seervai, H. M. (2014). *Constitutional Law of India* (4th ed.). Tripathi Publications.

241 / MPSIR / MD 301

Semester- III

MDC-03: Geo-Politics

Course ID -	**Geo-Politics**
Semester III	**Maximum Marks: 75**
Credits: 3 (Hrs./week:3)	**Theory Examination: 50**
Time: 2 hours	**Internal Assessment: 25**

Course Objective :The course on Geopolitics has been designed to apprise the student with an understanding of the definition, origins and development of the concept of Geopolitics. The history and changing nature of geopolitical and geostrategic environment would form a greater focus in understanding the whole debate on international relations and foreign policy. An attempt of the course would also be to provide the students with an Indian perspective on the ongoing geopolitical and geostrategic debate. This course has been designed for a fresher, who is keen to learn and understand the complex issuesrelating to the dynamic nature of international and national security environment.

- **Seven Questions will be set in all and students will be required to attempt 4 questions.**
- **Question No. 1 will be compulsory and will consist of 7 short answer type questions of 2 marks spread**

  over the entire syllabus (2x7=14 marks).
- **For the remaining six questions, students will attempt 1 out of 2 questions from each of the three units**

  (12 marks each).

Unit-I Understanding Geopolitics

- Definition of Geopolitics
- Concepts in Geopolitics; Territory, Sovereignty, State, Religion.

Unit-II Theory of Geopolitics

- Classical Theories; Heartland Theory, Sea Power, Rimland Theory,
- Critical Geopolitics; Modern geopolitics, Post Modern Geopolitics.

Unit-III Contemporary Issues In Geopolitics

- Global Environmental Issues
- Geopolitics Of Energy
- Globalization & Geopolitics
- Boundary Issues

Suggested Readings :

- Andrew Herod, Gearoid O Tuathail and Susan M. Roberts (eds.), An Unruly World ? Globalisation, Governance and Geography, London and New York : Routledge, 1998
- Ciro, E., Zoppe (ed.), Charles Zorgbibe :On Geopolitics, Classical and Nuclear, Boston, Nijhoff, 1985.
- David, Hoosan (ed.), Geography and National Identity, Oxford, U.K. and Cambridge : USA : Blackwell, 1994.
- Geoffrey, Parker, Geopolitics : Past, Present and Future, London and Washington : Pinter, 1998.
- Gertjan, Dijkink, National Identity and Geopolitical Visions, London, New York : Routledge, 1996.
- Gearoid, O. Tuathail, Critical Geopolitics : The Politics of Writing Global Space, London and New York : Routledge, 1996.
- Gearoid, O. Tuathail, Simon Dalby and Paul Routledge (ed.), The Geopolitics Reader, London and New York, Routledge, 1998.
- Gearoid, O. Tuathail, Simon Dalby (eds.), Rethinking Geopolitics, London and New York : Routledge, 1998.
- Sloan, G.R., Geopolitics in United States Strategic Policy, 1890-1987, Brighton Wheatsheaf Books, 1988.
- Jan Nederveen Pieterse, World Orders in the Making : Humanitarian Intervention and Beyond, Houndmills, Macmillan, 1998.
- Jan Nijman, The Geopolitics of Power and Conflict : Superpowers in the International Systems, London and New York : Belhaven Press, 1993.
- John, Agnew and Stuart Corbridge, Mastering Space, Hegemony, Territory and Political Economy, London, New York : Routledge, 1995.
- John, Agnew, Geopolitics :Re Visioning World Politics, London and New York : Routledge, 1998.
- Klaus, John Dodds, "Geopolitics, Cartography and the State in South America," Political Geography 12 (4), July 1993 : 361-381.
- Kurt Mills, Human Rights in the Emerging Global Order, A New Sovereignty, Houndmills : Macmillan Press Limited, 1998.
- Mathew, B. Fielden, "The Geopolitics of Aid : The Provision and Termination of Aid to Afghan Refugees in North West Frontier Province, Pakistan," Political Geography, 1998,
- Simon, Dalby, Creating the Second Cold War, London : Pinter, 1990.

241/MPS/MD 301

Semester-III
MDC-03 Understanding Nationalism in India

Course ID -	**Understanding Nationalism in India**
Semester III	**Maximum Marks: 75**
Credits: 3 (Hrs./week:3)	**Theory Examination: 50**
Time: 2 hours	**Internal Assessment: 25**

Course Objective-

- To trace the historical evolution of Indian nationalism
- To examine diverse ideological streams within Indian nationalism
- To analyze the tension between inclusive and exclusive nationalism
- To evaluate the contemporary challenges to Indian nationalism

- **Seven Questions will be set in all and students will be required to attempt 4 questions.**
- **Question No. 1 will be compulsory and will consist of 7 short answer type questions of 2 marks spread over the entire syllabus (2x7=14 marks).**
- **For the remaining six questions, students will attempt 1 out of 2 questions from each of the three units (12 marks each).**

Unit I **Historical Evolution Of Indian Nationalism**

- Colonialism and the emergence of National Consciousness
- Moderate and Extremist phase
- Revolutionary nationalism
- Gandhian and Mass Mobilization

Unit-II **Approaches to the Study of Nationalism in India**

- Nationalist School
- Marxist School
- Subaltern School

Unit III **Partition and Independence**

- Communalism in Indian Politics
- The Two-Nation Theory and Partition

Suggested Readings

- **Bipan Chandra, India's Struggle for Independence (relevant chapters)**
- **Sumit Sarkar, Modern India**
- **M.K. Gandhi, Hind Swaraj**
- **Ravinder Kumar, Essays on Gandhian Politics**
- **Rabindranath Tagore, Nationalism**
- **B.R. Ambedkar, Thoughts on Pakistan**
- **V.D. Savarkar, Hindutva: Who is a Hindu?**
- **Sugata Bose, His Majesty's Opponent (on Bose)**
- **Ayesha Jalal, The Sole Spokesman (selected chapters)**
- **Partha Chatterjee, The Nation and Its Fragments**
- **Ramachandra Guha, India After Gandhi (selected chapters)**
- **Akeel Bilgrami (ed.), Secularism, Identity and Enchantment**
- **Tanika Sarkar, Hindutva's Nation (selected essays)**

241/PHY/MD301

Detailed Syllabi of Pool Courses for M. Sc. (Physics)

Semester-III

Multi-Disciplinary Course

COURSE ID: 241/PHY/MD301

RADIATION SAFETY

M Marks: 50 **Credits: 3**

Marks (Internal Assessment): 25 **Time: 2 Hours**

Note: The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist of at least 4 parts covering entire syllabus. The question paper is expected to contain problems to the extent of 20% of total marks. The examinee will be required to attempt 5 questions; selecting one question from each unit and the compulsory.

Course Outcomes:

After successful completion of the course on Radiation Physics, a student will be able:

- *To know the basics of radiation and to analyze the effect of radiation on the functioning of living cells.*
- To *define and explain different interactions of ionizing radiation with matter.*
- *To Understand the basic working principles of radiation detectors.*
- *To evaluate the radiation hazards and get familiar with radiation dose limitations*

Unit – I

Basics of radiation: Origin of radiation, binding energy and Q value, stable and unstable isotopes, radioactive decay (alpha, beta, gamma, neutron), mean life and half life, nuclear reactions, kinematics of nuclear reactions. Basic idea of different units of activity, Radiation quantities & units: Exposure, Dose, Equivalent Dose, Effective Dose, KERMA, Annual Limit on Intake (ALI), and Derived Air Concentration (DAC); Biological Effects of Ionizing Radiation

Unit – II

Interaction of Radiation with matter: Modes of interaction: ionization, excitation, elastic and inelastic scattering, Bremsstrahlung, Cerenkov radiation, Concepts of specific ionization, mean free path; Interaction of Light Charged Particles with matter; Interaction of Heavy Charged Particles with matter; Interaction of Electromagnetic Radiations with matter: Photoelectric effect, Compton Scattering, and Pair production; Attenuation of Gamma Radiation: Linear and mass attenuation coefficient; Interaction of Neutrons with matter

Unit – III

Ranjit

Radiation Detection: Principles of radiation detection; Gas filled radiation detectors: ionization chambers, proportion counters, GM counters, Scintillation (organic/inorganic) counter; Solid State Detector: Crystal detector, Semiconductor Detectors, Neutron Detectors, Thermo – Luminescent Dosimeters (TLD), SSNTD, Chemical detectors (Photographic Emulsions Films).

Unit – IV

Radiation Hazards, Evaluation and Protection: Radiation Hazards: Internal Hazards and External Hazards; Evaluation of external radiation hazard: Effect of distance, time and shielding, shielding calculation, personnel and area monitoring-Internal radiation hazards: radio toxicity of different radio nuclides, control of contamination-bioassay and air monitoring. Basic concepts of radiation protection standards: historical background, International Commission of Radiological Protection and its recommendations, the system of radiological protection, justification of practice, optimization of protection and individual limits, Dose Limit for Radiation Workers, Public, Occupational Exposure of Women. Radiation Emergency and Preparedness. Responsibilities of operator, regulatory bodies, and government.

References/Books:

1. Nuclear Radiation Detectors by S. S. Kapoor and V. S. Ramamurthy
2. Radiation Detection and Measurement 4th Edition by Glenn F. Knoll
3. Physics and Engineering of Radiation Detection by Syed Ahmed, Laurentian University, Ontario, Canada
4. Introduction to Radiological Physics and Radiation Dosimetry, by Frank H. Attix, John Wiley & Sons, 1986.
5. Techniques For Nuclear and Particle Physics Experiments by William R. Leo.
6. Elements of Nuclear Physics by W. E. Meyerhof.
7. Measurement and Detection of Radiation, Fourth Edition by Nicholas Tsoulfanidis and Sheldon Landsberger

Ranjit

241/CS/MD 301

PROGRAMMING WITH C

Semester	3			
Course code	MDC-03			
Category	Multidisciplinary Course(s)			
Course title	Programming with C			
Course ID	241/CS/MD301			
Scheme and Credits	L	T	P	Credits
	2	1	0	3
Theory Internal	25 marks			
Theory External	50 marks			
Total	100 marks			
Duration of Exam	3 hrs			

Note: *The examiner will set nine questions in total. Question one will have seven parts from all units and the marks of first question will be of 20% of total marks of Question Paper and the remaining eight questions to be set by taking two questions from each unit and the marks of each question from Question no.2 to 9 will be of 20% of total marks of Question paper. The students have to attempt five questions in total, the first being compulsory and selecting one from each unit.*

COURSE OUTCOMES:

At the end of this course, students will demonstrate the ability to

CO1: understanding algorithms and translating them into structured flowcharts and pseudocode.

CO2: proficiency in writing and debugging C programs, understanding compilation processes, and identifying syntax and logical errors

CO3: understanding of dynamic memory allocation techniques, such as malloc, calloc, and realloc, and apply them in array and structure contexts.

CO4: demonstrate proficiency in passing arrays to functions, using recursion for solving problems (e.g., factorial, Fibonacci series), and handling character arrays.

CO5: understand the basics of file handling in C, including opening, reading, writing, and closing files, and manipulate data using file operations

UNIT-I

Introduction to Programming: Idea of Algorithm: Steps to solve logical and numerical problems. Representation of Algorithm: Flowchart/Pseudocode with examples. C

Programming: Keywords, Variables and Data Types: basic, derived and user defined, Type Conversions, Header Files, Basic Input and Output Functions and Statements, Compilation, Syntax and Logical Errors in compilation, Object and Executable Code, Storage Classes, Arithmetic Expressions and Precedence.

UNIT-II

Preprocessors, Conditional and Branching Statements, Loops/ Iterative Statements, Writing and evaluation of conditionals and consequent branching.

UNIT-III

Arrays (1-D, 2-D), Character Arrays and Strings, Arrays with Pointers, Functions (including using built in libraries), Parameter passing in functions, Call by Value, Call by Reference, Passing arrays to functions, Recursion, as a different way of solving problems. Example programs, such as Finding Factorial, Fibonacci series, Ackerman function etc.

UNIT-IV

Idea of pointers, Defining pointers, Use of Pointers in self-referential structures, Introduction to Dynamic Memory Allocation and its Methods, Structures, Union, Defining Structures and Array of Structures, File Handling.

BOOKS:

1. Ajay Mittal, Programming in C, 'A Practical Approach', Pearson Education.
2. Byron Gottfried, Schaum's Outline of Programming with C, McGraw-Hill
3. E. Balaguruswamy, Programming in ANSI C, Tata McGraw-Hill
4. Yashavant Kanetkar, Let Us C, BPB Publication.
5. Gill, Nasib Singh: Computing Fundamentals and Programming in C, Khanna Book Publishing Company (Private) Limited, New Delhi

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M.Sc. MATHEMATICS 3rd SEMESTER

Fundamentals of Mathematics

MDC-03 Maximum Marks: 75
Credits: 3(2L+1T) External Examination: 50
Max. Time: 2 hrs. Internal Assessment: 25
Course ID:

Note: *There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of seven short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Students will have to attempt one question from each unit. Each question shall carry equal marks.*

Course Learning Outcomes:

CLO1 Understand set theory, logic, and functions to solve problems.
CLO2 Solve linear systems using matrices, determinants, rank, and eigenvalues.
CLO3 Apply differentiation and integration techniques to solve problems.
CLO4 Solve first-order differential equations using standard methods.

Unit-I

Sets, subsets, Venn diagrams, operations on sets, Relations and functions, Mathematical logic: propositions, truth tables.

Unit-II

Matrices: types, operations, determinants, inverse, Systems of linear equations, rank,eigenvalues and eigenvectors.

Unit-III

Limits and derivatives, Basics of differentiation, graphical significance of differentiation and its applications. Methods of Integration: integration by parts, integration by partial fractions and their applications

Unit-IV

Linear differential equations and its applications. First order differential equations, separable variables, homogeneous equations, exact differential equations, solution of exact differential equations.

Recommended Books:

1. K.H. Rosen, *Discrete Mathematics and Its Applications* (7th Edition), McGraw-Hill, 2012.
2. S. Lipschutz, *Linear Algebra*, Schaum's Outline Series, McGraw-Hill, 3rd Edition, 2005.
3. S.L. Ross, *Differential Equations* (3rd Edition), John Wiley & Sons, 2004.
4. S. Narayan and P.K. Mittal, *Integral Calculus* (21st Revised Edition), S. Chand & Company Ltd., New Delhi, 2017.

14/05/25

241/SOC/MD301

Semester III

Course code-MDC-3
Course Title-Contemporary Problems in India
Credit-3

Maximum Marks –75
Theory – 50
Internal Assessment – 25
Time – 3 hours

The students will be required to attempt four questions in all. Question No. I will be compulsory comprising of 4 short answer type questions of 2 marks each and will cover the entire syllabus 4X 2 = 8 marks. In addition to it, Question Nos. II to VII will consist of long answer (essay type) questions, two Questions from each Unit with internal choice carrying 14 marks each i.e. 3 X 14 = 42 marks thus making it the total weight age to 50 marks .Three questions to be attempted. One from each unit.

Course Outcomes:

- Students would get insight about Socio-Economic Issues
- The students would learn about developmental issues of the society.
- The students would learn about contemporary issues related with social problems.

Unit-I

Socio-Economic issues: Poverty and Unemployment- causes, consequences and government initiative; Family disharmony – Domestic violence, Dowry, Divorce

Unit -II

Environmental and Health Issues: Hygiene and Sanitation factor in life; Life style Diseases; Environmental degradation and change; Role of individual, society and government in environment protection

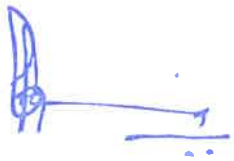
Unit-III

Contemporary Issues: Meaning, Types and Protection- Cyber Crime, Drug Addiction, Addiction of social media, Mental Illness

References:

Ahuja, Ram (2000), ***Social Problems in India***, New Delhi: Rawat Publications.
Ahuja, Ram (2000), ***Bharat mein Samajik Samsayen***, Jaipur, Rawat Publications
Beteille, Andre (1992), ***Society and Politics in India : Essays in Comparative Perspective***, Oxford University Press, New Delhi
DeSouza, P.R. (2000), ***Contemporary India – Transitions***, Sage Publications, New Delhi
Dhanagare, D.N. (1993), ***Themes and Perpectives in Indian Sociology***, Rawat Publications, Jaipur
Dube, S.C. (1973), ***Social Sciences in a Changing Society,*** University Press, Lucknow
Dube, S.C. (1967), ***The Indian Village,*** , Routledge, London
Dumont, Louis (1970), ***Homo Hierarchicus : The Caste System and its implications***, Vikas Publication, New Delhi
Dereze, Jean and Amartya Sen (1986), ***India : Economic Development and Social Opportunity***, O.U.P. New Delhi

Desai, Neera& Usha Thakkar (2007), ***Women in Indian Society***, Delhi: National Book Trust, India.
Desai, A.R. (1985), ***India's Path of Development : A Marxist Approach***, Popular Prakashan, Bombay
Ghurye, G.S. (1968), ***Social Tensions in India,*** Popular Parkashan, Bombay
Gill, S.S. (1998), **The Pathology of Corruption,** Harper Collin Publisher, New Delhi
Harrison, D. (1989), ***The Sociology of Modernization and Development***, Sage Publication, New Delhi
Memoria, C.B. (1981), ***Social Problems in India,*** Kitab Mehal, Allahabad.
Rajaura, Suresh Chander (2000), ***Samkaleen Bharat ke Samajik Samsayen***, Jaipur, Rajasthan Hindi Granth Akadami
Sharma G.L (2015), ***Samjik Mudde***, Delhi: Rawat Publication



241/BOT/MD301

BOTANY: SEMESTER-III								
Course Code	**Course ID**	**Course Title**	**Credit**	**Contact Hours/Week**	**Internal Assessment marks**	**End Term Marks**	**Max. Marks**	**Exam Duration**
MDC-03	241/BOT/MD30	Biophysical & biochemical techniques	2	2	15	35	50	2 hrs
			1	1	5	20	**25**	

Course Learning Outcomes (CLO)

1. **Students will be able to demonstrate an understanding of fundamental biochemical concepts,**
2. **Students will be proficient in various laboratory techniques for analyzing biological samples,**
3. **Students will be able to apply biophysical principles to biological systems.**
4. **Students will be able to collect, analyze, and interpret data from various experimental techniques.**

Instructions for Paper-Setter

1 Nine questions will be set in all. All questions will carry equal marks.

2. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 and four more questions selecting one question from each unit.

UNIT	TOPICS	CONTACT HOURS
I	**Microscopy:** Principles and applications of light, phase contrast, fluorescence microscopes, scanning and transmission electron microscopes. Fixation and staining; cytophotometry and flow cytometry.	12
II	**Chromatographic techniques:** Chromatography: Principles and applications of gel filtration, ion-exchange, affinity, thin layer, gas chromatography and high-pressure liquid chromatography (HPLC). **Electrophoresis and centrifugation:** Principles and applications of agarose and polyacrylamide gel	11
III	**Spectrometry:** Introduction; Theory; Mass spectrometer; Ionization of molecules; Mass analyzers-MALDI; Detectors and Applications **Spectroscopy:** Fluorescence, UV, visible, NMR and ESR spectroscopy; X-ray diffraction.	11
IV	**Molecular biology techniques:** southern, northern and western blotting techniques, polymerase chain reaction (PCR), ELISA. Methods for measuring nucleic acid and protein interactions; DNA fingerprinting; Molecular markers (RFLP, AFLP, RAPD). **Tracer Biology:** Principles and applications of tracer techniques in biology; radioactive isotopes and half-life of isotopes; autoradiography.	11
	List of Practical: 1. Demonstration of working of different types of microscopes. 2. Demonstration of Chromatography i.e. TLC, HPLC, GC. 3. To demonstrate the separation of proteins with the help of electrophoresis. 4. To study various molecular biology techniques i.e. PCR, ELISA. 5. To demonstrate the use of spectrophotometer. 6. Purification of protein by column chromatography. 7. Visit of various laboratories in the university, preparation and submission of report. 8. Principles of Calorimetry, Spectrophotometry and Fluorimetry	

Learning Resources

Hegyi, G., Kardos, J., Kovacs, M., Csizmadia, A.M., Nyitray, L., Pal, G., Radnai, L., Remenyi, A.,Venekei, I., 2013,Introduction to Practical Biochemistry, Eotvos Lorand University, Hungary.

Plummer, D.T., 1990, An Introduction to Practical Biochemistry, Tata Mc-Graw-Hill Publishing Company Ltd., New Delhi.

Prescott, L., Harley, J., Klein, D., 2005, Microbiology (6th Ed) Mc Graw-Hill.

Ranade, R. and Deshmukh, S., 2013, Handbook of Techniques in Biotechnology, StudiumPress (India) Pvt. Ltd. New Delhi.

Sawhney, S.K. and Singh, R., 2000, Introductory Practical Biochemistry (Ed.), NarosaPublishing House Pvt. Ltd., New Delhi.

Wilson, K., and Walker, J., 2010, Principles and Techniques of Biochemistry and Molecular Biology (7th Ed.), Cambridge University Press, New Delhi.

241/ZOO/MD301

ZOOLOGY: SEMESTER-III								
Course Code	**Course ID**	**Course Title**	**Credit**	**Contact Hours/Week**	**Internal Assessment marks**	**End Term Marks**	**Max. Marks**	**Exam Duration**
MDC-03	241/ZOO/MD30	Aquaculture-I	2	2	15	35	50	2 Hrs
		Practical	1	2	05	20	25	

Course Learning Outcomes (CLO)

1. Students will be able to understand the aquaculture system
2. Student gets familiar with impact of aquaculture on Environment
3. Gain knowledge abou conditioning factors and how they can be manipulated
4. Students will form concepts about Integrated farming

Instructions for Paper-Setter

1. Nine questions will be set in all. All questions will carry equal marks.
2. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 and four more questions selecting one question from each unit.

UNIT	TOPICS	CONTACT HOURS
I	Theory Culture technology– freshwater (carps, catfishes, murrels, prawns), brackish water (asian sea-bass, milk fish, mullets, crabs, shrimps), mariculture (mussels, oysters, sea weeds), fish food organisms (algae; Artemia; zooplankton).	8
II	Water Quality Requirements for Aquaculture- Role of temperature, pH, salinity, dissolved oxygen, ammonia, nitrite, nitrate, phosphate, biological oxygen demand, Chemical oxygen demand.	8
III	Integrated farming and its economic importance - fish-cum-livestock farming, paddy-cum-fish farming, aquaculture engineering aqua house, hatchery, ponds, race ways, recirculating system, cage, pen.	7
IV	Fish seed technology - natural collection, bundh breeding, induced breeding, cryopreservation of gametes. Transport of finfish and shellfish- transport of eggs, fry, fingerlings and adults. Fish farming	7
Practical	1. Estimation of hydrobiological parameters- temperature, pH, conductivity, salinity, dissolved oxygen, primary productivity, ammonia, nitrite, nitrate, phosphate, biological oxygen demand, chemical oxygen demand of nursery, rearing, stocking and breeding ponds. 2. Estimation of ovarian egg counts. 3. Culture of live food organisms and assay of nutritional quality of live food; estimation of population density of live food organisms. 4. Decapsulation and hatching of Artemia cysts for use in hatcheries. 5. Demonstration of breeding pools and hatcheries. 6. Induced breeding of Indian major carps and catfishes. 7. Identification of eggs, spawn, fry and fingerlings of cultivable fishes of India.	30

Learning Resources

1. Fishponds in Farming Systems, Zijpp, V. D., Verreth, J. A. J., Tri, L. Q., van Mensvoort, M. E. F., Bosma, R. H., and Beveridge, M. C. M., Wageningen Academic Publishers,Netherlands
2. Aquaculture Principles and Practices, Pillay, T. V. R., Blackwell Publishing, USA
3. Aquaculture and Fisheries Biotechnology Genetic Approaches, Dunham, R. A., CABI Publishing, USA

241/ENG/MD301

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MDC- 3

Nomenclature of the Course: Modern Indian Novel in English

Course Objectives

CO	Description
CO-1	Understand the historical and socio-political context of the emergence and development ofthe modern Indian novel in English.
CO-2	Develop critical and analytical skills to interpret and evaluate major works of modern Indian fiction.
CO-3	Encourage interdisciplinary approaches by connecting literature with history, politics,sociology, and cultural studies.

Course Outcomes

On completing the paper, **Modern Indian Novel in English** the students shall be able to realize following programme outcomes:

CO	Description
CO-1	Examine the narrative techniques, thematic concerns, and stylistic features of modern Indian novels.
CO-2	Reflect on the ethical implications of literary representations and the responsibility of writers and readers in addressing social injustices.
CO-3	Appreciate the diversity and richness of modern Indian novels, recognizing the variety ofvoices and perspectives that contribute to this body of literature.

MDC-3

Nomenclature of the Course: Modern Indian Novel in English

Max. Marks: 75
Theory: 50
Internal Assessment: 25

Unit I

Meenakshi Mukherjee: "The Anxiety of Indianness" from *The Perishable Empire: Essays on Indian Writing in English*

Unit II

Amitav Ghosh: The Shadow Lines (1988)

Unit III

Chitra Banerjee Divakurani: The Palace of Illusions (2008)

Suggested Readings

Naik, M. K. A History of Indian English Literature. Delhi: Sahitya Akademi, 1992.
Mukherji, Minakshi . The Twice Born Fiction. New Delhi: Heinemann, 1971.
Ansani, Shyam M. New Dimensions of Indian English Novels, Delhi: Doaba House, 1987.
Devy, G.N. An Another Tongue: Essays on Indian English Literature, Madras: Macmillan India Ltd. 1995. Gandhi, Leela. Post-Colonialism, New: Oxford University Press, 2002.
Gokak, V K Indian and World Culture, Delhi: Sahitya Akademi, 1989.
Bhongle, Rangrao (ed.). 2003. The Inside View: Native Responses to Contemporary Indian English Novel. Delhi: Atlantic Publisher

Instructions to the Paper-Setter and students:

- All questions are compulsory.
- Question 1 will be short-answer type question covering all Units. There will be at least one question from each Unit. The students are required to attempt any 4 out of 6 selecting at least one from each Unit. (4×5= 20 marks)
- Question no.2 will be an Essay type question with internal choice based on Unit I. The students have to attempt any 1 out of 2 questions. (10 marks)
- Question no.3 will be an Essay type question with internal choice based on Unit II. The students have to attempt any 1 out of 2 questions. (10 marks)
- Question no.4 will be an Essay type question with internal choice based on Unit III. The students have to attempt any 1 out of 2 questions. (10 marks)

Unit IV: Applications and Ethical Considerations

Screening for NCDs: hypertension, diabetes, cancer (oral, breast, cervical)

Newborn and antenatal screening

Mass vs selective screening

Ethical and legal issues in screening

Cost-effectiveness and policy implications

Suggested Readings:

Bonita R., Beaglehole R., Kjellstrom T. Basic Epidemiology, WHO

Jekel JF et al. Epidemiology, Biostatistics, and Preventive Medicine

K. Park, Textbook of Preventive & Social Medicine

WHO. Screening Programmes: A Short Guide (2020)

G. Rose, Strategy of Preventive Medicine, Oxford University Press

241/MPH/MD 301

5. Health Planning, Administration and Management

Course Objectives:

To understand the fundamentals and importance of health planning and health systems management.

To build competencies in planning, organizing, and evaluating health services.

To gain knowledge about health policy formulation, leadership, and human resource management.

To analyze the role of administration in public health program delivery.

Unit I: Health Planning and Policy

Definition, scope, and importance of health planning

Planning cycle and process

Health planning in India: Bhore, Mudaliar, Kartar Singh and other committees

National Health Policy: evolution and key features

Five-Year Plans and their impact on public health

Unit II: Health Administration at Various Levels

Structure and functions of health administration at the central, state, and district levels

Role of Ministry of Health and Family Welfare

Functions of Directorate General of Health Services (DGHS) and National Health Mission (NHM)

Urban and rural health service delivery models

Public-private partnerships (PPPs) in health care

Unit III: Principles and Functions of Management

Principles of management: planning, organizing, staffing, directing, controlling

Decision-making and problem-solving in health care settings

Supervision, coordination, and delegation

Communication and motivation in organizations

Tools of management: SWOT, PERT, CPM, and logic models

Unit IV: Human Resource and Financial Management

Human resource planning and development in health sector

Job analysis, recruitment, training, and performance appraisal

Budgeting and financial planning in health programs

Resource mobilization and allocation

Auditing and financial accountability

Suggested Readings:

Gupta & Mahajan, Health Management and Planning

Leiyu Shi & Singh, Delivering Health Care in America

K. Park, Textbook of Preventive and Social Medicine

M.Sc. Psychology/ M.A. Psychology

Semester- III

MDC-3 Climate Change & Mental Health (241/MPSY/MD 301)

Credits: 3

Maximum Marks:75
Theory Examination: 35
Internal Assessment: 15
Practical Examination: 20
Practical Assessment: 05
Time: 3 hrs.

Note: The students will be required to attempt four questions in all. Question No. I will be compulsory comprising of 5 short answer type questions of 1 mark each and will cover the entire syllabus 1X 5 = 5 marks. In addition to it, Question Nos. II to VII will consist of long answer (essay type) questions, two Questions from each Unit with internal choice carrying 10 marks each i.e. 3 X 10 = 30 marks thus making it the total weight age to 35 marks. Three questions to be attempted. One from each unit.

Course Outcomes

- Students will be able to comprehend the complex interplay between climate change and mental health, including psychological responses and societal impacts.
- Students will be able to develop skills in building resilience and applying coping strategies to mitigate climate-related psychological distress.
- Students will be able to apply knowledge of evidence-based psychotherapeutic interventions to support individuals and communities affected by climate change.

Unit 1

Understanding the Intersection of Climate Change and Mental Health

Introduction to Climate Change and Mental Health: Definitions and concepts, Impacts of Climate change: Individuals, Communities & Society; problem of Inequity

Psychological Outcomes of Climate Change: Anxiety, stress, and depression, Grief and loss, Trauma and PTSD

Unit 2

Psychological Resilience and Coping Strategies

Building Resilience in the Face of Climate Change: Resilience and its theory, Coping mechanisms and adaptive strategies

Climate Change Communication and Perception: Media portrayal of climate change, Cognitive biases and decision-making, Effective communication strategies, Climate Change Solutions

Unit 3

Psychotherapy and Mental Health Interventions

Evidence-based interventions for climate-related distress, Support systems and community resources

Suggested Readings:

1. "The Age of Sustainable Development" by Jeffrey D. Sachs

2. "Climate Change and Human Health: Risks and Responses" by Anthony J. McMichael
3. Marks, et al., (2011). Health Psychology Theory, Research & Practice (3rd Ed.). India, Sage Publication
4. Straub, R. O. (2014). Health Psychology: A Biopsychosocial Approach. NY: Worth Publishers
5. "The Psychology of Climate Change Communication" by Britt Wray
6. Various academic articles and case studies provided throughout the course.

241/MUS/MD301

SEMESTER 3

Name of the Subject – Principles of Indian Classical Music (Theory and Practical)	Maximum theory marks: 50 (15+35) Time – 2 hour
Subject Code - 241/MUS/MD301	Maximum Practical Marks: 25 (5+20)

Theory Paper

Instructions for External Examiner: The examiner is required to set 7 questions in total. This question paper shall be divided in two sections. The examiner is requested to set section A as a compulsory question containing 14 marks and from the entire syllabus (can be either objective or subjective). Section B will be in choice from two of the questions from each unit containing 7 marks each. The students will be required to attempt one question from each unit.

Learning Objectives:

- to gain the knowledge of raag and their alankars.
- to gain the applications of Chautal.
- to gain the knowledge of raag classification system.

Learning Outcomes

On successful completion of this course, the students will be able to:

- Gain the knowledge of raagas and alankars in them
- Gain knowledge of Chautala and its layakari
- Gain the knowledge of Raag Classification system of Thaat – Raag.

Unit 1:

1. Notation of the compositions in the following raagas
   i. Malkauns
   ii. Bhairavi
2. 5 Alankars in the above mentioned raagas.

Unit 2:

1. Description of chautaal.
2. Layakari of chautaal in Dugun, tigun and chaugun.

Unit 3:

1. Description of the following raagas i. Malkauns ii. Bhairavi
2. Description of Thaat Raag Vargikaran.

Practical Paper

Learning Objectives:

- to gain the knowledge of presenting the prescribed raagas
- to enhance the ability to present the prescribed taal.
- to enhance the Musical versatility of the students.

Learning Outcomes:

On successful completion of this course, the students will be able to:

- present the mentioned raags with aesthetic sense
- enhance their versatility in music.
- know and play the mentioned taals.

Unit 1:

1. Sing the chota khayal of any of the mentioned raag: i. Malkauns, ii. Bhairavi

2. sing 5 Alankars based on thse two raagas.

Unit 2:

Present Chautaal and its Layakaris on hand or Tabla.

Unit 3:

Present a light composition of your choice.

Suggested Readings:

1. Harish Chander Srivastava : Raag Parichaya , Part I, II & III
2. Madhur Sawaralipi Sangrah : Harish Chander Shrivastava Part- I,II,III,IV
3. Bhatkhande Sangeet Shastra- V. N. Bhatkhande
4. Sangeet Visharad- Basant
5. Kramik Pustak Mallika- Part II V. N. Bhatkhande
6. Raag Vigyan – V. N. Patwardhan
7. Bhartiya Sangeet Vadya-- Pt. Lal Mani Mishra
8. Sangeet Bodh – Sharad Chandra Pranjpayee

241/HIN/MD301

एम.ए. हिंदी
सेमेस्टर तृतीय

MDC 3-भारतीय और पाश्चात्य रंगमंच

पूर्णांक : 75अंक

आंतरिक लिखित : 50 अंक

मूल्यांकन: 25 अंक

Course ID	**241/HIN/MD303**	**Credit**
Course Title	**भारताय आर पाश्चात्य रगमच**	**3**

पाठ्यक्रम का उद्देश्य :

1.भारतीय एवं पाश्चात्य रंग सिद्धांतों का स्वरूपगत विभेद तथा परंपरा का आद्यंत परिचय।

2.भारतीय एवं पाश्चात्य विविध नाट्य रूपों के दार्शनिक चिंतन के अंतर की जानकारी।

3.भारतीय तथा पाश्चात्य नाट्य रूपों की व्यावहारिक तथा प्रयोगात्मक जानकारी।

पाठ्यक्रम अध्ययन के परिणाम:

1.भारतीय एवं पाश्चात्य रंग परंपराओं के भेद तथा प्रकारों का परिचय प्राप्त हो सकेगा।

2.भारतीय एवं पाश्चात्य रंग परंपराओं के आदान-प्रदान से निर्मित आधुनिक नाट्य रूपों की जानकारी प्राप्त हो सकेगी।

3.भारतीय एवं पाश्चात्य नाट्य रूपों की विविधता से परिचय के बाद समकालीन रंग परिदृश्य की बेहतर समझ विकसित होगी।

<u>पाठ्यक्रम</u>

इकाई-1 :

- नाटक की भारतीय अवधाराणाएं (उत्पत्ति तथा स्वरूप संबंधी मान्यताएं)
- नाटक की पाश्चात्य अवधारणाएं (उत्पत्ति तथा स्वरूप संबंध मान्यताएं)

इकाई-2 :

- भारतीय नाट्यरूप : रूपक, उपरूपक, नाटक (प्रकार तथा भेद)
- आधुनिक भारतीय नाट्यरूप : काव्य नाटक, एकांकी, रेडियो नाटक, नुक्कड़ नाटक

इकाई-3 :

- अरस्तू: अनुकरण सिद्धांत

Rajl Mukem

- अरस्तू: विरेचन सिद्धांत
- पाश्चात्य नाट्यरूप: त्रासदी, ड्रामा
- पाश्चात्य नाट्यरूप: कॉमेडी , मेलोड्रामा

सहायक पुस्तकें :

1. भारतीय रंगमंच - ईश्वर चंद्र विद्यासागर
2. नाट्यशास्त्र- भरतमुनि (पारंपरिक नाट्य शास्त्र)
3. भारत में रंगमंच - शंकर पाटिल
4. नाट्यशास्त्र और भारतीय रंगमंच - रामचंद्र शुक्ल
5. **पाश्चात्य रंगमंच का इतिहास- एरिक बेनम**

भारतीय और पाश्चात्य रंगमंच का तुलनात्मक अध्ययन पुस्तकें :

1. Theatre in India: A Historical Perspective- D. S. L. Nair
2. Indian Theatre: A Historical Survey- S. K. Bhattacharya
3. World Theatre: An Introduction- Michael Hinden

निर्देश-1.पाठ्यक्रम में निर्धारित प्रत्येक इकाई में से कम से कम एक दीर्घ प्रश्न अवश्य पूछा जाएगा। पूछे गए कुल प्रश्नों की संख्या चार होगी जिसमें से परीक्षार्थी को कुल दो प्रश्न करने होंगे। प्रत्येक प्रश्न के लिए 10 अंक निर्धारित है। पूरा प्रश्न कुल 20 अंकों का होगा।

2.पूरे पाठ्यक्रम में से कुल दस लघुत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थी को 200 शब्दों में किन्हीं छः प्रश्नों का उत्तर देना होगा प्रत्येक प्रश्न 4 अंक का होगा। पूरा प्रश्न 24 अंकों का होगा।

3.पूरे पाठ्यक्रम में से 6 वस्तुनिष्ठ अनिवार्य प्रश्न पूछे जाएंगे। प्रत्येक प्रश्न एक-एक अंक का होगा।

Ejyd Mukesh

251/SKT/MD301

SYLLABUS

MDC

Semester-3

Course Code		Credit	Structure			
			L	T	P	TOTAL CRE UNITS
	Basic Principles of Āyurveda	3	2	0	1	3

Course Description:

Āyurveda is the most ancient yet still a vibrant and living healthcare system of India. Rooted in the Vedic tradition, it offers a holistic approach to health that integrates body, mind, and spirit. This course introduces students to the fundamental principles of Āyurveda, including its philosophy, basic doctrines (like the *Tridoṣa* theory), diagnostic methods (*Doṣa*, *Dhātu*, *Mala*, *Agni*, *Srotas*), and lifestyle recommendations.

Learning Objectives

Āyurveda is the most ancient but still a living healthcare system of India. This course will introduce students to the basic concepts of the Science of Āyurveda. The major objective of the course is to make the learners understand the basic principles and concepts of preventative and curative medicines, health maintenance, diet and nutrition, usage of commonly used spices and herbs and therapeutic procedures in Āyurveda

Unit I :Introduction to Āyurveda

- History of Āyurveda in the pre-Charaka period, the two schools of Āyurveda: Dhanvantari and Punarvasu.
- Ācāryas of Āyurveda: Charaka, Sushruta, Vagbhata, Madhava, Sharngadhara and Bhavamishra

Basic Principles of Āyurveda

- The Pancamahābhūtas: Ākāśa (Space), Vāyu (Air), Tejas or Agni (Fire), Jala (Water) and Prithivī (Earth).
- The Triguṇas: Sattva, Rajas and Tamas.
- The Tridoṣas: Vāta, Pitta and Kapha
- The Saptadhātus: Rasa (fluid), Rakta (blood), Mamsa, Meda (fat) Asthi, Majjā and Sukra.
- The Trayodaśāgnis: Jatharāgni (gastric fire), Saptadhātvagni and Pancabhūtāgni
- The Trimalas: Purīsā (faeces), Mūtra (urine) and Sveda (sweat)

Unit II :Eight branches of Āyurveda (Aṣṭāṅga Āyurveda):

- Kāycikitsā (General Medicine)
- Kaumārabhṛtya (Pediatrics)
- śalyatantra (Surgery)
- Śālākya-Tantra (Ent. and Ophthalmology)
- Bhūta Vidyā (Psychiatry Medicine).
- Viṣa Vijñāna (Toxicology).
- Rasāyana (Rejuvenates).
- Vājīkaraṇa (Aphrodisiac).

Unit III : Lifestyle and Preventive Medicine:

- Understanding Health and Disease in Āyurveda
- Ayurvedic SvasthaVṛtta (Preventive Medicine): Seasonal regimen & Social Conduct and its effect on health.
- Carakasaṁhitā – Sūtra-sthānam (Tasyāśitīyādhyāya)
- Regimen of Six Seasons (Ṛtucharyā) : Hemanta (Early Winter), Śiśira (Winter),Vasanta
- (Spring), Grīṣma (Summer), Varṣā (Rainy) and Śarada (Autumn).

References:

1. त्रिपाठी, ब. (सम्पा.). (2017). *चरक संहिता* (खंड 1–3). वाराणसी: चौखम्भा संस्कृत संस्थान।
2. शास्त्री, अ. (सम्पा.). (2012). *सुश्रुत संहिता* (खंड 1–2). वाराणसी: चौखम्भा ओरिएंटलिया।
3. शर्मा, एस. के. (2015). *आयुर्वेद परिचय* (भाग 1 और 2). वाराणसी: चौखम्भा भारतभवन।
4. बालकृष्ण, आ. (2020). *दैनिक जीवन में आयुर्वेद*. हरिद्वार: दिव्य प्रकाशन।
5. कपूर, र. (2018). *भारतीय चिकित्सा पद्धति: आयुर्वेद*. नई दिल्ली: आर्य प्रकाशन।
6. **Sharma, P. V. (Trans.). (1996). *Charaka Samhita* (Vol. 1–3). Varanasi: Chaukhambha Orientalia.**
7. **Bhishagratna, K. K. (Trans.). (1998). *Sushruta Samhita* (Vol. 1–2). Varanasi: Chowkhamba Sanskrit Series Office. (Original work published 1907)**
8. **Dash, B. (2001). *A handbook of Ayurveda*. New Delhi: Concept Publishing Company.**
9. **Lad, V. (2002). *Textbook of Ayurveda: Fundamental principles* (Vol. 1). Albuquerque, NM: The Ayurvedic Press.**
10. **Lad, V. (1984). *Ayurveda: The science of self-healing: A practical guide*. Santa Fe, NM: Lotus Press.**
11. **Green, A. (2000). *Principles of Ayurveda: The only introduction you'll ever need*. London: Thorsons.**

Learning outcomes

Graduates who read this course should be able to know the ancient tradition of Indian Medicine system, which talks about not only to the physical health but also a healthy lifestyle. After reading this paper students will know the history of Ayurveda through original sources of ancient medicine system as enshrined in the Sanskrit texts like Charaka Samhitā, Suśruta Samhitā, Aṣtāṅga Hṛidaya etc. and they will also get the basic knowledge of eight departments of Āyurveda. Second section of this paper is related to ancient

Instructions to External Examiner:

This question paper will be divided into two sections. Examiner is requested to set Section A as compulsory questions from the entire syllabus (it may be objective or subjective). Section B will have an option to choose from two questions from each unit. Students will have to answer one question from each unit

physiology.

Semester- III

241/AE/MD/301	International Trade	L	T	P	C
		3	0	0	3

Max. Marks: 75 **Written Exam: 50**

Credits: **Internal Assessment: 25**

Note For the paper Setter

4. Seven Questions will be set in all and students will be required to attempt 4 questions.
5. Question No. 1 will be compulsory and will consist of 7 short answer type questions of 2 marks spread over the entire syllabus (2x7=14 marks).
6. For the remaining three questions, students will attempt 1 out of 2 questions from each of the three units (12 marks each).

Course objective

The objective of this course is augmenting the knowledge of students with practices and theories of trade between nations. In addition, it further evaluates the justification usually given for trade restrictions, describes the importance and effects of economic integration and explains the political economy of trade agreements.

Course Outcomes

CO1: Understand, explain, compare and critically evaluate the classical and neo classical trade theories.

CO2: Learn, compare and critically evaluate the new trade theories and their relevance in today's scenario.

CO3: Understand the pattern, scope, potential and related issues of trade in services.

CO4: Understand the theories of protection and develop the ability to appreciate the economic integration and its impacts.

Unit-I

Classical Theories of Trade **Teaching Hours:12**

Mercantilist's views on Trade, Adam Smith's Absolute Cost Advantage theory of trade, Ricardo's Comparative Cost Advantage theory, Haberler's Opportunity cost theory, Offer curves approach: Trade Indifference curves and Trade offer curves.

Unit-II

Economic Integration and Development **Teaching Hours: 12**

Types of integration-Customs union, Regional Trading Blocks, Free trade areas, Emerging issues in SAFTA, ASEAN and EU, Multilateralism vs Regionalism, changing role of WTO in International Trade and Development, Developing economies' issues in WTO, India and WTO.

Chairperson

Suggested Readings

- Salvatore, Dominick, International Economics, 6th Edition (1998) Prentice Hall, 11th Edition, John Wiley & Sons.
- Sodersten, Bo and Reed, G. (1994), International Economics, 3rd Edition, Macmillan Press Ltd., London.
- Krugman P.R. and Obstfed D. (1994), International Economics: Theory and Policy. Third Edition. Harper Collins. New York.
- Bhagwati, N. Panagariya, A. and T.N. Srinivasan. (1998). Lectures on International
- Trade, MIT Press.
- Caves, Jones and Frankel (1999), World Trade and Payments, 8th Edition, Addison-Wesley.
- Sawyer, W.C. and Sprinkle R.L. (2003), International Economics, Prentice-Hall of India, New Delhi.
- Suranovic Steven M. (2005), International Trade Theory & Policy Analysis, Http://internationalecon.Com
- Hoekman, Mattoo and English (Ed.) (2002), Development, Trade and the WTO – A Handbook, The World Bank, Washington, D.C.
- Feenstra Robert C (2004), Advanced International Trade- Theory and Evidence, Princeton University Press, Princeton.
- Carbaugh, R.J. (2014), International Economics, 12th Edition, South-Western, USA.
- Barbara Ingham (2015), International Economics, Prentice Hall, England.

Chairperson