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1.1.1 Lesson Plans

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Political Science Department

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Name of the Faculty Member: Alia Zaman
Department: Political Science
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
July	Theory	Unit 1-Distinctive features of Indian and Western political thought	BAP Political Science Discipline Specific Elective Semester V	Themes in Comparative Political Theory
August	Theory	Unit 2- Western Thought: Thinkers and Themes a. Aristotle on Citizenship b. Locke on Rights c. Rousseau on inequality	BAP Political Science Discipline Specific Elective Semester V	Themes in Comparative Political Theory
September	Theory	Unit 2-d. J. S. Mill on liberty and democracy e. Marx and Bakunin on State Unit 3- Indian Thought: Thinkers and Themes a. Kautilya on State b. Tilak and Gandhi on Swaraj c. Ambedkar on Social Justice	BAP Political Science Discipline Specific Elective Semester V	Themes in Comparative Political Theory
October	Theory	Unit 3- c. Ambedkar and Lohia on Social Justice d. Nehru and Jayaprakash Narayan on Democracy e. Pandita Ramabai on Patriarchy	BAP Political Science Discipline Specific Elective, Semester V	Themes in Comparative Political Theory

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Name of the Faculty Member: Alia Zaman
Department: Political Science
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	Theory	1. Globalization a) What is it? b) Economic, Political, Technological and Cultural Dimensions	BAP DSE Sem VI	Understanding Globalization
February	Theory	2. Contemporary World Actors a) United Nations b) World Trade Organization (WTO) c) Group of 77 Countries (G-77)	BAP DSE Sem VI	Understanding Globalization
March	Theory	3. Contemporary World Issues a) Global Environmental Issues (Global Warming, Bio-diversity, Resource Scarcities)	BAP DSE Sem VI	Understanding Globalization
April	Theory	3. (Contd.) b) Poverty and Inequality c) International Terrorism	BAP DSE Sem VI	Understanding Globalization

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Name of the Faculty Member: PIA DAVID
Department: POLITICAL SCIENCE. YEAR 2018-19

JULY	Presentations made on zia mody's books, ten judgements that changed india, Through the semester	Outline of the Legal system in India System of courts/tribunals and their jurisdiction in India - criminal and civil courts, writ jurisdiction, specialized courts such as juvenile courts, Mahila courts and tribunals. Role of the police and executive in criminal law administration. Alternate disputes mechanisms such as lok adalats, non - formal mechanisms		
AUGUST		Brief understanding of the laws applicable in India Constitution - fundamental rights, fundamental duties, other constitutional rights and their manner of enforcement, with emphasis on public interest litigation and the expansion of certain rights under Article 21 of the Constitution. Laws relating to criminal jurisdiction - provision relating to filing an FIR, arrest, bail search and seizure and some understanding of the questions of evidence and procedure in Cr. P.C. and related laws, important offences under the Indian Penal Code, offences against women, juvenile justice, prevention of atrocities on Scheduled Castes and Scheduled Tribes. Concepts like Burden of Proof, Presumption of Innocence, Principles of Natural Justice, Fair comment under Contempt laws. Personal laws in India: Pluralism and Democracy	4TH SEMESTER BA PROGRAMME	DEMOCRATIC AWARENESS THROUGH LEGAL LITERACY
SEPTEMBER-OCTOBER		Laws relating to contract, property; tenancy laws, labour laws, and environmental laws. Laws relating to dowry, sexual harassment and violence against women. Laws relating to consumer rights Labour laws in the context of globalisation 24 Laws relating to cyber crimes Anti-terrorist laws: implications for security and human rights		

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		Practical application: Visit to either a (I) court or (ii) a legal aid centre set up by the Legal Services Authority in Delhi or an NGO or (iii) a Lok Adalat, and to interview a litigant or person being counselled. Preparation of a case history		
NOVEMBER-DECEMBER		Critical Understanding of the Functioning of the Legal System, Legal Services Authorities Act and right to legal aid, ADR systems. What to do if you are arrested; if you are a consumer with a grievance; if you are a victim of sexual harassment; domestic violence, child abuse, caste, ethnic and religious discrimination; filing a public interest litigation. How can you challenge administrative orders that violate rights, judicial and administrative remedies. Human Rights - emerging trends; Role of legal aid agencies, Human Rights Commissions, NGOs and civil liberties groups. Practical application - Using a hypothetical case of (for example) child abuse or sexual harassment or any other violation of a right, preparation of an FIR or writing a complaint addressed to the appropriate authority.		

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Name of the Faculty Member: PIA DAVID
Department: POLITICAL SCIENCE. YEAR 2018-19

Month	practical	topics	course	paper code
january	WRITING RESEARCH PAPERS ON INSTITUTIONS LIKE PARLIAMENT, BOTH HOUSES, AND PANCHAYATS	Powers and functions of people's representatives at different tiers of governance Members of Parliament, State Legislative Assemblies, functionaries of rural and urban local self-government from Zila Parishads/Municipal Corporation to Panchayat/Ward. (Weeks 1-3)	BA P 3RD SEMESTER	Legislative Support
february	WRITING RESEARCH PAPERS ON INSTITUTIONS LIKE PARLIAMENT, BOTH HOUSES, AND PANCHAYATS	Supporting the legislative process: How a Bill becomes a Law, Role of the Standing Committee in reviewing a Bill, Legislative Consultations, amendments to a Bill, the framing of Rules and Regulations. (Week 4) Supporting the legislative committees Types of committees, Role of committees in reviewing government finances, policy, programmes, and legislation. (Weeks 5-7)		
march	WRITING RESEARCH PAPERS ON INSTITUTIONS LIKE PARLIAMENT, BOTH HOUSES, AND PANCHAYATS	Reading the budget document: 18 Overview of Budget Process, Role of Parliament in reviewing the Union Budget, Railway Budget, Examination of Demands for Grants of Ministries, Working of Ministries. (Weeks 8-10)		
april	WRITING RESEARCH PAPERS ON INSTITUTIONS LIKE PARLIAMENT, BOTH HOUSES, AND PANCHAYATS	Support in media monitoring and communication: Types of media and their significance for legislators. Basics of communication in print and electronic media..(Weeks 11-12)		

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History Department

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Name: Sangeeta Luthra Sharma
Department: History. Year: 2018-19

Month	Theory/ Tutorials	Topics	Course	Paper Name
Jul-August		Confucian Value system China and the Great Divergence Debate	HISTORY OF MODERN CHINA (1840-1960)	DSE XI Revised CBCS
September		Opium Wars and the Unequal Treaty System Taiping and Boxer Movements – Causes, Ideology, Nature. Discussion on debates on GD and opium wars; Comparison between Taiping and Boxer Movements		
October		Self-Strengthening Movement; Hundred Days Reforms of 1898 The Revolution of 1911: Context, Nature and Role of Social Classes Sun Yat-sen (Sun Zhong Shan)- Ideology and Three Peoples Principles Warlordism. Discussions on failures of 19th reform efforts. Transition of China from period of Imperialist control to phase of Nationalism		
November		Origins and Significance; May Fourth Movement of 1919 1921-1927: Formation of the CCP and early activities; Reorganization of the KMT (Nationalist Party); The First United Front 1928-1949: Kiangsi (Jiangxi) Period; Evolution of Maoist Strategy and Revolutionary Measures; the Yenan Phase; Peasant Nationalism and Communist Victory Establishment of the New Order and Mao's Strategy of Development Great Leap Forward: Debates.; Details of Relation between May Fourth movement and the emergence of political parties, details of 1920s political developments Emergence of Mao- different phases of peasant nationalism Topic of the Great Leap Forward was covered in tutorial classes		

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Name: Sangeeta Luthra Sharma
Department: History. Year: 2018-19

Month	Theory/ Tutorials	Topics	Course	Paper code/Name
January		Crisis of Tokugawa *Bakuhan* system The Meiji Restoration; limits to modernization Economic change: Agrarian Settlement; fiscal policies; Capitalism and Industrialisation Popular/People's Rights Movement; gender Meiji Constitution; political parties Discussions revolving around early history of Japan Discussions on varied interpretations on 'democracy' and constitution- ambiguities	HISTORY OF MODERN JAPAN (1868-1950S)	DSE XII
February		History of Korea- The Old Order and Institutional decay: Joseon Korea's relations with China, Japan and western powers Attempts at social, political and economic reform Japan- Militarism and fascism - Nature and significance. Discussion on early history of Korea-comparison with Japan, and how 19th century developments in Japan impacted 20th century politics		
March		Japanese Imperialism 1868-1945; ideology; expansion and conflict American occupation of Japan and post-War reconstruction; Changing nature of Japanese politics- impact on Japan's international positioning		
April		Japan's colonisation of Korea and growth of Korean Nationalism (1910-45) 1910-1919: Consolidation of Japanese power 1919-1931: March First Movement (1919); Saito Reforms of 1920s 1931-1945: War mobilisation; Japanese policy of assimilation; Korean response The Korean War; Impact of Japanese imperialism on Korea and Korea's response – analysis of Korean nationalism		

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Name of the Faculty Member: Dr. Amrita Tulika
Department: History
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
July	Theory	Colonialism and forms of labour Laying the foundation of independent India- constitution, linguistic re- organization	History Hons. Semester V GE for Hons Courses	12317501/ DSE I- History of the USA: Independence to Civil War 12315355/ The Making of Contemporary India (1950- 1990s)
August	Theory	Forms of labour; American Revolution; Federalist constitution; Westward Expansion Foreign policy; Five Year Plans; Education, science and technology	Same as above Same as above	Same as above Same as above
September	Theory	Marginalization of indigenous tribes; Turner's thesis; Early capitalism; Slavery Uneven economic development- Punjab and Bihar; Political formations- Congress and Left parties; Caste politics; Dravidian movement; Women and Politics	Same as above Same as above	Same as above Same as above
October	Theory	US quest for dominance- war and diplomacy; The Civil War- politics, issues, historiography J.P. Movement and Emergency; Coalition politics; Mandal Commission; Neo- liberalism; Print and Visual Media	Same as above Same as above	Same as above Same as above

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Name of the Faculty Member: Dr. Amrita Tulika
Department: History
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	Theory	India in the mid- 18th century- issues and debates; Colonial expansion- regional kingdoms; economy, culture and society Reconstruction: agrarian transformation; share-cropping; new social groups; The Gilded Age	B.A. Hons. Semester IV B.A. Hons. Semester VI	12311407/ History of India VI (c.1750- 1857)- Core Course 12317608/ DSE V- History of USA: Reconstruction to New Age Politics
February	Theory	Imperial ideologies; colonial army; Law and Education; Land revenue systems; commercialization; forests and pastoral economy Agrarian crisis; Populism; Progressivism; New Deal; Stereotypes of women	Same as above Same as above	Same as above Same as above
March	Theory	De- industrialization; Socio- religious reform movements Women and politics; Class and gender; Women's Liberation; African- American Movements	Same as above Same as above	Same as above Same as above
April	Theory	Debates around gender and caste; Popular resistance Imperialism	Same as above Same as above	Same as above Same as above

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Name of the Faculty Member: Dr. Sabina Kazmi
Department: History
2018-19

Month	Theory/ Practical/ Tutorials	Course	Paper Name	Paper Code	Topics
July – November 2018	Theory	B.A. Prog. IInd Year (Semester III)	History of India 1200 - 1700		• Delhi sultanate origin, nature, decline • Vijayanagar and Gujrat regional polities • Mughal state established, expansion, institution, • Maratha and Sikhs polities Art and Architecture
	Theory	B.A. Prog. IIIrd Year (Semester V)	Cultural Transformations in Early Modern Europe (1500 – 1800)		Key concepts and historical background - an overview of ancient and medieval legacy • Renaissance - role of city states humanism, art • Reformation - causes and consequences • Voyages of Discovery and colonial expansion- impact
	Theory	B.A. Hons. History (Semester III)	Archives & Museum		• History of Development • Types of Archives • Different traditions of preservations and documentations • There will be a visit to National Archives of India

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Name of the Faculty Member: Dr. Sabina Kazmi
Department: History
2018-19

Month	Theory/ Practical/ Tutorials	Course	Paper Name	Paper Code	Topics
January – April -2019	Theory	B.A. Prog. – IIIrd Year (Semester V)	Cultural Transformations in Early Medieval Europe-II(1500-1800)	62317618	• Scientific Revolution and Enlightenment • Literacy and Artistic developments • Women and Public sphere • Popular culture – magic, mentalities and family
	Theory	GE-III	Issues in Contemporary World (1945 - 2000	12351210	• We will begin with an analysis of two key concepts - Globalisation and Development • Post-World War II developments – UNO, De-colonisation and Cold War • Social movements - Race, Class and Gender • Commodity economy, Consumer culture and Media age

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Economics Department

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Name of the Faculty Member: Poonam Kalra
Department: Economics. Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
July	Theory(5 per week)	Introduction and overview, The distinction between populations and samples and between population parameters and sample statistics , Elementary probability theory Sample spaces and events; probability axioms and properties; counting techniques; conditional probability and Bayes' rule; independence	B.A.(Hons.) Economics	HC33(Statistical Methods for Economics)
	Tutorial(1 per week)	Discussed questions from Devore chapters 1 and 2		
August	Theory(5 per week)	Random variables and probability distributions Defining random variables; probability distributions; expected values and functions of random variables; properties of commonly used discrete and continuous distributions (uniform, binomial, exponential, Poisson, hypergeometric and Normal random variables	B.A.(Hons.) Economics	HC33(Statistical Methods for Economics)
	Tutorial(1 per week)	Discussed questions from chapters 3 & 4 of Devore		
September	Theory(5 per week)	Random sampling and jointly distributed random variables Density and distribution functions for jointly distributed random variables; computing expected values of jointly distributed random variables; covariance and correlation coefficients	B.A.(Hons.) Economics	HC33(Statistical Methods for Economics)
	Tutorial(1 per week)	Discussed questions from chapter 5 of Devore		
October and November	Theory(5 per week)	Point and interval estimation, estimation of population parameters using methods of moments and maximum likelihood procedures; properties of estimators; confidence intervals for population parameters	B.A.(Hons.) Economics	HC33(Statistical Methods for Economics)
	Tutorial(1 per week)	Discussed questions from chapters 6 & 7 of Devore		

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Name of the Faculty Member: Poonam Kalra
Department: Economics. Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	Theory(5 per week)	Simple linear regression model	B.A.(Hons.) Economics)	HC43(Introductory Econometrics)
	Tutorial(1 per week)	Discussed questions of chapter 2 and 3 (Gujarati) Chapter 2 (Dougherty)		
February	Theory(5 per week)	Multiple Linear regression model	B.A.(Hons.) Economics)	HC43(Introductory Econometrics)
	Tutorial(1 per week)	Discussed questions of chapter 4 and 5(Gujarati) Chapter 3 (Dougherty)		
March	Theory(5 per week)	Violations of classical assumptions	B.A.(Hons.) Economics)	HC43(Introductory Econometrics)
	Tutorial(1 per week)	Discussed questions of chapter 8,9 and 10 (Gujarati) Chapter 7,10(Dougherty)		
April	Theory(5 per week)	Specification Errors	B.A.(Hons.) Economics)	HC43(Introductory Econometrics)
	Tutorial(1 per week)	Discussed questions of chapter 7 (Gujarati) Chapter 26(Dougherty)		

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Name: Leema Mohan Paliwal
Department: Economics
Year: 2018-19

Month	Theory/Tutorials	Topics	Course	Paper Name/ Code
July	Theory, Tutorials	Ten Principles of Economics	BA Hons.	Introductory Microeconomics
	Theory	Consumer Theory Introduction to Indifference curves and budget constraint	BA Hons	Intermediate Microeconomics I
August	Theory, Tutorials	Demand and Supply Model, elasticity of demand and supply	BA Hons.	Introductory Microeconomics
	Theory	Consumer Theory: Utility optimization, demand curves	BA Hons	Intermediate Microeconomics I
September	Theory, Tutorials	Taxation, Welfare , Dead Weight loss in supply demand model	BA Hons.	Introductory Microeconomics
	Theory	Substitution and income effect, Slutsky equation, Theory of Revealed preference	BA Hons	Intermediate Microeconomics I
October	Theory, Tutorials	Consumer Theory	BA Hons.	Introductory Microeconomics
	Theory	Production Theory and Cost function	BA Hons	Intermediate Microeconomics I
November	Theory, Tutorials	Production and Costs, Perfect Competition, Monopoly and Factor Markets	BA Hons.	Introductory Microeconomics
	Theory	Perfect Competition profit maximization, Profit Function	BA Hons	Intermediate Microeconomics I

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Name: Leema Mohan Paliwal
Department: Economics
Year: 2018-19

Month	Theory/Tutorials	Topics	Course	Paper Name/ Code
January	Theory, Tutorials	Overview of Fiscal functions, Tools of Normative Analysis, Pareto Efficiency, Equity and the Social Welfare	General Elective II	Public Finance
	Theory, Tutorials	General Equilibrium and Welfare	B A Hons Economics	Intermediate Microeconomics II
February	Theory, Tutorials	Market Failure, Public Goods and Externalities. Elementary Theories of Product and Factor Taxation (Excess Burden and Incidence)	General Elective II	Public Finance
	Theory, Tutorials	Game Theory	B A Hons Economics	Intermediate Microeconomics II
March	Theory, Tutorials	Working of Monetary and Fiscal Policies, Current Issues of India's Fiscal and Monetary Policies, Goods and Services Tax,	General Elective II	Public Finance
	Theory, Tutorials	Imperfect Competition	B A Hons Economics	Intermediate Microeconomics II
April	Theory, Tutorials	Analysis of Budget and Deficits, Fiscal federalism In India , State and Local Finances	General Elective II	Public Finance
	Theory, Tutorials	Asymmetric Information, Externalities, Public Goods	B A Hons Economics	Intermediate Microeconomics II

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Name of the Faculty Member: Manjula Singh
Department: Economics
Year: 2018-2019

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
July	Theory & Tutorials	Conceptions of Development	BA (H) Economics	12271502 Development Economics - I
August	Theory & Tutorials	Growth Models and Empirics	BA (H) Economics	12271502 Development Economics - I
September	Theory & Tutorials	Poverty and Inequality Definitions, Measures and Mechanisms	BA (H) Economics	12271502 Development Economics - I
October	Theory & Tutorials	Political Institutions and the Functioning of the State	BA (H) Economics	12271502 Development Economics - I

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Name of the Faculty Member: Manjula Singh
Department: Economics
Year: 2018-2019

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	Theory & Tutorials	. Introduction to Macroeconomics and National Income Accounting Basic issues studied in macroeconomics; measurements of gross domestic product, income, expenditure and the circular flow; real versus nominal GDP; price indices; national income accounting for open economy, balance of payments accounts, current and capital accounts.	BA (H) Generic Elective (for non-Economics students)	12275201 Introductory Macroeconomics GE I
February	Theory & Tutorials	Money Functions of money; quantity theory of money; determination of money supply and demand; credit creation; tools of monetary policy.	BA (H) Generic Elective (Economics)	12275201 Introductory Macroeconomics GE I
March	Theory & Tutorials	Inflation Inflation and its costs; hyperinflation.	BA (H) Generic Elective (Economics)	12275201 Introductory Macroeconomics GE I
April	Theory & Tutorials	The Closed Economy in the Short Run Classical and Keynesian systems; simple Keynesian model of income determination; IS-LM model; fiscal and monetary multipliers.	BA (H) Generic Elective (Economics)	12275201 Introductory Macroeconomics GE I

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Name: Saumaly Ghosh
Department: Economics
Academic year: 2018-2019

Month	Theory/Tutorials	Topics	Course	Paper code/ Name
July	Theory+Tutorials	Absolute and Comparative Advantage theories	BA (H) economics semester V	International Economics
	Theory+Tutorials	Growth and development	BA Prog. Semester V	Economic Development and Policy in India-I
August	Theory+Tutorials	Hecksher Ohlin Model; Ricardian model	BA (H) economics semester V	International Economics
	Theory+Tutorials	Readings on growth and development	BA Prog. Semester V	Economic Development and Policy in India-I
September	Theory+Tutorials	Tariffs and trade policy	BA (H) economics semester V	International Economics
	Theory+Tutorials	Readings on education	BA Prog. Semester V	Economic Development and Policy in India-I
October	Theory+Tutorials	Regulation and trade policy	BA (H) economics semester V	International Economics
	Theory+Tutorials	Readings on health	BA Prog. Semester V	Economic Development and Policy in India-I

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Name: Saumaly Ghosh
Department: Economics
Academic year: 2018-2019

Month	Theory/Tutorials	Topics	Course	Paper code/ Name
January	Theory+Tutorials	Introduction to environmental economics; Sustainable development; Welfare theorems	BA(H) economics VIth semester	Environmental Economics
	Theory+Tutorials	Introduction to the budget	BA(H) economics IVth semester	Contemporary economic issues
February	Theory+Tutorials	Coase theorem and property rights	BA(H) economics VIth semester	Environmental Economics
	Theory+Tutorials	Readings on the Finance commission; project topic selection and discussion	BA(H) economics IVth semester	Contemporary economic issues
March	Theory+Tutorials	Regulation ; prescriptive regulations and economic incentives	BA(H) economics VIth semester	Environmental Economics
	Theory+Tutorials	Chapters from Economic Survey	BA(H) economics IVth semester	Contemporary economic issues
April	Theory+Tutorials	Environmental pricing	BA(H) economics VIth semester	Environmental Economics
	Theory+Tutorials	Chapters from Economic Survey	BA(H) economics IVth semester	Contemporary economic issues

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Name: Divya Singh
Department: Economics
Year: 2018-2019

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	Theory	1. Demography and Development 2. Arthur Louis model of Economic Development 3. Harris-Todaro model of Migration	B.A. (Honours) Economics III Year (Core)	Development Economics II
January	Tutorials	1. Solving analytical and numerical problems from the topics and texts covered in lectures	Same as Above	Same as Above
February	Theory	1. Factor Markets: Land, Labour and Credit		
February	Tutorials	1. Solving analytical and numerical problems from the topics and texts covered in lectures		
March		1. Factor Markets: Land, Labour and Credit (continued) 2. Globalisation and Development		
March	Tutorials	1. Solving analytical and numerical problems from the topics and texts covered in lectures		
April	Theory	1. Introduction to Environmental Economics 2. Environmental Regulation 3. Governance of Common Property Resource		
April	Tutorials	1. Solving analytical and numerical problems from the topics and texts covered in lectures		

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English Department

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Name of the Faculty Member: Dr. Karen Gabriel
Department: English
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
July	Theory+ Tutorials	Introduction to American Literature; literature written by writers of European and African descent; Transcendentalism, pre- and post-civil war America, Slavery and the Civil Rights Movement.	BA (Hons) English, II Year (Core)	American Literature (12031301)
August	Theory+ Tutorials	Introduction to Toni Morrison; Introduction to African American Literature and its varied concerns. Introduction to Black Women's Writings. Start with Morrison's novel 'Beloved'.	BA (Hons) English, II Year (Core)	American Literature (12031301)
September	Theory+ Tutorials	Social Realism and the American Novel. Finish Morrison's 'Beloved'. Reflections on the idea of the 'American Dream'. Start with short stories: Edgar Allen Poe's 'The Purloined Letter'.	BA (Hons) English, II Year (Core)	American Literature (12031301)
October-November	Theory+ Tutorials	Continuation with short stories. Introduction to the authors and their literary concerns: F. Scott Fitzgerald's 'The Crack Up' and William Faulkner's 'Dry September'. Folklore and American literature.	BA (Hons) English, II Year (Core)	American Literature (12031301)

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Name of the Faculty Member: Dr. Karen Gabriel
Department: English
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	Theory+ Tutorials	James Monaco's 'The Language of Film: Signs and Syntax'; different ways to read and interpret film; montage, mise-en-scene etc, and related theories.	BA (Hons) English, III Year (DSE)	Literature and Cinema (12037614)
February	Theory+ Tutorials	Introduction to William Shakespeare and Elizabethan England; Reading of the play 'Romeo and Juliet'.	BA (Hons) English, III Year (DSE)	Literature and Cinema (12037614)
March	Theory+ Tutorials	Screening of the cinematic adaptations of 'Romeo and Juliet' and analysis of these films: Romeo and Juliet (1968, dir. by Franco Zeffirelli) and Romeo + Juliet (1996, dir. By Baz Luhrmann)	BA (Hons) English, III Year (DSE)	Literature and Cinema (12037614)
April	Theory+ Tutorials	Theories of adaptation: Linda Hutcheon's 'On the art of adaptation', and Thomas Leitch's 'Adaptation Studies at Crossroads'	BA (Hons) English, III Year (DSE)	Literature and Cinema (12037614)

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Name: Dr. Smita Gandotra
Department: English
Year: 2018-19

Month	Theory and Tutorials	Topics	Course and Paper Title	Paper code
July	Subhash and Durgabai Vyam's Bhimayana Rabindranath Tagore's Gitanjali; Premchand's story "Kafan" and Ismat Chughta'sstory "Lihaf"	(a) Graphic books, history and context (b) Tagore and the Nobel, Premchand and the question of caste, same sex love in Indian writing	English Honours; Popular Literature English Honours; Modern Indian Writings in English Translation	Popular Literature, 12031302 Modern Indian Writings in English Translation, 12037501
August	Subhash and Durgabai Vyam's Bhimayana Saadat hasan Manto's Toba Tek Singh and Fakir Mohan Senapati's Rebati	(a) A comparison between Amar Chitra Katha and Vavayana graphic books (b) Partition literature and the theme of gender, education and disease in early Indian literature	English Honours; Popular Literature English Honours, Modern Indian Writings in English Translation	Popular Literature, 12031302 Modern Indian Writings in English Translation, 12037501
September	Shyam Selvadurai's Funny Boy Dharamvir Bharati's Andha Yug	(a) Conflict literature and the Sri Lankan civil war in literature (b) Indian drama, history and context	English Honours; Popular Literature English Honours, Modern Indian Writings in English Translation	Popular Literature, 12031302 Modern Indian Writings in English Translation, 12037501
October	Shyam Selvadurai's Funny Boy Dharamvir Bharati's Andha Yug and Muktibodh's poetry	(a) Role playing, gender and violence in Funny Boy (b) Experiments in modern Hindi poetry	English Honours; Popular Literature English Honours, Modern Indian Writings in English Translation	(a)Popular Literature, 12031302 (b) Modern Indian Writings in English Translation, 12037501

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Name: Dr. Smita Gandotra
Department: English
Years: 2018-19

Month	Theory/ Tutorials	Topics	Course and Paper Title	Paper code/ Name
January	(a) Anita Desai's In Custody (b) Chinua Achebe's Things Fall Apart	(a) Indian writing in English, history, reception and significant periods (b) The postcolonial novel	(c) English Honours, Indian Writings in English (d) English Honours, Postcolonial Literatures	(a) Indian Writings in English; 12031201 (b) Postcolonial Literatures; 12031602
February	(a) Anita Desai's In Custody (b) Chinua Achebe's Things Fall Apart	(a) Deven and Nur, In Custody, the Hindi-Urdu debate (b) Okonkwo, Nwoye, the structures of Igbo society	(c) English Honours, Indian Writings in English (d) English Honours, Postcolonial Literatures	(a) Indian Writings in English; 12031201 (b) Postcolonial Literatures; 12031602
March	(a) Anita Desai's In Custody and Kamala Das's poetry (b) Pablo Neruda, Derek Walcott's and Mamang Dai's poetry	(a) The women of In Custody and gender in Indian poetry (b) Postcolonial poetry, resistance, and alternative locations	(c) English Honours, Indian Writings in English (d) English Honours, Postcolonial Literatures	(a) Indian Writings in English; 12031201 (b) Postcolonial Literatures; 12031602
April	(a) Nissim Ezekiel, Robin Ngangom and Meena Kandasamy's poetry (b) The short stories of Bessie Head, Ama Ata Aidoo and M. M. Vinodini	(a) The Indian poets of the 1960s in Mumbai, the Shillong school of poetry and gender and caste in Indian poetry (b) Gender and the postcolonial story	(c) English Honours, Indian Writings in English (d) English Honours, Postcolonial Literatures	(a) Indian Writings in English; 12031201 (b) Postcolonial Literatures; 12031602

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Name of the Faculty Member: Themeem T
Department: English
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
July	Theory	1) Introduction to the Course. 2) Poetry Passage to India by Walt Whitman, 'O Captain! My Captain', by Walt Whitman	B A Hons II Year	American Literature
August	Theory and Tutorial	"The Prologue" by Anne Bradstreet	B A Hons II Year	American Literature
September	Theory	"Crow Testament" and "Evolution" by Sherman Alexie	B A Hons II Year	American Literature
October	Theory	Tennessee Williams The *Glass Menagerie*	B A Hons II Year	American Literature

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Name of the Faculty Member: Themeem T.
Department: English
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	Theory	Introduction. Manto, 'Toba Tek Singh '	III BA Hons	Partition Literature
February	Theory	"A Leaf in A storm" by Lalithambika Andarjanam	III BA Hons	Partition Literature
March	Theory	"Alam's Own House" by Dibyendu Palit	III BA Hons	Partition Literature
April	Theory	*Basti* by Intizar Hussain	III BA Hons	Partition Literature

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Name of the Faculty Member: **Ann Susan Aleyas**
Department: **English**
Year: **2018-2019**

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
July	Theory	Introduction to the terms 'Indian', 'Classical' and 'Literature' Introduction (cont..) through discussion of the following allotted readings. Introduction to terms such as "Dharma", "Purusarthas", "Shruti", "Smriti", "Itihasa" etc. Introduction to Ramayana and *Mahabharata* focusing on its generic classification as 'epics' and as "mahakavyas"/"panchamveda" etc. This session will also involve readings from selections in *Adi Parva/ Book of the Beginnings*	B.A.English (Hons) – I (Semester I)	Indian Classical Literature
August	Theory	Introduction to "Dicing" and the" Sequel to Dicing" from the *Mahabharata* Close reading and Discussions of the "Dicing" Close reading and Discussions of the " Sequel to Dicing"	B.A.English (Hons) – I (Semester I)	Indian Classical Literature
September	Theory	Student Presentations and Discussions on *Natyashastra.* Introduction to Rasa Theory Introduction to *Mrcchakatika* by Shudraka Close reading and discussion of the various themes in *Mrcchakatika.*	B.A.English (Hons) – I (Semester I)	Indian Classical Literature
October	Theory	Revision of sections from *Mahabharata* and *Mrcchakatika.* Discussion of secondary readings.	B.A.English (Hons) – I (Semester I)	Indian Classical Literature

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Name of the Faculty Member: **Ann Susan Aleyas**
Department: **English**
Year: **2018-19**

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	Theory	Introduction to Women's Writing. Introduction to French and American Feminist Theory Feminism in India Introduction to Colour Purple	B.A.English (Hons) – III (Semester V)	Women's Writing
February	Theory	Close reading and analysis of Alice Walker's *Colour Purple* Thematic Discussion of Alice Walker's *Colour Purple* Introduction to Womanism Discussion on readings by bell hooks, Patricia Hill Collins and additional short stories of Alice Walker	B.A.English (Hons) – III (Semester V)	Women's Writing
March	Theory	Close reading, discussion and thematic analysis of Charlotte Perkin Gilman's "Yellow Wallpaper". Close reading, discussion and thematic analysis of Katherine Mansfield's "The Yellow Wallpaper". Student Presentations of various themes of "The Yellow Wallpaper" Close reading and discussion of Katherine Mansfield's "Bliss"	B.A.English (Hons) – III (Semester V)	Women's Writing
April	Theory	Close reading, analysis and discussion of Mahasweta Devi's "Draupadi" Student presentations on Mahasweta Devi's *Breast S*tories and secondary readings Revision of all the texts in the syllabus	B.A.English (Hons) – III (Semester V)	Women's Writing

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Philosophy Department

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Name of the Faculty Member: **Dr Silika Mohapatra**
Department: **Philosophy**
Year: **2018-19**

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
July		Basic Logical Concepts	BAH Philo I Sem	Logic
		Descartes/Spinoza	BAH Philo III Sem	History of Western Philosophy
		Descartes	BAH Philo V Sem	Philosophy of Mind
August		Language/Logic	BAH Philo I Sem	Logic
		Leibniz/Locke	BAH Philo III Sem	History of Western Philosophy
		Gilbert Ryle	BAH Philo V Sem	Philosophy of Mind
September		Aristotelian Logic	BAH Philo I Sem	Logic
		Berkeley/Hume	BAH Philo III Sem	History of Western Philosophy
		J.J.C. Smart	BAH Philo V Sem	Philosophy of Mind
October		Informal Fallacies	BAH Philo I Sem	Logic
		Kant	BAH Philo III Sem	History of Western Philosophy
		Hilary Putnam/Frank Jackson	BAH Philo V Sem	Philosophy of Mind

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Name of the Faculty Member: **Dr Silika Mohapatra**
Department: **Philosophy**
Year: **2018-19**

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January		Art and Experience Ananda K. Swamy Descartes/Spinoza	BAH Philo Sem IV BAH Philo Sem VI BAP IV Sem	Art and Film Appreciation Aesthetics Western Philosophy
February		Film as Art Form Kapila Vatsyayana Leibniz/Locke	BAH Philo Sem IV BAH Philo Sem VI BAP IV Sem	Art and Film Appreciation Aesthetics Western Philosophy
March		Art, Social Values, Morality Rekha Jhanji Berkeley/Hume	BAH Philo Sem IV BAH Philo Sem VI BAP IV Sem	Art and Film Appreciation Aesthetics Western Philosophy
April		Art and Communication through Films M. Hiriyana Kant	BAH Philo Sem IV BAH Philo Sem VI BAP IV Sem	Art and Film Appreciation Aesthetics Western Philosophy

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Name of the Faculty Member: Alphy Geever
Department: Philosophy. Year: 2018-2019

Month	Theory/ Tutorials	Topics	Course	Paper code/ Name
July		PATRIARCHY AND FEMINIST MOVEMENT: The Creation of Patriarchy: Introduction and Ch-11 (Gerda Lerner)	Generic Elective (II Year)	12105303 Feminism
August		PATRIARCHY AND FEMINIST MOVEMENT: The Risk of Essence (Diana Fuss) [Gendering of Early Indian Philosophy (Natarajan)] [Meditations I (Descartes)] Feminism: A Movement to End Sexist Oppression (Bell Hooks) [Introduction to Marxism] [We Should All Be Feminists (Chimamanda Adiche)] EPISTEMOLOGY: Is there a Feminist Method? (Sandra Harding) [Introduction to Empiricism and Rationalism] The Feminist Critique of Philosophy (Moira Gatens) [Introduction to Social Contract Theory] [Introduction to Rousseau's *Emile or The Treatise on Education*]		
September		BODY AND GENDER: "Life" as we have known it: Feminism and Biology of Gender (Birke) [Nature's Body (Londa Schiebinger] The Self is not Gendered: Sulabha's Debate with Kind Janaka (Ruth Vanita); [Katha Upanisad] [Kena Upanisad] [Readings from the Rig Veda: Nasadiya Sukta, Purusha Sukta] [Readings from Manu Smrti (Doniger)]		
October		WOMEN AND SOCIETY: Whatever Happened to The Vedic Desi (Chakravarti); Women Religion and Social Change in Early Islam (Smith); [Islam The Basics (Turner) The Gender and the Environmental Debate Lessons from India (Aggarwal); [Ecofeminism (Shiva)]		

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Name of the Faculty Member: Alphy Geever
Department: Philosophy. Year: 2018-2019

Month	Theory/ Tutorials	Topics	Course	Paper Code/ Name
January		Unit I: A General Survey of Pre-Socratic Philosophy (Cosmology) Metaphysics Book I (Aristotle)	BA (Hons) (II Year)	12101201 Greek Philosophy
February		Unit I: A General Survey of Pre-Socratic Philosophy (Cosmology) Heraclitus: Doctrine of Flux and Logos (Tankha) [Introduction to Buddhism (Hiriyana)] [Madhyamakarika (Nagarjuna)] Parmenides: Nature of Being (Tankha) [The Legacy of Parmeindes: Eleatic Monism and Later Presocratic Thought (Patricia Curd)] Unit II: Epistemology Sophists and Socrates (Tankha) Man is the Measure of All Things- Protagoras (Tankha) Virtue is Knowledge- Socrates (Tankha)		
March		Unit III: Socio-Political Thought Justice in the State and the Individual in The Republic (Plato) *Tutorial Readings* [Justice and Psychic Harmony (Vlastos)] [Analogy of Letters, Myth of the Metals] [Analogy of Sun, Line and Cave] [Introduction to Theory of Forms]		
April		Unit IV: Aristotelian Thought Nature and Change in Physics Book I and II (Aristotle)		

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Sanskrit Department

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Name: A.D. Mathur
Department: Sanskrit
Year: 2018-19

Month	Theory/Tutorials	Topics	Course	Paper code/ Name
July	Theory and Tutorials	Nitishatakam	BA (H) I BA (H) II BA (H) III BA (H) III	C -1 Sanskrit Poetry C -7 Indian Social Institutions and Polity C -11 Vedic Literature DSE – 1 Indian System of Logic and Debate
August	Theory and Tutorials	Nitishatakam	BA (H) I BA (H) II BA (H) III BA (H) III	C -1 Sanskrit Poetry C -7 Indian Social Institutions and Polity C -11 Vedic Literature DSE – 1 Indian System of Logic and Debate
September	Theory and Tutorials	Nitishatakam	BA (H) I BA (H) II BA (H) III BA (H) III	C -1 Sanskrit Poetry C -7 Indian Social Institutions and Polity C -11 Vedic Literature DSE – 1 Indian System of Logic and Debate
October	Theory and Tutorials	Nitishatakam	BA (H) I BA (H) II BA (H) III BA (H) III	C -1 Sanskrit Poetry C -7 Indian Social Institutions and Polity C -11 Vedic Literature DSE – 1 Indian System of Logic and Debate

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Name: A.D. Mathur
Department: Sanskrit
Year: 2018-19

Month	Theory/Tutorials	Topics	Course	Paper code/ Name
January	Theory and Tutorials	Gītā: Cognitive and emotive apparatus Unit: I Hierarchy of *indriya, manas, buddhi* and *ātman* Role of the ātman Mind as a product of prakṛti Properties of three guṇas and their impact on the mind	BA Hons. I BA Hons. II BA (H) III	C-4 Self Management in the Gita C – 10 Sanskrit and World Literature C -13 Indian Ontology and Epistemology
February	Theory and Tutorials	Gītā: Controlling the mind Confusion and conflict in mind Nature of conflict Causal factors – Ignorance; Rajoguṇa Means of controlling the mind Meditation–difficulties in procedure Balanced life, Diet control, Physical, mental discipline.	BA Hons. I BA Hons. II BA (H) III	C-4 Self Management in the Gita C – 10 Sanskrit and World Literature C -13 Indian Ontology and Epistemology
March	Theory and Tutorials	Means of conflict resolution in Gītā Importance of knowledge Clarity of **buddhi.** Process of decision making Control over senses Surrender of **kartṛbhāva;** Desirelessness Putting others before self	BA Hons. I BA Hons. II BA (H) III	C-4 Self Management in the Gita C – 10 Sanskrit and World Literature C -13 Indian Ontology and Epistemology
April	Theory and Tutorials	Gītā: Self-management through devotion Surrender of ego Abandoning frivolous debates Acquisition of moral qualities	BA Hons. I BA Hons. II BA (H) III	C-4 Self Management in the Gita C – 10 Sanskrit and World Literature C -13 Indian Ontology and Epistemology

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Name of the Faculty Member: **Abhay Singh**
Department: **Sanskrit**
Year: **2018-19**

Month	Theory/ Tutorials	Topics	Course	Paper code/ Name
July	Theory	Vedic Literature Teaching various aspects of Saṁhitā (Ṛk, Yajuḥ, Sāma, Atharva) time, subject–matter, religion & Philosophy, social life. Brāhmaṇa, Āraṇyaka, Upaniṣad, Vedāṅga (Brief Introduction)	B.A. (hons) Sanskrit	C-2 Critical Survey of Sanskrit Literature
August	Theory	Rāmāyaṇa- Rāmāyaṇa-time, subject–matter. Rāmāyaṇa as a Source Text and its Cultural Importance Rāmāyaṇa as an Ādikāvya. Mahābhārata- Mahābhārata and its Time, Development, and subject matter Encyclopaedic nature, as a Source Text, Cultural Importance. Purāṇas : Subject matter, Characteristics Social, Cultural and Historical Importance.	B.A. (hons) Sanskrit	C-2 Critical Survey of Sanskrit Literature
September	Theory	General Introduction to Vyākaraṇa, Darśana and Sāhityaśāstra Brief History of Vyākaraṇaśāstra Major schools of Indian Philosophy Cārvāka, Bauddha, Jaina, Sāṅkhya-yoga.	B.A. (hons) Sanskrit	C-2 Critical Survey of Sanskrit Literature
October	Theory	Six major Schools of Indian Poetics-Rasa, Alaṁkāra, Rīti, Dhvani,Vakrokti and Aucitya.	B.A. (hons) Sanskrit	C-2 Critical Survey of Sanskrit Literature

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Name of the Faculty Member: **Abhay Singh**
Department: **Sanskrit**
Year: **2018-19**

Month	Theory/Tutorials	Topics	Course	Paper code/ Name
January	Theory	**Gītā**: Cognitive and emotive apparatus Unit: I Hierarchy of *indriya, manas, buddhi* and *ātman* Role of the **ā**tman Mind as a product of prak**ṛ**ti Properties of three gu**ṇ**as and their impact on the mind.	B.A. (hons) Sanskrit	C-4 Self Management in the **Gītā**
February	Theory	**Gītā**: Controlling the mind Confusion and conflict in mind Nature of conflict Causal factors – Ignorance Rajogu**ṇ**a Means of controlling the mind Meditation–difficulties procedure Balanced life, Diet control, Physical and mental discipline.	B.A. (hons) Sanskrit	C-4 Self Management in the **Gītā**
March	Theory	Means of conflict resolution in **Gītā** Importance of knowledge Clarity of **buddhi.** Process of decision making Control over senses Surrender of **kart**ṛ**bhāva;** Desirelessness Putting others before self	B.A. (hons) Sanskrit	C-4 Self Management in the **Gītā**
April	Theory	**Gītā**: Self management through devotion Surrender of ego Abandoning frivolous debates Acquisition of moral qualities	B.A. (hons) Sanskrit	C-4 Self Management in the **Gītā**

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Urdu Department

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Name of the Faculty Member: **Dr. Shamim Ahmed**
Department: **Urdu & Persian**
Year: **2018-19**

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
July	Theory and Practical	Tarjume ka fan	B A Programme II year	SEC Translation and its process 62143323
August	Theory and Practical	Tarjume ke Imkanat	B A Programme II year	SEC Translation and its process 62143323
September	Theory and Practical	Tarjume ki Iqsam	B A Programme II year	SEC Translation and its process 62143323
October	Theory and Practical	Tarjume ka Amal	B A Programme II year	SEC Translation and its process 62143323
November	Theory and Practical	Urdu mein Tarjume Ki Riwayat	B A Programme II year	SEC Translation and its process 62143323

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Name of the Faculty Member: **Dr. Shamim Ahmed**
Department: **Urdu & Persian**
Year: **2018-19**

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	Theory	Novel ka Fun Sita Haran by Qurrat First 50 pages	B A Programme II year	Core MIL Urdu A 62141902
February	Theory	Sita Haran by Qurrat Last 70 pages	B A Programme II year	Core MIL Urdu A 62141902
March	Theory	Kafan By Prem Chand Mahalaxmi ka pul by krishan chander Akhri koshish by Hayatulla	B A Programme II year	Core MIL Urdu A 62141902
April	Theory	Peetal ka ghanta by Qazi Abdulsattar Ababeel by Abbas	B A Programme II year	Core MIL Urdu A 62141902

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Chemistry Department

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Name of the Faculty Member: Shabnam Johry
Department: Chemistry
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
July	**Theory and Practicals**	Amino acids, Peptides and their classification. α-Amino Acids – Synthesis 1.Acetylation of one of amines and phenols 2.Extraction of Caffeine from tea leaves	Chemistry Honours Semester-V 1.Chemistry Honours Semester-III 2.Chemistry Honours Semester-III	CHEMISTRY - C XI: ORGANIC CHEMISTRY IV 1. C VI: ORGANIC CHEMISTRY II 2. SEC: PHARMACEUTICAL CHEMISTRY
August	**Theory and Practicals**	Zwitterions, pKa values, isoelectric point and electrophoresis; Study of peptides: determination of their primary structure-end group analysis. Synthesis of peptides using N-protecting, C-protecting and C-activating groups, Solid-phase synthesis. Study of the action of salivary amylase on starch under optimum conditions. Hydrolysis of esters.	Chemistry Honours Semester-V Chemistry Honours Semester-V 2.Chemistry Honours Semester-III	CHEMISTRY - C XI: ORGANIC CHEMISTRY IV 1.CHEMISTRY - C XI: ORGANIC CHEMISTRY IV 2.C VI: ORGANIC CHEMISTRY II
September	**Theory and Practicals**	Primary, secondary and tertiary structures of proteins, Denaturation of proteins.	Chemistry Honours Semester-V	CHEMISTRY - C XI: ORGANIC CHEMISTRY IV

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		Introduction, classification and characteristics of enzymes. Salient features of active site of enzymes. Mechanism of enzyme action (taking chymotrypsin as an example), factors affecting enzyme action, coenzymes and cofactors (NAD,FAD), specificity of enzyme action (including stereospecificity) 1.Saponification value of the given oil. 2.Preparation of Aspirin.	1.Chemistry Honours Semester-V 2. Chemistry Honours Semester-III	1.CHEMISTRY - C XI: ORGANIC CHEMISTRY IV 2. SEC: PHARMACEUTICAL CHEMISTRY
October	**Theory and Practicals**	Enzyme inhibitors and their importance. Introduction to oils and fats; common fatty acids present in oils and fats, Hydrogenation of fats and oils, Saponification value, acid value, iodine number. Reversion and rancidity. 1.Preparation of S-Benzylisothiouronium salt of one each of water soluble and water insoluble acids.	Chemistry Honours Semester-V 1. Chemistry Honours Semester-III	CHEMISTRY - C XI: ORGANIC CHEMISTRY IV 1.C VI: ORGANIC CHEMISTRY II

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Name of the Faculty Member: Shabnam Johry
Department: Chemistry
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	**Theory and Practicals**	Aromatic Hydrocarbons, Alkyl halides 1. Qualitative analysis of unknown organic compounds containing monofunctional groups 2. Qualitative analysis of unknown organic compounds containing simple functional groups	BSc Program (with Chemistry) Semester-II Chemistry Honours Semester-VI Chemistry Honours Semester-IV	Chemical Energetics, Equilibria & 4 Functional Group Organic Chemistry-I C XIV: ORGANIC CHEMISTRY V C IX: ORGANIC CHEMISTRY III
February	**Theory and Practicals**	Aryl Halides, Alcohols, Diols 1. Qualitative analysis of unknown organic compounds containing monofunctional groups 2. Qualitative analysis of unknown organic compounds containing simple functional groups 3. Detection of extra elements.	BSc Program (with Chemistry) Semester-II Chemistry Honours Semester-VI Chemistry Honours Semester-IV Chemistry Honours Semester-II	Chemical Energetics, Equilibria & 4 Functional Group Organic Chemistry-I C XIV: ORGANIC CHEMISTRY V C IX: ORGANIC CHEMISTRY III C III: ORGANIC CHEMISTRY I

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March	**Theory and Practicals**	Phenols, Ethers 1. Qualitative analysis of unknown organic compounds containing monofunctional groups 2. Qualitative analysis of unknown organic compounds containing simple functional groups 3. Detection of extra elements.	BSc Program (with Chemistry) Semester-II Chemistry Honours Semester-VI Chemistry Honours Semester-IV Chemistry Honours Semester-II	Chemical Energetics, Equilibria & 4 Functional Group Organic Chemistry-I C XIV: ORGANIC CHEMISTRY V C IX: ORGANIC CHEMISTRY III C III: ORGANIC CHEMISTRY I
April	**Theory and Practicals**	Aldehydes and Ketones Qualitative analysis of unknown organic compounds containing bifunctional groups. Qualitative analysis of unknown organic compounds containing simple functional groups. Determination of boiling point of liquid compounds	BSc Prog (With Chemistry, Semester II) Chemistry Honours Sem-VI Chemistry Honours Sem-IV Chemistry Honours, Sem II	

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Name of the Faculty Member: **Dr. Vibha Sharma**
Department: **Chemistry** Year: **2018-2019 Odd Semester**

Month	Theory/ Practical	Topics	Course	Paper code/ Name
July - November	Theory	• Separation techniques • Solvent extraction • Chromatography • Thermogravimetry	B.Sc. Hons. Chemistry Semester V	DSE Analytical Methods in Chemistry; 32177904
July - November	Practical	Section A: • Transition Elements (3d series) • Lanthanoids and actinoids • Coordination Chemistry	B.Sc. Prog. with Chemistry Semester V	DSE Chemistry of d-block elements, Quantum Chemistry and Spectroscopy; 42177925
July - November	Practical	• Titrimetric Analysis • Acid-Base Titrations • Oxidation-Reduction Titrimetry	B.Sc. Hons. Chemistry Semester I	LAB: Inorganic Chemistry-I: Atomic Structure & Chemical Bonding; 32171101

July - November	Practical	• Separation Techniques
		  ○ Chromatography
		  ○ Solvent Extractions
		• Analysis of soil
		• IV Spectrophotometry
			B.Sc. Hons. Chemistry Semester V	LAB: DSE Analytical Methods in Chemistry; 32177904

		• Gravimetric Analysis • Complex Preparations • Colorimtery	B.Sc. Prog. with Chemistry Semester V	LAB: DSE Chemistry of d-block elements, Quantum Chemistry and Spectroscopy; 42177925

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Name of the Faculty Member: **Dr. Vibha Sharma**
Department: **Chemistry** Year: **2018-2019 Even Semester**

Month	Theory/ Practical	Topics	Course	Paper code/ Name
January - April	Theory	• Coordination Chemistry • Inorganic Reaction Mechanism	B.Sc. Hons. Chemistry Semester IV	C-VIII Inorganic Chemistry-III: Coordination Chemistry, 32171401
January - April	Theory	• Theoretical Principles in Qualitative Analysis (H_2S Scheme)	B.Sc. Hons. Chemistry Semester VI	CC XIII Inorganic Chemistry IV: Organometallic Chemistry, 32171601
January - April	Practical	• Gravimetric Analysis • Inorganic reparations Properties of Complexes - Spectrophotometry	B.Sc. Hons. Chemistry Semester IV	LAB: C-VIII Lab Inorganic Chemistry-III: Coordination Chemistry; 32171401
January - April	Practical	Qualitative Analysis - Salt mixture analysis	B.Sc. Hons. Chemistry Semester VI	LAB: CC XIII Inorganic Chemistry IV: Organometallic Chemistry; 32171601
January - April	Practical	Qualitative Analysis - Salt mixture analysis	B.Sc. Prog. with Chemistry Semester IV	LAB: CC IV Chemistry of s- and p- block elements, States of matter & Chemical Kinetics; 42174404

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Name of the Faculty Member: Dr. Jaspreet Kaur
Department: Chemistry
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
July	Theory	**Phase Equilibrium**	B.Sc (H) IIyr	PHYSICAL CHEMISTRY III
	Practical	Determination of critical solution temperature		
August	Theory	One-component and two-component systems	B.Sc (H) IIyr	PHYSICAL CHEMISTRY III
	Practical	Construction of the phase diagram using cooling curves		
September	Theory	Solutions	B.Sc (H) IIyr	PHYSICAL CHEMISTRY III
	Practical	Distribution of solute in immiscible solvents		
October	Theory	Surface Chemistry	B.Sc (H) IIyr	PHYSICAL CHEMISTRY III
	Practical	Study of equilibrium		

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Name of the Faculty Member: Dr. Jaspreet Kaur
Department: Chemistry
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	Theory	Chemical Kinetics: Order and molecularity, rate laws, differential and integrated form of rate expressions	B.Sc (H) IIyr	Conductance & Chemical Kinetics
	Practical	Determination of conductivity, molar conductivity, degree of dissociation and dissociation constant		
February	Theory	kinetics of complex reactions, Arrhenius equation	B.Sc (H) IIyr	Conductance & Chemical Kinetics
	Practical	conductometric titrations		
March	Theory	theories of reaction rates, Lindemann mechanism	B.Sc (H) IIyr	Conductance & Chemical Kinetics
	Practical	kinetics of Acid hydrolysis, Iodide-persulphate reaction, iodine clock reaction		
April	Theory	Catalysis	B.Sc (H) IIyr	Conductance & Chemical Kinetics
	Practical	kinetics of Saponification of ethyl acetate, determine the degree of hydrolysis and hydrolysis constant		

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Name of the Faculty Member: Dr. Jyotirmoy Maity
Department: Chemistry
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
July	Pharmaceutical Chemistry (T,P)	Synthesis and application of medicines	IIC/ II PS	32173909
	Cosmetic Chemistry (T,P)	Preparation of cosmetics	IIC/III PS	32173910
	Organic Chemistry (T)	Reaction intermediates	I PS	
	Green Chemistry (T,P)	Rules and examples of Green Chemistry	IIIC	32177908
	Environmental Studies (T)	Ecosystem, Biodiversity, Natural Resources, Pollution	I Maths	72182801
August	Same as above			
September	Same as above			
October	Same as above			

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Name of the Faculty Member: Dr. Jyotirmoy Maity
Department: Chemistry
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	Organic Chemistry (T,P)	UV, IR Spectroscopy	III PS	42177926
	Organic Chemistry (T,P)	Heterocyclic Chem	IIC	32171402
	Polymer Chemistry (T,P)	Synthesis and application of polymers	IIIC	32177906
	Environmental Studies (T)	Ecosystem, Biodiversity, Natural Resources, Pollution	I Eng/ Philo/ Sanskrit	72182801
February	Same as above			
March	Same as above			
April	Same as above			

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Physics Department

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Name of the Faculty Member: Sanjay Kumar
Department: Physics. Year: 2018-19

Odd Semester	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
July-Nov	Theory	All topics in the University CBCS BSc(H) Physics V Sem Syllabus for Astronomy and Astrophysics were covered. Some Additional Points 1. Many additional topics not mentioned in the syllabus were also discussed in the class. Some of these topics were: (i) Transformation between different astronomical coordinate systems (ii) Binary Star systems and determination of their parameters (iii) Equations for internal structure of stars, (iv) Alfven waves 2. Since it was felt that a single good text did not cover all topics, lecture notes were prepared. PDF copies of a total of 16 lecture notes of over 46,000 words were distributed to students.	BSc(H) Physics V Semester	32227506 Astronomy and Astrophysics DSE
July Nov	Tutorial	Tutorials were conducted as problem solving sessions. A total of eleven problem-based assignments on different topics in the syllabus were given to students.	BSc(H) Physics V Semester	32227506 Astronomy and Astrophysics DSE
July -Nov	Laboratory	CBCS BSc(P) III Sem Physics Laboratory Syllabus. Instructed students on different thermal physics experiments to be performed in the lab. Oversaw their work in the lab checked their reports.	BSc(P) III Semester	Thermal Physics Laboratory

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Name of the Faculty Member: Sanjay Kumar
Department: Physics. Year: 2018-19

Even Semester	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
Jan-April 2019	Theory	All topics in the University CBCS BSc(H) Physics VI Sem Syllabus for Electromagnetic Theory were discussed. The following topics not mentioned in syllabus were also discussed. (i) Relativistic Lorentz transformations of Electric and Magnetic Fields and Maxwell's Equations (ii) Conservation of Angular momentum in induction phenomenon (as discussed in Feynman Vol 2)	BSc(H) Physics V Semester	Electromagnetic Theory
Jan-April 2019	Laboratory	CBCS BSc(H) Physics IV Sem Applied Optics Syllabus. Special topics discussed were (i) Making simple optical systems a microscope and a telescope (iii) Fourier Optics (iv) Spatial Filtering (v) Multiple Lens systems	BSc(H) IV Semester	Applied Optics SEC
Jan –April 2019	Laboratory	CBCS BSc(H) Physics VI Sem Statistical Physics Laboratory Syllabus. Besides overseeing students' work in the lab and checking their reports, also gave a lecture on Econophysics and its relationship with concepts of statistical physics.	BSc(P) Physics V1 Semester	Statistical Physics Lab

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Name of the Faculty Member: Abhinav Gupta
Department: Physics. Year: 2018-19

Month	Theory/ Practical	Topics	Course	Paper Name
July	**Theory: Mechanics** **Practicals: MP2 Computational Lab Quantum Mechanics Lab**	**Fundamentals of Dynamics:** Newton's Laws, Variable mass systems, Dynamics of System of particles. **Work and Energy:** Work Energy Theorem, Conservative and non- conservative forces, Potential Energy. Interpolation: Newton, Laplace and Chebyshev Interpolation. Discretizing Schrodinger Equation. Solution to one-dimensional eigenvalue problems through matrix diagonalization.	BSc (H) Physics	
August	**Theory: Mechanics** **Practicals: MP2 Lab QM Lab**	**Collisions:** Elastic and Inelastic Collisions, CM and Lab frames. **Rotational Dynamics:** Angular momentum of a particle and system of particles. Torque. Principle of conservation of angular momentum. Fixed axis rotation. Solving first and second order Differential Equations. Time evolution problems through matrix diagonalization. QM Scattering.	BSc (H) Physics	
Septem ber	**Theory: Mechanics** **Practicals: MP2 Lab QM Lab**	**Gravitation and Central Force Motion:** Law of gravitation. Gravitational potential Energy. **Motion of a particle under a central force field:** Two-body problem. Kepler"s Laws. **Oscillations:** Differential equation of driven, damped Harmonic Oscilaltor. Kinetic, Potential and Total Mechanical Energy. Transients, resonance and Quality Factor. Generating Special Functions. Legendre Polynomials. Solving three-dimensional eigenvalue problems through matrix diagonalization.	BSc (H) Physics	
October	**Theory: Mechanics** **Practicals: MP2 Lab QM Lab**	**Non-Inertial Systems:** Galilean transformations. Inertial and Non-inertial frames and fictitious forces. Uniformly rotating frame. Centrifugal and Coriolis Forces. **Special Theory of Relativity:** Michelson-Morley Experiment. Postulates of Special Theory of Relativity. Lorentz Transformations. Simultaneity, Length contraction, Time dilation. Relativistic transformation of velocity, acceleration, frequency and wave number. Mass-energy Equivalence. Relativistic Doppler effect. Relativistic Kinematics. Transformation of Energy and Momentum. Solutions of system of Linear Equations.Solving Eigenvalue Problems using the Shooting Method.	BSc (H) Physics	

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Name of the Faculty Member: Abhinav Gupta
Department: Physics. Year: 2018-19

Month	Theory/ Practical	Topics	Course	Paper Name
January	**Theory: Statistical Mechanics** **Practicals: Statistical Mechanics Lab** **MP3 Lab**	Classical Statistics. Macrostate, Microstate and Phase Space. Entropy and Thermodynamic Probability. Boltzmann Distribution, Partition Function. Applications to Ideal Gas. Two state systems and Negative Temperatures. Thermal equilibrium of a system of hard disks: approach to equilibrium, entropy, phase transitions, Maxwell Distribution. The Dirac Delta Function. Fourier Series.	BSc (H) Physics	
February	**Theory: Statistical Mechanics** **Practicals: Statistical Mechanics Lab** **MP3 Lab**	Bose-Einstein Statistics. Bose-Einstein Distribution, Thermodynamic functions of strongly degenerate Bose gas. Bose Einstein Condensation. Radiation as a Bose Gas. The Lennard Jones Gas. The Verlet Algorithm, conservation of energy. The method of least squares.	BSc (H) Physics	
March	**Theory: Statistical Mechanics** **Practicals: Statistical Mechanics Lab** **MP3 Lab**	Fermi-Dirac Statistics. Fermi-Dirac Distribution. Thermodynamic Functions of a strongly degenerate Fermi Gas. Electrons in a metal. White Dwarf Stars and the Chandrasekhar Limit. Equilibrium Distributions for a Lennard Jones system. The Maxwell Speed Distribution. Partial Differential Equations. The Wave Equation, Heat Conduction Equation, Laplace's Equation.	BSc (H) Physics	
April	**Theory: Statistical Mechanics** **Practicals: Statistical Mechanics Lab** **MP3 Lab**	Theory of Radiation. Properties of Thermal Radiation. Stefan-Boltzmann Law. Wien's Law. Saha's Ionization Potential. Black Body radiation and Planck's Law. Phase transitions in a Lennard Jones system. Fast Fourier Transform.	BSc (H) Physics	

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Name of the Faculty Member: Dr. Annu Malhotra
Department: Physics. Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
July	Theory	Calculus: Plotting of functions. Approximation: Taylor and binomial series (statements only). First Order Differential. Equations exact and inexact differential equations and Integrating Factor.	B.Sc. (Hons) Physics Semester I	PHYSICS-C I/ MATHEMATICAL PHYSICS-I
August	Theory	Second Order Differential equations: Homogeneous Equations with constant coefficients. Wronskian and general solution. Particular Integral with operator method, method of undetermined coefficients and variation method of parameters. Vector Algebra: Properties of vectors. Scalar product and vector product	B.Sc. (Hons) Physics Semester I	PHYSICS-C I/ MATHEMATICAL PHYSICS-I
September	Theory	Scalar triple product and their interpretation in terms of area and volume respectively. Scalar and Vector fields. Vector Calculus: Vector Differentiation: Directional derivatives and normal derivative. Gradient of a scalar field and its geometrical interpretation. Divergence and curl of a vector field. Del and Laplacian operators. Vector identities. Vector Integration: Ordinary Integrals of Vectors. Multiple integrals, Jacobian. Notion of infinitesimal line, surface and volume elements	B.Sc. (Hons) Physics Semester I	PHYSICS-C I/ MATHEMATICAL PHYSICS-I
October/ November	Theory	Line, surface and volume integrals of Vector fields. Flux of a vector field. Gauss' divergence theorem, Green's and Stokes Theorems and their verification (no rigorous proofs). Orthogonal Curvilinear Coordinates: Orthogonal Curvilinear Coordinates. Derivation of Gradient, Divergence, Curl and Laplacian in Cartesian, Spherical and Cylindrical Coordinate Systems.	B.Sc. (Hons) Physics Semester I	PHYSICS-C I/ MATHEMATICAL PHYSICS-I

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Name of the Faculty Member: Dr. Annu Malhotra
Department: Physics. Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	Theory	Complex Analysis: Brief Revision of Complex Numbers and their Graphical Representation. Euler's formula, De Moivre's theorem, Roots of Complex Numbers. Functions of Complex Variables. Analyticity and Cauchy-Riemann Conditions. Examples of analytic functions. Singular functions: poles and branch points, order of singularity, branch cuts.	B.Sc. (Hons) Physics Semester IV	PHYSICS-VIII/ MATHEMATICAL PHYSICS-III
February	Theory	Integration of a function of a complex variable. Cauchy's Inequality. Cauchy's Integral formula. Simply and multiply connected region. Laurent and Taylor's expansion. Residues and Residue Theorem. Application in solving Definite Integrals.	B.Sc. (Hons) Physics Semester IV	PHYSICS-VIII/ MATHEMATICAL PHYSICS-III
March	Theory	Integrals Transforms: 25 Fourier Transforms: Fourier Integral theorem. Fourier Transform. Examples. Fourier transform of trigonometric, Gaussian, finite wave train and other functions. Representation of Dirac delta function as a Fourier Integral. Fourier transform of derivatives, Inverse Fourier transform, Convolution theorem. Properties of Fourier transforms (translation, change of scale, complex conjugation, etc.).	B.Sc. (Hons) Physics Semester IV	PHYSICS-VIII/ MATHEMATICAL PHYSICS-III
April	Theory	One dimensional Wave Equations, Dirac delta function, definition and properties.Laplace Transforms: Laplace Transform (LT) of Elementary functions. Properties of LTs: Change of Scale Theorem, Shifting Theorem. LTs of 1st and 2nd order Derivatives and Integrals of Functions, Derivatives and Integrals of LTs. LT of Unit Step function, Dirac Delta function, Periodic Functions. Convolution Theorem. Inverse LT. Application of Laplace Transforms to 2nd order Differential Equations: Coupled differential equations of 1st order. Solution of heat flow along semi infinite bar using Laplace transform.	B.Sc. (Hons) Physics Semester IV	PHYSICS-VIII/ MATHEMATICAL PHYSICS-III

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Name of Faculty Member: Dr. Rekha. Department: Physics. Year: 2018-19

Month	Theory/ Practical	Topics	Course	Paper Name
July-August	Theory	Introduction to Thermodynamics Zeroth and First Law of Thermodynamics: Extensive and intensive Thermodynamic Variables, Thermodynamic Equilibrium, Zeroth Law of Thermodynamics & Concept of Temperature, Concept of Work & Heat, State Functions, First Law of Thermodynamics and its differential form, Internal Energy, First Law & various processes, Applications of First Law: General Relation between CP and CV, Work Done during Isothermal and Adiabatic Processes, Compressibility and Expansion Co- efficient. Second Law of Thermodynamics: Reversible and Irreversible process with examples. Conversion of Work into Heat and Heat into Work. Heat Engines. Carnot's Cycle, Carnot engine & efficiency. Refrigerator & coefficient of performance, 2nd Law of Thermodynamics: Kelvin-Planck and Clausius Statements and their Equivalence. Carnot's Theorem. Applications of Second Law of Thermodynamics: Thermodynamic Scale of Temperature and its Equivalence to Perfect Gas Scale.	B.Sc. Physics Hons. Sem-III	Physics-C-IV Thermal Physics
September	Theory	Entropy: Concept of Entropy, Clausius Theorem. Clausius Inequality, Second Law of Thermodynamics in terms of Entropy. Entropy of a perfect gas. Principle of Increase of Entropy. Entropy Changes in Reversible and Irreversible processes with examples. Entropy of the Universe. Entropy Changes in Reversible and Irreversible Processes. Principle of Increase of Entropy. Temperature–Entropy diagrams for Carnot's Cycle. Third Law of Thermodynamics. Unattainability of Absolute Zero. Thermodynamic Potentials: Thermodynamic Potentials: Internal Energy, Enthalpy, Helmholtz Free Energy, Gibb's Free Energy. Their Definitions, Properties and Applications. Magnetic Work, Cooling due to adiabatic demagnetization, First and second order Phase Transitions with examples, Clausius Clapeyron Equation and Ehrenfest equations.	B.Sc. Physics Hons. Sem-III	Physics-C-IV Thermal Physics
October	Theory	Maxwell's Thermodynamic Relations: Derivation of Maxwell's thermodynamic Relations and their applications, Maxwell's Relations: (1) Clausius Clapeyron equation, (2) Value of Cp-Cv, (3) Tds Equations, (4) Energy equations. Kinetic Theory of Gases Distribution of Velocities: Maxwell-Boltzmann Law of Distribution of Velocities in an Ideal Gas and its Experimental Verification. Mean, RMS and Most Probable Speeds. Degrees of Freedom. Law of Equipartition of Energy. Specific heats of Gases.	B.Sc. Physics Hons. Sem-III	Physics-C-IV Thermal Physics

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November	Theory	Molecular Collisions: Mean Free Path. Collision Probability. Estimation of Mean Free Path. Transport Phenomenon in Ideal Gases: (1) Viscosity, (2) Thermal Conductivity and (3) Diffusion. Brownian Motion and its Significance. Real Gases: Behavior of Real Gases: Deviations from the Ideal Gas Equation. Andrew's Experiments on CO2 Gas. Virial Equation. Critical Constants. Continuity of Liquid and Gaseous State. Vapour and Gas. Boyle Temperature. van der Waal's Equation of State for Real Gases. Values of Critical Constants. Law of Corresponding States. Comparison with Experimental Curves. p-V Diagrams. Free Adiabatic Expansion of a Perfect Gas. Joule-Thomson Porous Plug Experiment. Joule-Thomson Effect for Real and van der Waal Gases. Temperature of Inversion. Joule-Thomson Cooling.	B.Sc. Physics Hons. Sem-III	Physics-C-IV Thermal Physics
July-August	Theory	Introduction: Drafting Instruments and their uses. lettering: construction and uses of various scales: dimensioning as per I.S.I. 696-1972. Engineering Curves: Parabola: hyperbola: ellipse: cycloids, involute: spiral: helix and loci of points of simple moving mechanism.2D geometrical construction. Representation of 3D objects. Principles of projections.	B.Sc. Physics Hons. And B.Sc. Prog. Sem-III	Physics SEC Technical Drawing
September	Theory	Projections: Straight lines, planes and solids. Development of surfaces of right and oblique solids. Section of solids.	B.Sc. Physics Hons. And B.Sc. Prog. Sem-III	Physics SEC Technical Drawing
October	Theory	Object Projections: Orthographic projection. Interpenetration and intersection of solids. Isometric and oblique parallel projection of solids. CAD Drawing: Introduction to CAD and Auto CAD, precision drawing and drawing aids, Geometric shapes, Demonstrating CAD- specific skills (graphical user interface. Create, retrieve, edit, and use symbol libraries. Use inquiry commands to extract drawing data). Control entity properties.	B.Sc. Physics Hons. And B.Sc. Prog. Sem-III	Physics SEC Technical Drawing

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November	Theory	Demonstrating basic skills to produce 2-D and 3-Ddrawings. 3D modeling with Auto CAD (surfaces and solids), 3D modeling with sketch up, annotating in Auto CAD with text and hatching, layers, templates and design center, advanced plotting (layouts, viewports), office standards, dimensioning, internet and collaboration, Blocks, Drafting symbols, attributes, extracting data. basic printing, editing tools, Plot/Print drawing to appropriate scale.	B.Sc. Physics Hons. And B.Sc. Prog. Sem-III	Physics SEC Technical Drawing
August-November	Practical	Practical based on drawing 2D, 3D curves, and orthographic projections using manual drafter and AutoCAD software.	B.Sc. Physics Hons. And B.Sc. Prog. Sem-III	Physics SEC Practical Technical Drawing
July-November	Practical	1. Measurements of length (or diameter) using vernier caliper, screw gauge and travelling microscope. 2. To determine the Height of a Building using a Sextant. 3. To determine the Moment of Inertia of a Flywheel. 4. To determine the Modulus of Rigidity of a Wire by Maxwell's needle. 5. To determine the Elastic Constants of a Wire by Searle's method. 6. To determine g by Bar Pendulum. 7. To determine g by Kater's Pendulum. 8. To determine g and velocity for a freely falling body using Digital Timing Technique 9. To study the Motion of a Spring and calculate (a) Spring Constant (b) Value of g	B.Sc. Prog. Sem-I	Practicals -CC-1A: Mechanics
July-November	Practical	1. To determine value of Boltzmann constant using V-I characteristic of PN diode. 2. To determine value of Planck's constant using LEDs of at least 4 different colours. 3. To determine the wavelength of H-alpha emission line of Hydrogen atom. 4. To determine the absorption lines in the rotational spectrum of Iodine vapour. 5. To study the diffraction patterns of single and double slits using laser source. 6. Photo-electric effect: photo current versus intensity and wavelength of light, maximum energy of photo-electrons versus frequency of light.	B.Sc Physical Science Sem-V	Practicals- DSE-1 Lab: Elements of Modern Physics

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Name of Faculty Member: Dr. Rekha. Department: Physics. Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	Theory	Superposition of Two Collinear Harmonic oscillations: Simple harmonic motion (SHM). Linearity and Superposition Principle. (1) Oscillations having equal frequencies and (2) Oscillations having different frequencies (Beats). Superposition of Two Perpendicular Harmonic Oscillations: Graphical and Analytical Methods. Lissajous Figures (1:1 and 1:2) and their uses. Waves Motion- General: Transverse waves on a string. Travelling and standing waves on a string. Normal Modes of a string. Group velocity, Phase velocity. Plane waves. Spherical waves, Wave intensity.	B.Sc. Prog. Sem-IV	Physics CC-4A Waves and Optics
February	Theory	Sound: Sound waves, production and properties. Intensity and loudness of sound. Decibels. Intensity levels. musical notes. musical scale. Acoustics of buildings (General idea). Wave Optics: Electromagnetic nature of light. Definition and Properties of wave front. Huygens Principle. Interference: Interference: Division of amplitude and division of wavefront. Young's Double Slit experiment. Lloyd's Mirror & Fresnel's Biprism. Phase change on reflection: Stokes' treatment.	B.Sc. Prog. Sem-IV	Physics CC-4A Waves and Optics
March	Theory	Interference in Thin Films: parallel and wedge-shaped films. Fringes of equal inclination (Haidinger Fringes); Fringes of equal thickness (Fizeau Fringes). Newton's Rings: measurement of wavelength and refractive index. Michelson's Interferometer: Construction and working. Idea of form of fringes, Determination of wavelength, Wavelength difference, Refractive index, and Visibility of fringes. Diffraction: Fraunhofer diffraction: Single slit; Double Slit. Multiple slits	B.Sc. Prog. Sem-IV	Physics CC-4A Waves and Optics
April	Theory	Diffraction grating. Fresnel Diffraction: Half-period zones. Zone plate. Fresnel Diffraction pattern of a straight edge, a slit and a wire using half-period zone analysis.	B.Sc. Prog. Sem-IV	Physics CC-4A

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		3. Surface Plasmon study of metal nanoparticles by UV-Visible spectrophotometer. 4. XRD pattern of nanomaterials and estimation of particle size. 5. To study the effect of size on color of nanomaterials. 6. Fabricate a thin film of nanoparticles by spin coating (or chemical route) and study transmittance spectra in UV-Visible region. 7. Prepare a thin film capacitor and measure capacitance as a function of temperature or frequency. 8. Fabricate a PN diode by diffusing Al over the surface of N-type Si and study its V-I characteristic.	Hons. Sem-VI	DSE-Nanomaterials and applications
January-April	Practical	1. To study potential divider circuit. 2. Ballistic Galvanometer: (i) Measurement of charge and current sensitivity (ii) Measurement of CDR 3. To compare capacitances using De'Sauty's bridge. 4. To study the Characteristics of a Series RC Circuit. 5. To study a series LCR circuit and determine its (a) Resonant Frequency, (b) Quality Factor 6. To determine a Low Resistance by Carey Foster's Bridge. 7. To verify the Thevenin, Superposition, and Maximum Power Transfer Theorem	B.Sc. Prog. Sem-II	Physics Lab- CC 2A: Electricity, Magnetism and EMT

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		Polarization: Transverse nature of light waves. Plane polarized light – production and analysis. Circular and elliptical polarization.		Waves and Optics
January	Theory	Introduction: Drafting Instruments and their uses. lettering: construction and uses of various scales: dimensioning as per I.S.I. 696-1972. Engineering Curves: Parabola: hyperbola: ellipse: cycloids, involute: spiral: helix and loci of points of simple moving mechanism. 2D geometrical construction. Representation of 3D objects. Principles of projections.	B.Sc. Physics Hons Sem-IV	Physics SEC Technical Drawing
February	Theory	Projections: Straight lines, planes and solids. Development of surfaces of right and oblique solids. Section of solids.	B.Sc. Physics Hons Sem-IV	Physics SEC Technical Drawing
March	Theory	Object Projections: Orthographic projection. Interpenetration and intersection of solids. Isometric and oblique parallel projection of solids. CAD Drawing: Introduction to CAD and Auto CAD, precision drawing and drawing aids, Geometric shapes, Demonstrating CAD- specific skills (graphical user interface. Create, retrieve, edit, and use symbol libraries. Use inquiry commands to extract drawing data). Control entity properties.	B.Sc. Physics Hons Sem-IV	Physics SEC Technical Drawing
April	Theory	Demonstrating basic skills to produce 2-D and 3-D drawings. 3D modeling with Auto CAD (surfaces and solids), 3D modelling with sketch up, annotating in Auto CAD with text and hatching, layers, templates and design center, advanced plotting (layouts, viewports), office standards, dimensioning, internet and collaboration, Blocks, Drafting symbols, attributes, extracting data. Basic printing, editing tools, Plot/Print drawing to appropriate scale.	B.Sc. Physics Hons Sem-IV	Physics SEC Technical Drawing
January-April	Practical	Practicals based on drawing 2D, 3D curves, and orthographic projections using manual drafter and AutoCAD software.	B.Sc. Physics Hons Sem-IV	Physics SEC Practical Technical Drawing
January-April	Practical	1. Synthesis of metal nanoparticles by chemical route. 2. Synthesis of semiconductor nanoparticles.	B.Sc. Physics	Physics Practical-

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Name of Faculty member: Shruti
Department: Physics
Year: 2018-19

Month	Theory/ Practicals/ Tutorials	Topics	Course	Paper Code/ Name
July	Theory & Practical	Curve fitting, Least square fit,	B.Sc(H) II Phys	PHYSICS-C V: MATHEMATICAL PHYSICS-II
July	Theory	Vectors, Fundamentals of Dynamics	B.Sc(P) I	Mechanics
July	Practical	Sextant, Motion of Spring and calculate (a) Spring constant, (b) Moment of Inertia of a Flywheel,Maxwell's needle,Searle'smethod,Bar Pendulum,Kater's Pendulum	B.Sc(P) I	Mechanics: Lab
July	Practical	Callender and Barne's,Searle's Apparatus,y Lee and Charlton's discmethod.Coefficient of Resistance byPlatinum Resistance Thermometer,RTD,fThermo-Emf of aThermocouple w	B.Sc(P) II Thermallab	Thermal: Lab
August	Theory & Practical	Solution of Linear system of equations by Gauss elimination method and Gauss Seidal method. Diagonalisation of matrices, Inverseof a matrix,	B.Sc(H) Phys	PHYSICS-C V: MATHEMATICAL PHYSICS-II

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August	Theory	Work and Energy,RotationalDynamics,	B.Sc(P) I	Mechanics
August	Practical	Sextant,Motion of Spring and calculate (a) Spring constant, (b) Moment of Inertia of a Flywheel,Maxwell's needle,Searle'smethod,Bar Pendulum,Kater's Pendulum	B.Sc(P) I	Mechanics:Lab
August	Practical	Callender and Barne's,Searle's Apparatus,y Lee and Charlton's discmethod.Coefficient of Resistance byPlatinum Resistance Thermometer,RTD,fThermo-Emf of aThermocouple w	B.Sc(P) II Thermallab	Thermal:Lab
Septemb er	Theory & Practical	First order Differential equation Euler,modified Euler method	B.Sc(H) Phys	PHYSICS-C V: MATHEMA TICAL PHYSICS-II
Septemb er	Theory	Elasticity,Gravitation,Central forceMotion	B.Sc(P) I	Mechanics
Septemb er	Practical	Sextant,Motion of Spring and calculate (a) Spring constant, (b) Moment of Inertia of a Flywheel,Maxwell's needle,Searle'smethod,Bar Pendulum,Kater's Pendulum	B.Sc(P) I	Mechanics:Lab

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Septemb er	Practical	Callender and Barne's,Searle's Apparatus,y Lee and Charlton's discmethod.Coefficient of Resistance byPlatinum Resistance Thermometer,RTD,fThermo-Emf of aThermocouple w	B.Sc(P) II Thermallab	Thermal:Lab
October	Theory & Practical	RungeKutta (RK) second and Fourth order methods Second order differential equation Fixeddifference method	B.Sc(H) Phys	PHYSICS-C V: MATHEMA TICAL PHYSICS-II
October	Theory	Oscillations: Review of SHM, Special Theory of Relativity	B.Sc(P) I	Mechanics
October	Practical	Sextant,Motion of Spring and calculate (a) Spring constant, (b) Moment of Inertia of a Flywheel,Maxwell's needle,Searle'smethod,Bar Pendulum,Kater's Pendulum	B.Sc(P) I	Mechanics:Lab
October	Practical	Callender and Barne's,Searle's Apparatus,y Lee and Charlton's discmethod.Coefficient of Resistance byPlatinum Resistance Thermometer,RTD,fThermo-Emf of aThermocouple w	B.Sc(P) II Thermallab	Thermal:Lab

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Name of Faculty member: Shruti
Department: Physics
Year: 2018-19

Month	Theory/ Practicals/ Tutorials	Topics	Course	Paper Code/Name
January	Theory	Electric Field and Electric Potential	B.Sc(P) I	Electricity and Magnetism
January	Practical	Carey Foster's Bridge,Anderson's bridge.Verify the Thevenin Theorems ,Maximum power transfer theorems,response curve of a SeriesLCR circuit,charge sensitivity, currentsensitivity & CDR of Ballistic Galvanometer	B.Sc(H) I	Electricity and Magnetism :Lab
January	Practical	Planck's constant using LEDs,e/m by (a) Magnetic focusing or (b) Bar magnet. Tunneling effect, wavelengthof laser source using diffraction of single slit and Double slit,Photo- electric effect:wavelength of H-alpha emission line of Hydrogen atom,absorption lines in the rotational spectrum of Iodine vapour.	B.Sc(H) II	PHYSICS-C IX: ELEMENTS OF MODERN PHYSICS:Lab
February	Theory	Dielectric Properties of Matter	B.Sc(P) I	Electricity and Magnetism

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February	Practical	Carey Foster's Bridge,Anderson's bridge.Verify the Thevenin Theorems ,Maximum power transfer theorems,response curve of a SeriesLCR circuit,charge sensitivity, currentsensitivity & CDR of Ballistic Galvanometer	B.Sc(H) I	Electricity and Magnetism :Lab
February	Practical	Planck's constant using LEDs,e/m by (a) Magnetic focusing or (b) Bar magnet. Tunneling effect, wavelengthof laser source using diffraction of single slit and Double slit,Photo- electric effect:wavelength of H-alpha emission line of Hydrogen atom,absorption lines in the rotational spectrum of Iodine vapour.	B.Sc(H) II	PHYSICS-C IX: ELEMENTS OF MODERN PHYSICS:Lab
March	Theory	Magnetic Field,Magnetic Propertiesof Matter	B.Sc(P) I	Electricity and Magnetism

March	Practical	Carey Foster's Bridge,Anderson's bridge.Verify the Thevenin Theorems ,Maximum power transfer theorems,response curve of a SeriesLCR circuit,charge sensitivity, currentsensitivity & CDR of Ballistic Galvanometer	B.Sc(H) I	Electricity and Magnetism :Lab

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March	Practical	Planck's constant using LEDs,e/m by (a) Magnetic focusing or (b) Bar magnet. Tunneling effect, wavelengthof laser source using diffraction of single slit and Double slit,Photo- electric effect:wavelength of H-alpha emission line of Hydrogen atom,absorption lines in the rotational spectrum of Iodine vapour.	B.Sc(H) II	PHYSICS-C IX: ELEMENTS OF MODERN PHYSICS:Lab
April	Theory	Electromagnetic Induction,Electromagnetic Theory	B.Sc(P) I	Electricity and Magnetism
April	Practical	Carey Foster's Bridge,Anderson's bridge.Verify the Thevenin Theorems ,Maximum power transfer theorems,response curve of a SeriesLCR circuit,charge sensitivity, currentsensitivity & CDR of Ballistic Galvanometer	B.Sc(H) I	Electricity and Magnetism :Lab
April	Practical	Planck's constant using LEDs,e/m by (a) Magnetic focusing or (b) Bar magnet. Tunneling effect, wavelengthof laser source using diffraction of single slit and Double slit,Photo- electric effect:wavelength of H-alpha emission line of Hydrogen atom,absorption lines in the rotational spectrum of Iodine vapour.	B.Sc(H) II	PHYSICS-C IX: ELEMENTS OF MODERN PHYSICS:Lab

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Mathematics Department

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Name of Faculty Member: Nandita Narain
Department: Mathematics
Year: 2018-19

Month	Course	Paper Code/Name	Theory Covered	Tutorials
July 20th-31st	BSc(H) Maths Sem3	Group Theory 1	Sets, Relations, Functions, Operations, Semigroups, Groups, Hereditary properties, Subgroups, Examples, R, C, Integers modulo n,	1: Uniqueness of Identity, inverse, shoes and socs prop, cancellation laws, invertible elements of a semigroup from a group etc Operation such as a*b = a+b+ab
August			Functions from a non-empty set to a Group/ semigroup under pointwise operation and applications such as R^2, R^n, R^N. Real valued Functions on [a,b], Functions from a non-empty set to itself under composite. Permutation Groups, S3, Quarternions, Isometries of R3, Translations, Rotations, Groups of Symmetry for line segment, square, triangle, etc Dn Subgroups, 3step, 2step, 1 step criteria, closure criteria for finite subset, Union and Intersection of subgroups	2. Conditions under which semigroups are groups 3. Groups of order 4, exercises on groups of symmetry from Gallian
September			HK subgroup iff HK=KH, Centraliser of element, subset, subgroup, Normaliser of subset, subgroup, Z(G), Subgroup generated by non-empty set, Cyclic Subgroup <a>, Every Subgroup of Cyclic Group is cyclic, Order of element, every element of finite group is of finite order, a^n=e => o(a) |n, order of conjugate, o(ab)=o(ba), o<a> = o(a), Lagrange's Thm for cyclic groups and converse, Generators of Cyclic Groups, No of elements of order m, Properties of Left and Right Cosets, Partition Theorem, Lagrange's Theorem, a^o(G) =e, Fermat's Little	4. Exercises on Subgroups, Cyclic groups, Lagrange's Theorem from Gallian

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			Theorem, 1-1 corresp between Left and Right Cosets, Index of Subgroup in Group, Groups with Non Trivial Subgroups, Prime Order=> No NTS=> Cyclic. Infinite=> NTS. Finite, non-prime=> cyclic. Normal subgroups, Characterisations of Normality, Subgroups of Index 2 are normal, Examples from S3, D4, Q8, Quotient Group, Indices and Order in Quotient Group,	
October			Intersection and Product of Normal Subgroups, Homomorphisms, Examples including limits of sequences, Basic properties such as f(e)=e', f(a^-1)=f(a)^-1, Homomorphic Image of subgroup and normal subgroup, preservation of abelian, cyclic, o(f(a)) | o(a), Kernel, Homom is 1-1 iff K={e}, Isomorphism, Natural homomorphism, First Isomorphism Theorem and Converse, Second Isomorphism Theorem, G/N~G/M/N/M, G/N~G'/N', 1-1 correspondence between normal subgroups of G' and those of G containing K. "Isomorphic to" as an equivalence relation, Abstract Groups, Infinite Cyclic Groups isomorphic to Z, Finite cyclic groups to Zn. Examples of isomorphic and non-isomorphic groups. Permutations of non-empty set X , X~Y => Sx ~SY	5. Exercises from Normal Subgroups, Homomorphisms and Isomorphisms from Gallian
November			Cayley's Theorem and its extension to G/H, Sn, Cycles in Sn, Order of a cycle, Disjoint cycles commute, product of disjoint cycles is not a cycle, order of product of disjoint cycles, every cycle is product of transposition, Disjoint Permutations, Decomposition Theorem, Order of Permutation, Permutation as product of transpositions. Inversion and Parity of a permutation, Parity Lemma Parity of product is congruent to sum of parities mod 2, Even and Odd permutations defined through parity, Parity of a transposition, Permutation is even iff it is a product of even number of transposition, "Always even – always odd" theorem. Orbits and Stabilisers, Orbit-Stabiliser Theorem, Direct Products	6. Exercises on Permutation Groups and Direct Products from Gallian

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Name of Faculty Member: Nandita Narain
Department: Mathematics
Year: 2018-19

Month	Course	Paper Code/Name	Theory	Tutorials
January	BSc(H) Mathematics Sem 2	Riemann Integral	Prerequisites Sup & Inf, Continuity etc Definition of Integrability with motivation Examples Constant Fn, Dirichlet's, Step function Example f(x) = x used for motivation for Pn method Motivation for Lower Int < =Upper Integral Refinement Theorem Lower In <Upper Int and Applications, Pn- Method Riemann's Condition and Applications Pn Cor to RC and Application, Mesh of P Darboux Condn, DarbouxTheorem Darboux Lemma, Application of DT	1.Variations of problems done in class. 2.Applications of Pn Method 3. Applications of Riemann's Condition
February			Alg of Int, f+g kf, f^2, fg f/g, |f| Max{f,g}, Additivity, Intro to Order Pres Composite, Search for Counter Ex, Thomaes'Fn Test No 2 (Darboux Condn and Alg of Int) Order Preservation, Lower Int preserves Strict Order not preserved by Lower Int, Variation of Thomaes Fn Strict Order Preserved by Continuous Fn, Defn of S(P,f) S(P,f) Theorem	4.Algebra of Lower and Upper Integrals 5. Order Preservation by Lower and Upper Integrals 6. Composite of two Integrable fns need not be integrable

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			Cauchy Condition of S(P,f) Monotonic, Continuous => Int	
March			Test no 3(Order Preservation, S(P,f)) Bdd and Finite discontinuities=> int Bounded, d(S) finite=>int, bdd, piece-wise mon => int piece-wise cont=> int Composite of Continuous and Int fn Composite of Continuous and Int fn (Contd), Defn of Fa. Examples of Fa, Thm Fa is cont f cont => Fa derivable, Cont=> primitive, but not conversely primitive does not imply int, nor conversely FTOIC First Form	7.Applications of C-Lemma,
April			FTOIC Second Form, Int by Parts Method of Substitution, First MVT Generalised First MVT, Int of f and f^-1 Improper Integrals I, p Integral Absolute Convergence, BCT, LCT of Impr Int Type I, Beta Function, Impr Int of Type 2, p-int, BCT, LCT Mixed impr Int, Gamma Function Conditionally cgt Int, Int sinx/x Int sinx/x is not abs cgt Strict Positivity and At least one pt of continuity, Power Series Unif Cgnce, Sum Fn Cont, Der and int Abel's Lemma and Applications	8. Applications of FTOIC from Ross. 9. Problems on Improper Integrals from Ghorpade and Limaye

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Name of the Faculty Member: Dr. Sonia Davar. Department: Mathematics. Year: 2018-19

Month	Th/ Prac	Topics	Course	Paper Name
July	Theory	Recap, Concavity and Points of Inflection, Limits involving infinity, L Hospital's rule & Asymptotes	B.Sc. (Hons.) Mathematics (Sem I)	C1: Calculus
		Recap, functions and their graphs	B.Sc. Programme (Sem I)	Calculus and Matrices
	Practical	Plotting the graphs of simple functions	B.Sc. (Hons.) Mathematics (Sem I)	C1: Calculus
August	Theory	Sketching of polynomial, irrational and rational functions, polar coordinates & sketching of polar curves	B.Sc. (Hons.) Mathematics (Sem I)	C1: Calculus
		Successive Differentiation, Sequences	B.Sc. Programme (Sem I)	Calculus and Matrices
	Practical	Plotting the graphs of polynomials of degree 4 & 5 and their derivatives, sketching parametric curves, tracing of conics	B.Sc. (Hons.) Mathematics (Sem I)	C1: Calculus
September	Theory	Parametric curves, reduction formula, volume of solid of revolution	B.Sc. (Hons.) Mathematics (Sem I)	C1: Calculus
		Applications to Mathematical Modelling, Polynomial Approximations of functions	B.Sc. Programme (Sem I)	Calculus and Matrices
	Practical	Obtaining surface of revolution of curves, graph of hyperbolic functions, computation of limits, differentiation, integration & sketching of vector valued functions	B.Sc. (Hons.) Mathematics (Sem I)	C1: Calculus
October	Theory	Volume of solid of revolution, arc length, surface area of solid of revolution & optimisation	B.Sc. (Hons.) Mathematics (Sem I)	C1: Calculus
		Polynomial approximation of functions, functions of several variables and partial derivatives	B.Sc. Programme (Sem I)	Calculus and Matrices
	Practical	Complex numbers and their representation, operations like addition, multiplication, division, modulus, graphical representation, finding numbers between two real numbers, matrix operations and solving a system of equations	B.Sc. (Hons.) Mathematics (Sem I)	C1: Calculus

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Name of the Faculty Member: Dr. Sonia Davar. Department: Mathematics. Year: 2018-19

Month	Theory/ Practical	Topics	Course	Paper code/ Name
January	Theory	Recap, General, particular and singular solution; Separable, reducible and homogenous differential equation, Exact and Non-Exact DE	B.Sc. (Hons.) Mathematics (Sem II)	Differential Equations
		Recap, Limit-Continuity & Differentiability	B.Sc. Programme (Sem II)	Calculus & Geometry
	Practical	Plotting of second and third order solution family, growth and decay model, lake pollution model, cold pill model, limited growth of pollution	B.Sc. (Hons.) Mathematics (Sem II)	Differential Equations
February	Theory	Linear & Bernoulli Differential Equations, Mathematical Modelling, Second order Linear DE	B.Sc. (Hons.) Mathematics (Sem II)	Differential Equations
		Asymptotes, multiple points & curve tracing	B.Sc. Programme (Sem II)	Calculus & Geometry
	Practical	Predator-Prey Model, Epidemic model of influenza, battle model, recursive sequences	B.Sc. (Hons.) Mathematics (Sem II)	Differential Equations
March	Theory	Method of undetermined coefficients, Cauchy Euler Formula	B.Sc. (Hons.) Mathematics (Sem II)	Differential Equations
		Polar Curves Sketching, reduction formulae, finding length of a given curve	B.Sc. Programme (Sem II)	Calculus & Geometry
	Practical	Bolzano-Weierstrass Theorem Verification, Convergence & Divergence of infinite series, Cauchy Root Test	B.Sc. (Hons.) Mathematics (Sem II)	Differential Equations
April	Theory	Method of variation of parameters and acceleration and velocity model	B.Sc. (Hons.) Mathematics (Sem II)	Differential Equations
		Finding arc length, area & surface area	B.Sc. Programme (Sem II)	Calculus & Geometry
	Practical	D'Alembert's ratio test, Discussion of convergence of various sequences	B.Sc. (Hons.) Mathematics (Sem II)	Differential Equations

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Name of the Faculty Member: Sonali Batra
Department: Mathematics
Year: 2018-19 (ODD SEMESTER)

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
July	Theory & Tutorials	Basic Principles, Interest Rates	B.sc (H) III Mathematics	Mathematical Finance- 32357504
August	Theory & Tutorials	Net Present Value and Internal rate of return , Bonds – Prices , yields durations and convexity, immunization	B.sc (H) III Mathematics	Mathematical Finance- 32357504
September	Theory & Tutorials	Asset return, Short Selling, Portfolio Mean variance theory , Markowitz Model , two fund theorem and one fund theorem , Capital Mkt line and Security mkt line ,Capital asset pricing model (CAPM) , Beta of Stocks, Sharpe index , Jensen's index,	B.sc (H) III Mathematics	Mathematical Finance- 32357504
October	Theory & Tutorials	Derivatives- Futures, Forwards, options, Swaps. Lognormal Distribution for Stock prices, Binomial tree model	B.sc (H) Mathematics	Mathematical Finance- 32357504

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Name of the Faculty Member: Sonali Batra
Department: Mathematics
Year: 2018-19 (EVEN SEMESTER)

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	Theory & Tutorials	Models – Population Growth, Administration of Drugs, Cell Division, Heart beat , Nerve Impulse transmission , Chemical reactions, Predator-Prey model	III B.Sc. (h) Mathematics	Biomathematics - 32357609
February	Theory & Tutorials	Local Stability, Limit Cycles and Forced Oscillations , Phase plane Analysis of Heart beat Model, model of Cardiac Pacemaker	III B.Sc. (h) Mathematics	Biomathematics – 32357609
March	Theory & Tutorials	Mathematics of Nerve impulse transmission, Excitability, Bifurcation- Limit cycle, Discrete and Period- doubling, Stability of Limit cycle and Poincare Plane	III B.Sc. (h) Mathematics	Biomathematics – 32357609
April	Theory & Tutorials	Matrix Models (Jukes- cantor, Kimura) for base substitution for DNA, Phylogenetic distance and trees , UPGMA and Neighbor-joining method, Mendelian Genetics, Probability Distribution in Genetics.	III B.Sc. (h) Mathematics	Biomathematics – 32357609

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Name of the Faculty Member: Dr. Radha Mohan
Department: Mathematics
Year: 2018-19

Month	Theory/	Topics	Course	Paper code/ Name
July				
Week 3	Automorphism,Iner Automorphism, Automorphism groups,Automorphismn grouos of cyclic grouos	Automorphism	B.Sc. Mathematics	32351502
Week 4	Characteristic subgrouos, Commuttator subgrouo and properties, Applications of factor subgroups to Automorphism groups	Characteristic subgrouos and Commutator subgroups.		
August				
Week 1	External direct products and its properties, the groups U(n) as an external direct product	External Direct product if groups.		
Week 2	Internal Direct products	Internal Direct Product if groups		
Week 3	Statement of Fundamental Theorem of finite abelian groups, the isomorphism class of finite abelian groups	The Fundamental Theorem of Finite abelian groups		
Week 4	Group actions	Group actions		
September				
Week 1	Permutation representations of group actions, Stabilizers and kernels of group actions	Group actions		

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Week 2	Groups acting on themselves by left multiplication and consequences	The action of left multiplication	B.Sc. Mathematics	32351502
Week 3	Conjugacy classes in S_n.	Conjugacy classes		
Week 4	Conjugacy classes, class equation and p- groups.	Conjugacy classes		
October				
Week 1	State the three Sylow theorems and applications	Sylow Theorems		
Week 2	Application of Sylow Theorems	Sylow Theorems		
Week 3	Finite simple groups, Non-simplicity tests, Generalized Cayley's Theorems	Finite Grouos		
Week 4	Index Theorem, Embedding Theorem and Applications, Simplicity of A_5.	Finite grouos		

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Name of the Faculty Member: Dr. Radha Mohan
Department: Mathematics
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January			B. Sc. Mathematics	32351602
Week 1	Polynomial Rings over commutative rings, Division Algorithm and consequences, Principal Ideal Throreem	Polynomial Rings		
Week 2	Factorization of polynomials, Reducibility tests, Irreducibility tests	Polynomial Rings		
Week 3	Eisenstein's criterion, Unique factorization in Z[x].	Polynomial Rings	B. Sc. Mathematics	32351602
Week 4	Divisibility in integral domains, irreducibles and primes	Divisibility		
February				
Week 1	Unique Factorization Domains, Euclidean domains	Divisibility		
Week 2	Dual spaces, double dual, Dual basis, Transpose of a linear transformation and its matrix, annihilators	Dual space of a vector spaces		
Week 3	Eigenvalues, eigenvectors, Eigenspaces and characteristic polynomial of a linear transformation	Diagonalizability		

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Week 4	Digonalizablilty, Invariant subspaces and Cayley-Hamilton Theorem, Minimal Polynomial of a linear operator.	Diagonalizability and Minimal polynomial.		
March				
Week1	Inner product spaces and norms	Inner Product spaces		
Week 2	Orthogonal basis, Gram-Schmidt orthogonalization	Orthogonality		
Week 3	Orthogonal completeness, Bessel's Inequality	Orthogonality	B. Sc. Mathematics	32351602
April				
Week 1	Adjoint of a linear operator and properties, Least squares approximation, Minimal solutions to systems of linear equations	Adjoint of a linear operator		
Week 2	Normal and self-adjoint operators	Normal and self-adjoint operators		
Week 3	Unitary and orthogonal operators	Unitary and orthogonal operators		

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Name of the Faculty Member: Kashif Ahmed. Department: Mathematics, Year: 2018-19

Month	Theory/Practical	Topics	Course	Paper Name
July	Theory	First order ordinary differential equations: Basic concepts and ideas, First order exact differential equation, Integrating factors and rules to find integrating factors. Linear equations and Bernoulli equations, Orthogonal trajectories and oblique trajectories.	Generic Elective-II	32355301/ Differential Equations
	Theory+Practical	Introduction to structured programming: data types- simple data types, floating data types, character data types, string data types, arithmetic operators and operators precedence, variables and constant declarations, expressions, input using the extraction operator >> and cin, output using the insertion operator << and cout, preprocessor directives.	B.Sc.(H) Maths – III	32357503 / C++ Programming
August	Theory	Basic theory of higher order linear differential equations, Wronskian and its properties, Solving a differential equation by reducing its order. Linear homogenous equations with constant coefficients, Linear non-homogenous equations, The method of undetermined coefficients.	Generic Elective – II	32355301/ Differential Equations
	Theory+Practical	increment(++) and decrement(--) operations, creating a C++ program, input/ output, relational operators, logical operators and logical expressions, if and if-else statement, switch and break statements.	B.Sc.(H) Maths – III	32357503 / C++ Programming
September	Theory	The method of variation of parameters, The Cauchy-Euler equation, Simultaneous differential equations. Partial differential equations: Basic Concepts and definitions, Mathematical problems; First order equations: Classification and construction. "for", "while" and "do-while" loops and continue statement, nested control statement, value returning functions, value versus reference parameters, local and global variables.	Generic Elective – II	32355301/ Differential Equations
October	Theory	Geometrical interpretation, Method of characteristics, General solutions of first order partial differential equations. Canonical forms and method of separation of variables for first order partial differential equations. Second order partial differential equations: Classification, Reduction to canonical forms, With constant coefficients, General solutions.	Generic Elective-II	32355301/ Differential Equations
	Theory+Practical	one dimensional array, two-dimensional array, pointer data and pointer variables.	B.Sc.(H) Maths – III	32357503 / C++ Programming

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Name of the Faculty Member: Kashif Ahmed. Department: Mathematics, Year: 2018-19

Month	Theory/Practical	Topics	Course	Paper code
January	Theory	Fundamental operation with vectors in Euclidean space n, Linear combination of vectors, dot product and their properties, Cauchy-Schwarz inequality, Triangle inequality, Projection vectors. Some elementary results on vectors in n; Matrices: Gauss–Jordan row reduction, Reduced row echelon form, Row equivalence, Rank. Linear combination of vectors, Row space, Eigenvalues, Eigenvectors, Eigenspace, Characteristic polynomials, Diagonalization of matrices.	Generic Elective-I	32355202
	Theory+Practical	Introduction to compartmental models, Lake pollution model (with case study of Lake Burley Griffin), Drug assimilation into the blood (case of a single cold pill, case of a course of cold pills, case study of alcohol in the bloodstream),	B.Sc.(H) Maths – I	32351202
February	Theory	Definition and examples of vector space, Some elementary properties of vector spaces. Subspace, Span of a set, a spanning set for an eigenspace, Linear independence and dependence, Basis and dimension of a vector space, Maximal linearly independent sets, Minimal spanning sets. Application of rank: Homogenous and non-homogenous systems of linear equations; Coordinates of a vector in ordered basis, Transition matrix.	Generic Elective-I	32355202
	Theory+Practical	Exponential growth of population, Limited growth of population, Limited growth with harvesting.	B.Sc.(H) Maths – I	32351202
March	Theory	Linear transformations: Definition and examples, Elementary properties. The matrix of a linear transformation, Linear operator and similarity. Application: Computer graphics, Fundamental movements in a plane; Homogenous coordinates, Composition of movements. Kernel and range of a linear transformation, Statement of the dimension theorem, examples.	Generic Elective I Year	32355202
	Theory+Practical	Interacting population models, Epidemic model of influenza and its analysis, Predator-prey model and its analysis.	B.Sc.(H) Maths – I	32351202
April	Theory	One to one and onto linear transformations, Invertible linear transformations, isomorphism, isomorphic vector spaces. Orthogonal and orthonormal vectors, orthogonal and orthonormal bases, orthogonal complement, statement of the projection theorem and examples. Orthogonal projection onto a subspace.	Generic Elective -I	32355202
	Theory+Practical	Equilibrium points, Interpretation of the phase plane, Battle model, Epidemic model and its analysis.	B.Sc.(H) Maths – I	32351202

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Name of the Faculty Member: Dr. Jaspreet Kaur
Department: Mathematics. Year: 2018-19

Month	Theory/ Practical	Topics	Course	Paper code/ Name
July	Multivariate Calculus (**Theory 4+Practical 8**) GE-Calculus (**Theory 5**)	Def. function of several variables, graphs of two variable functions, Limit and continuity of two and three variable. Partial derivatives, Higher order partial derivatives, Tangent planes, Total differential. Practical based on these topics in maxima software. Epsilon-delta def of limit of a function, one sided limit, limits at infinity, asymptotes, differential of a function.	B.Sc(H) Mathematics IInd year B.Sc(H) Physics Ist Year	Multivariate Calculus GE-Calculus
August	Same as above	Chain rule, Maxima minima for functions of two variables, Lagrange multiplier, Def of vector field, Divergence and curl. Practical based on these topics. Concavity, points of inflection, curve tracing, indeterminate forms, L'Hopital rule, volumes by slicing, volumes by washer method, cylindrical shell method	Same as above	Same as above
September	Same as above	Double integrals over rectangular and non-rectangular regions, double integrals in polar coordinates, Triple integrals over simple solids, Triple integrals in cylindrical and spherical coordinates, Line integrals introduction. Practical based on these topics.	Same as above	Same as above
October	Same as above	Line integrals computation, application of line integrals, surface integrals, Green's theorem, Stokes theorem and Divergence theorem. Practical based on these topics. Length of plane curves, Area of surface of revolution, improper integration, Polar coordinates, Graphs in polar coordinates, Vector valued functions and results on vector valued functions.	Same as above	Same as above

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Name of the Faculty Member: Dr. Jaspreet Kaur
Department: Mathematics. Year: 2018-19

Month	Theory/ Practical	Topics	Course	Paper Name
January	Ring theory and Linear Algebra I (**Theory 2 Tutorial 2**) Complex Analysis (**Theory 4+ Practical 8**)	Definition and examples of rings, Properties of rings, subrings, integral domains and fields, characteristic of a ring, ideals. Question based on these topics from the recommended book discussed in tutorial classes. History of complex numbers, Functions of complex variable, Limit and continuity of functions of complex variables Practical: finding modulus, conjugate and argument of complex numbers, Geo. Interpretation of addition/sub and multiplication/division of complex nos., roots of unity and factors of polynomial	B.Sc(H) Mathematics IInd year B.Sc(H) Mathematics IIIrd year	Ring theory and Linear Algebra I Complex Analysis
February	Same as above	Ideal generated by a subset, factor rings, operations on ideals, prime and maximal ideals. Question based on these topics from the recommended book discussed in tutorial classes. Differentiability of complex functions, Cauchy-Riemann equations, Analytic functions, Elementary functions such as complex exponential, Complex log and Complex trigonometric functions. Practical: Image of certain sets such as unit circle, disk, line segments under elementary function and bilinear mappings.	Same as above	Same as above
March	Same as above	Ring homomorphism, properties of ring homomorphisms. Question based on these topics from the recommended book discussed in tutorial classes. Contour integration, ML-inequality theorem and applications, antiderivatives, Cauchy – Goursat theorem, Liouvilles theorem , fundamental theorem of algebra,Cauchy integral formula Practical: Verification of CR-equations Computation of contour integrals.Graphs of real and imaginary parts of complex functions.	Same as above	Same as above
April	Same as above	Isomorphism theorems for rings, The field of quotients. Question based on these topics from the recommended book discussed in tutorial classes. Complex sequences and series, complex power series, Taylors theorem, Laurent theorem, Singular points, Types of singular points, Poles and residues. Practical based on the above topics.	Same as above	Same as above

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Name of the Faculty member: Ms. Archana Chopra
Department: Mathematics

Year : 2018-19 (Odd Sem)				
Month	**Theory/ Practical/ Tutorials**	**Topics**	**Course**	**Paper code/ Name**
July	Theory	Equivalence relations, Functions, Composition of functions.	B.Sc(H) Mathematics1st Sem	Algebra 32351102
		Definition of the limit, Sequential criterion for limits, Criterion fornon-existence of limit.	B.Sc(H) Mathematics3rd Sem	Theory of Real Functions 32351301
	Tutorial	Discussion on limits	B.Sc(H) Mathematics3rd Sem	Theory of Real Functions 32351302
August	Theory	Invertibility and inverse of functions, One-to-onecorrespondence and the cardinality of a set.	B.Sc(H) Mathematics1st Sem	Algebra 32351102
		Algebra of limits of functions with illustrations and examples, Squeeze theorem. Definition and illustration of the concepts ofone-sided limits, Infinite limits and limits at infinity. Definitions of continuity at a point and on a set,Sequential criterion for continuity, Algebra of continuous functions, Composition of continuousfunctions.	B.Sc(H) Mathematics3rd Sem	Theory of Real Functions 32351301
	Tutorial	Doubts discussion and Exercise Questions	B.Sc(H) Mathematics3rd Sem	Theory of Real Functions 32351302
		The Euclidean algorithm. Well ordering principle, The division algorithm in Z..	B.Sc(H) Mathematics1st Sem	Algebra 32351102

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September	Theory	Various properties of continuous functions defined on an interval, viz., Boundedness theorem, Maximum-minimum theorem, Statement of the location of roots theorem, Intermediate value theorem and the preservation of intervalstheorem. Definition of uniform continuity, Illustration of non- uniform continuity criteria, Uniform continuity theorem. Test-1	B.Sc(H) Mathematics3rd Sem	Theory of Real Functions 32351301
	Tutorial	Doubts discussion and Exercise Questions	B.Sc(H) Mathematics3rd Sem	Theory of Real Functions 32351302
October	Theory	Divisibility, Modular arithmetic and basic properties ofcongruences. Test	B.Sc(H) Mathematics1st Sem	Algebra 32351102
		Differentiability of a function, Algebra of differentiable functions,Carathéodory's theorem and chain rule.: Relative extrema, Interior extremum theorem, Mean value theorem and its applications.	B.Sc(H) Mathematics3rd Sem	Theory of Real Functions 32351301
	Tutorial	Doubts session and presentations based on exercisequestions	B.Sc(H) Mathematics3rd Sem	Theory of Real Functions 32351302
November	Theory	Statements of the fundamental theorem of arithmetic andprinciple of mathematical induction.	B.Sc(H) Mathematics1st Sem	Algebra 32351102
		Intermediate value property of derivatives- Darboux's theorem. Taylor polynomial, Taylor's theorem and its applications, Taylor's series expansions of , sin x e x and cos.Test-2	B.Sc(H) Mathematics3rd Sem	Theory of Real Functions 32351301
	Tutorial	Exercise Questions and Presentations	B.Sc(H) Mathematics3rd Sem	Theory of Real Functions 32351302

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Name of the Faculty member: Ms. Archana Chopra
Department: Mathematics

Year : 2018-19 (Even Sem)				
Month	**Theory/ Practical/ Tutorials**	**Topics**	**Course**	**Paper code/ Name**
January	Theory	Definitions and examples of pointwise and uniformly convergent sequence of functions. Motivation for uniform convergence by giving examples. Theorem on the continuity ofthe limit function of a sequence of functions.	B.Sc(H) Mathematics4th Sem	Reimann Integrationand Series of Functions 32351402
		Graphs of simple concrete functions such as polynomial,Trigonometric, Inverse trigonometric, Exponential and logarithmic functions. Limits and continuity of a function including epsilon-delta approach, Properties of continuousfunctions including Intermediate value theorem.	B.Sc(Prog) 2nd Sem	Calculus and Geometry 42351201
		Finite and infinite sets, Examples of countable and uncountable sets; Absolute value of the real line, bounded sets, suprema and infima; Statement of order Completenessproperty of R, Archimedean property of R. Real sequences, Convergence, Sum and product of convergent sequences, Order preservation and squeeze theorem.	B.Sc(H) Phy+chem +Eco(H)	GE-Elements of I Analysis 32355444
	Tutorial	Practice questions based on exercise.	B.Sc(H) Mathematics4th Sem	Reimann Integrationand Series of Functions 32351402
		Practice questions based on exercise.	B.Sc(H) Phy+chem +Eco(H)	GE-Elements of I Analysis 32355444

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February	Theory	The statement of the theorem on the interchange of the limitfunction and derivative, and its illustration with the help of examples. The interchange of thelimit function and integrability of a sequence of functions. Pointwise and uniform convergence ofseries of functions, Test	B.Sc(H) Mathematics4th Sem	Reimann Integrationand Series of Functions 32351402
		Differentiability, Successive differentiation, Leibnitz theorem, Recursion formulae for higher derivatives.	B.Sc(Prog) 2nd Sem	Calculus and Geometry 42351201
		Monotone sequences and their convergence, Proof of convergence of some simple sequences. Subsequences and the Bolzano□Weierstrass theorem (statement and examples), Limit superior and limit inferior of a bounded sequence (definitionand examples), Statement and illustrations of Cauchy convergence criterion for sequences.	B.Sc(H) Phy+chem +Eco(H)	GE-Elements of I Analysis 32355444
	Tutorial	Presentations based on exercise questions and doubt session.	B.Sc(H) Mathematics4th Sem	Reimann Integrationand Series of Functions 32351402
		Presentations based on exercise questions and doubt session.	B.Sc(H) Phy+chem +Eco(H)	GE-Elements of I Analysis 32355444
March	Theory	Theorems on the continuity, derivability and integrability of the sum function of a series offunctions. Cauchy criterion for the uniform convergence of series of functions, and the Weierstrass M-test for uniform convergence. Definition of a power series, Radius of convergence.	B.Sc(H) Mathematics4th Sem	Reimann Integrationand Series of Functions 32351402
		Rolle's theorem, Lagrange's mean value theorem with geometrical interpretations and simple applications, Taylor's theorem, Taylor's series and Maclaurin's series, Maclaurin'sexpansion of functions such as sinx , cos x, log(1+x), e^x, (1+x)^m.	B.Sc(Prog) 2nd Sem	Calculus and Geometry 42351201

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		Definition and a necessary condition for convergence of an infinite series, Geometric series, Cauchy convergence criterionfor series, positive term series, State the integral test and prove the convergence of p-series, Comparison test, Limit comparison test and examples. D'Alembert's Ratio test, Cauchy's Root test. Alternating series, Leibnitz test; Absolute and conditional convergence. Test-1	B.Sc(H) Phy+chem +Eco(H)	GE-Elements of I Analysis 32355444
	Tutorial	Practice session and doubts discussion.	B.Sc(H) Mathematics4th Sem	Reimann Integrationand Series of Functions 32351402
		Practice session and doubts discussion.	B.Sc(H) Phy+chem +Eco(H)	GE-Elements of I Analysis 32355444
April	Theory	Theorems on the continuity, derivability and integrability of thesum function of a series of functions. Differentiation and integration of power series, Statement of Abel's Theorem and its illustration with the help of examples. Test	B.Sc(H) Mathematics4th Sem	Reimann Integrationand Series of Functions 32351402
		polynomial approximation and error estimation. Functions of two or more variables, Graphs and Level curves of functions oftwo variables, Partial differentiation up to second order. Test	B.Sc(Prog) 2nd Sem	Calculus and Geometry 42351201
		Definition of power series, Radius and interval of convergence,Cauchy□Hadamard theorem. Statement and illustration of term-by-term differentiation, Integration of power series and Abel's theorem. Power series expansions and their properties.	B.Sc(H) Phy+chem +Eco(H)	GE-Elements of I Analysis 32355444

	Tutorial	Presentations based on exercise questions and doubt session.	B.Sc(H) Mathematics4th Sem	Reimann Integrationand Series of Functions 32351402
		Presentations based on exercise questions and doubt session.	B.Sc(H) Phy+chem +Eco(H)	GE-Elements of I Analysis 32355444

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Name of the Faculty member: Ms. Rajni Gupta. Department: Mathematics Year: 2018-19		

Month	Theory/ Practical	Topics	Course	Paper code/ Name
July	Theory	Introducing R, using R as a calculator; Explore dataand relationships in R	B.Sc(Prog) Chem+Comp. Sci 5thSem	SEC-3 Statistical Software: R 42353503
	Practical	Introduction to R software and Rstudio. Practice on Rbased on topics done in theory.	B.Sc(Prog) Chem+Comp. Sci 5thSem	SEC-3 Statistical Software: R 42353503
August	Theory	Reading and getting data into R: Combine and scan commands, viewing named objects and removing objects from R, Types and structures of data items with their properties, Working with history commands,Saving work in R.	B.Sc(Prog) Chem+Comp. Sci 5thSem	SEC-3 Statistical Software: R 42353503
	Practical	Practice based on the topics covered in theoryclasses. Exercise questions discussion.	B.Sc(Prog) Chem+Comp. Sci 5thSem	SEC-3 Statistical Software: R 42353503
September	Theory	Manipulating vectors, Data frames, Matrices and lists;Viewing objects within objects, Constructing data objects and their conversion. Summary statistics for vectors. Test-1	B.Sc(Prog) Chem+Comp. Sci 5thSem	SEC-3 Statistical Software: R 42353503
	Practical	Practice based on the topics covered in theory classes. Practical Test -1 . Discussion based onsample questions.	B.Sc(Prog) Chem+Comp. Sci 5thSem	SEC-3 Statistical Software: R 42353503

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October	Theory	Data frames, Matrices and lists; Summary tables.Stemand leaf plot, Histograms, Density function and its plotting, The Shapiro-Wilk test for normality, The Kolmogorov-Smirnov test.	B.Sc(Prog) Chem+Comp. Sci 5thSem	SEC-3 Statistical Software: R 42353503
	Practical	Practice based on the topics covered in theoryclasses. Exercise questions discussion.	B.Sc(Prog) Chem+Comp. Sci 5thSem	SEC-3 Statistical Software: R 42353503
November	Theory	Plotting in R: Box-whisker plots, Scatter plots, Pairsplots, Line charts, Pie charts, Cleveland dot charts, Bar charts; Copy and save graphics to other applications. Test-2	B.Sc(Prog) Chem+Comp. Sci 5thSem	SEC-3 Statistical Software: R 42353503
	Practical	Practice based on the topics covered in theory classes. Practical Test -2. Working in R based onbigger data excel sheets from govt. websites.	B.Sc(Prog) Chem+Comp. Sci 5thSem	SEC-3 Statistical Software: R 42353503

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Name of the Faculty member: Ms. Rajni Gupta. Department: Mathematics Year: 2018-19		

Month	Theory/ Practical	Topics	Course	Paper code/ Name
January	Tutorial	Practice questions and Doubt session	B.Sc(H) Mathematics 6th Sem	DSE: Linear Programming & Theoryof Games 32357611
		Practice questions and Doubt session	B.Sc(Prog) Chem+Comp Sci 6thSem	DSE: Probability & Statistics 42357602
	Theory	Transportation problem and its mathematical formulation, northwest-corner method, least costmethod and Vogel approximation method for determination of starting basic feasible solution. Algorithm for solving transportation problem.	B.Sc(Prog) Chem+Comp Sci 6thSem	SEC: Transportation and NetworkFlow Problems 42353604
		Computer Algebra Systems (CAS), Use of a CAS as a calculator, Simple programming in a CAS. Computing and plotting functions in 2D.	B.Sc(Prog) Chem+Comp. Sci 4thSem	SEC- II Computer Algebra System 42353404
	Practical	Transportation problem on Excel Solver	B.Sc(Prog) Chem+Comp Sci 6thSem	SEC: Transportation and NetworkFlow Problems 42353604
		Introduction to mathematica software and practice ofcommands.	B.Sc(Prog) Chem+Comp. Sci 4thSem	SEC- II Computer Algebra System 42353404
	Tutorial	Practice questions and Doubt session. Presentation	B.Sc(H) Mathematics 6th Sem	DSE: Linear Programming & Theoryof Games

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February				32357611
		Exercise Questions and Doubt session	B.Sc(Prog) Chem+Comp Sci 6thSem	DSE: Probability & Statistics 42357602
	Theory	Assignment problem and its mathematical formulation,Hungarian method for solving assignment problem, traveling salesperson problem.	B.Sc(Prog) Chem+Comp Sci 6thSem	SEC: Transportation and NetworkFlow Problems 42353604
		Customizing Plots, Animating Plots, Producing table ofvalues, Working with piecewise defined functions, Combining graphics.Factoring, Expanding and finding roots of polynomials, Working with rational and trigonometric functions.	B.Sc(Prog) Chem+Comp. Sci 4thSem	SEC- II Computer Algebra System 42353404
	Practical		B.Sc(Prog) Chem+Comp Sci 6thSem	SEC: Transportation and NetworkFlow Problems 42353604
		Practice over mathematics and discussion of exercisequestions.	B.Sc(Prog) Chem+Comp. Sci 4thSem	SEC- II Computer Algebra System 42353404

	Tutorial	Exercise Questions and Doubt session	B.Sc(H) Mathematics 6th Sem	DSE: Linear Programming & Theoryof Games 32357611
		Practice questions of Exercise and Doubt session	B.Sc(Prog) Chem+Comp Sci 6thSem	DSE: Probability & Statistics 42357602

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March	Theory	Network models, minimum spanning tree algorithm,shortest-route problem, maximum flow model. Test-1	B.Sc(Prog) Chem+Comp Sci 6thSem	SEC: Transportation and NetworkFlow Problems 42353604
		Computing limits, First and higher order derivatives, Maxima and minima, Integration, computing definiteand indefinite integrals. Solving general equations. Test-1	B.Sc(Prog) Chem+Comp. Sci 4thSem	SEC- II Computer Algebra System 42353404
	Practical	Network related questions on solver. Exercisequestions.	B.Sc(Prog) Chem+Comp Sci 6thSem	SEC: Transportation and NetworkFlow Problems 42353604
		Practice based on topics done in theory. PracticalTest-1	B.Sc(Prog) Chem+Comp. Sci 4thSem	SEC- II Computer Algebra System 42353404
April	Tutorial	Practice questions and Doubt session. Presentations	B.Sc(H) Mathematics 6th Sem	DSE: Linear Programming & Theory of Games 32357611
		Practice questions and Doubt session	B.Sc(Prog) Chem+Comp Sci 6thSem	DSE: Probability & Statistics 42357602
	Theory	Project network, CPM and PERT.	B.Sc(Prog) Chem+Comp Sci 6thSem	SEC: Transportation and NetworkFlow Problems 42353604
		Performing Gaussian elimination, Operations(transpose, determinant, and inverse), Minors and cofactors, Solving systems of linear equations, Rank and nullity of a matrix, Eigenvalue,Eigenvector and diagonalization. Test-2	B.Sc(Prog) Chem+Comp. Sci 4thSem	SEC- II Computer Algebra System 42353404
	Practical	Project problems on solver. Practical Test	B.Sc(Prog) Chem+Comp Sci 6thSem	SEC: Transportation and NetworkFlow Problems 42353604

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Name of the Faculty member: Mr. Abhishek Sharma			Department: Mathematics	Year: 2018-19 (Odd Sem)
Month	**Theory/ Practical/ Tutorials**	**Topics**	**Course**	**Paper code/ Name**
July	Theory	Introduction to TeX and LaTeX, Typesetting a simple LaTeX document.	B.Sc. Physical Science, Second Year, Semester 3	42353327/ SEC- Mathematical Typesetting: Latex
	Practical	Introduction with Texstudio and MikTeX. Practice of topics covered in theory classes.	B.Sc. Physical Science, Second Year, Semester 3	42353327/ SEC- Mathematical Typesetting: Latex
August	Theory	Adding basic information to documents, Environments, Footnotes, Sectioning, Displayed material. Accents and symbols; Mathematical typesetting (elementary and advanced): Subscript/Superscript, Fractions, Roots, Ellipsis, Mathematical symbols, Arrays, Delimiters	B.Sc. Physical Science, Second Year, Semester 3	42353327/ SEC- Mathematical Typesetting: Latex
	Practical	Practice over Texstudio. Doubt discussions. Practice questions as daily class evaluation	B.Sc. Physical Science, Second Year, Semester 3	42353327/ SEC- Mathematical Typesetting: Latex
September	Theory	Multiline formulas, Spacing and changing style in math mode. Graphics in LaTeX.	B.Sc. Physical Science, Second Year, Semester 3	42353327/ SEC- Mathematical Typesetting: Latex
	Practical	Practice and exercise questions.	B.Sc. Physical Science, Second Year, Semester 3	42353327/

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				SEC- Mathematical Typesetting: Latex
October	Theory	Simple pictures using PS Tricks, Plotting of functions, Beamer	B.Sc. Physical Science, Second Year, Semester 3	42353327/ SEC- Mathematical Typesetting: Latex
	Practical	Practical questions on PS Tricks, Plotting of functions and Beamer	B.Sc. Physical Science, Second Year, Semester 3	42353327/ SEC- Mathematical Typesetting: Latex
November	Theory	Frames, Animation in Beamer, Themes in Beamer, Enhancing beamer presentation.	B.Sc. Physical Science, Second Year, Semester 3	42353327/ SEC- Mathematical Typesetting: Latex
	Practical	Doubts discussion, Assignment on PS Tricks and Beamer.	B.Sc. Physical Science, Second Year, Semester 3	42353327/ SEC- Mathematical Typesetting: Latex

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Name of the Faculty member: Mr. Abhishek Sharma			Department: Mathematics	Year: 2018-19 (Even Sem)
Month	**Theory/ Practical/ Tutorials**	**Topics**	**Course**	**Paper code/ Name**
January	Theory	Statistical software R, R as a calculator, reading and getting data into R: combine and scan commands, types and structure of data items with their properties, Manipulating vectors, data frames, matrices & lists, viewing objects within objects, constructing data objects & conversions.	B.Sc. (H) Mathematics, Second Year, Semester 4.	32353401/ CAS and Related Software
	Theory	Floating point representation and computer arithmetic, Significant digits, Errors: Roundoff error.	B.Sc. Physical Science, Third Year, Semester 6.	42357618 / DSE Numerical Method
	Tutorial	Questions on Bisection method, Secant method, Regula Falsi method, Newton–Raphson method.	B.Sc. Physical Science, Third Year, Semester 6.	42357618 / DSE Numerical Method
	Tutorial	S. Andrilli and D. Hecker, Elementary Linear Algebra, Exercise questions of sections 2.1 and 2.2.	B.Sc.(h) Physics, First Year, Semester 2.	32355202 / GE: Linear Algebra
	Practical	Introduction to R software and R-Studio. Practice on R-Studio based on topics done in theory.	B.Sc. (H) Mathematics, Second Year, Semester 4.	32353401/ CAS and Related Software
February	Theory	Summary commands, Summary statistics for vectors, data frames, matrices & lists, summary tables, Stem & leaf Plot, Histogram, Plotting in R: Box-whisker Plots,	B.Sc. (H) Mathematics, Second Year, Semester 4.	32353401/ CAS and Related Software

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		Scatter Plot, Pairs Plot, fine charts, Pie Chart, Cleveland Dot Charts, Bar Charts, explore data & relations, saving graphs.		
	Theory	Local truncation error, Global truncation error, Order of a method, Convergence and terminal conditions, Efficient computations.	B.Sc. Physical Science, Third Year, Semester 6.	42357618 / DSE Numerical Method
	Tutorial	Questions on Gauss elimination method, Gauss–Jordan method, Gauss Thomas method, Jacobi iterative, Gauss-Seidel methods, Finite difference operators, forward and backward differences Interpolation.	B.Sc. Physical Science, Third Year, Semester 6.	42357618 / DSE Numerical Method
	Tutorial	S. Andrilli and D. Hecker, Elementary Linear Algebra, Exercise questions of sections 4.2 - 4.4.	B.Sc.(h) Physics, First Year, Semester 2	32355202 / GE: Linear Algebra
	Practical	Practice on R-Studio, based on the topics covered in theory classes.	B.Sc. (H) Mathematics, Second Year, Semester 4.	32353401/ CAS and Related Software
March	Theory	Computer Algebra Systems, use of a CAS as a calculator, Computing and plotting functions in 2D, plotting functions of two variables using Plot3D and ContourPlot, plotting parametric curves and surfaces, Customizing Plots, Animating plots, producing table of values, working with piecewise defined functions, combining graphics.	B.Sc. (H) Mathematics, Second Year, Semester 4.	32353401/ CAS and Related Software

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	Theory	Ordinary differential equation: Euler's method Modified Euler's methods: Heun method and Mid-point method.	B.Sc. Physical Science, Third Year, Semester 6.	42357618 / DSE Numerical Method
	Tutorial	Questions on Linear interpolation, Cubic spline interpolation, First derivatives and second order numerical derivatives, Richardson extrapolation, Trapezoid rule, Simpson's rule, Newton–Cotes open formulas, Romberg integration, Gaussian quadrature.	B.Sc. Physical Science, Third Year, Semester 6.	42357618 / DSE Numerical Method
	Tutorial	S. Andrilli and D. Hecker, Elementary Linear Algebra, Exercise questions of sections 4.5 – 4.7.	B.Sc.(h) Physics, First Year, Semester 2	32355202 / GE: Linear Algebra
	Practical	Practice based on topics covered in theory. Discussion based on Exercise Questions.	B.Sc. (H) Mathematics, Second Year, Semester 4.	32353401/ CAS and Related Software
April	Theory	Simple Programming in a CAS, Working with matrices, performing gauss elimination, operations (transpose, determinant, inverse), minors and cofactors, working with large matrices, solving system of linear equations, rank and nullity of a matrix, eigenvalue, eigenvector and diagonalization.	B.Sc. (H) Mathematics, Second Year, Semester 4.	32353401/ CAS and Related Software
	Theory	Runge-Kutta second methods: Heun method without iteration, Mid-point method and Ralston's method	B.Sc. Physical Science, Third Year, Semester 6.	42357618 / DSE Numerical Method

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		Classical 4th order Runge-Kutta method, Finite difference method for linear ODE.		
	Tutorial	Questions on Euler's method, Heun method, Mid-point method, Runge-Kutta second methods: Heun method without iteration, Mid-point method and Ralston's method Classical 4th order Runge-Kutta method, Finite difference method for linear ODE.	B.Sc. Physical Science, Third Year, Semester 6.	42357618 / DSE Numerical Method
	Tutorial	S. Andrilli and D. Hecker, Elementary Linear Algebra, Exercise questions of sections 5.1 – 5.4	B.Sc.(h) Physics, First Year, Semester 2	32355202 / GE: Linear Algebra
	Practical	Practice based on topics covered in theory. Discussion based on Exercise Questions.	B.Sc. (H) Mathematics, Second Year, Semester 4.	32353401/ CAS and Related Software

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Computer Science Department

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Name of the Faculty Member: Ms. Hunny Gaur
Department: Computer Science
Year: 2018-19

Month	Theory/ Practical	Topics	Course	Paper code/ Name
July	Theory + Practicals	• Introduction to object-oriented programming • Characteristics of object-oriented languages • Basics of program construction	Generic Elective for BA/BSc Hons, I Year	Introduction to Programming (32345102)
August	Theory + Practicals	• Defining variables • Input and output using cin and cout • Arithmetic operators • Library functions	Generic Elective for BA/BSc Hons, I Year	Introduction to Programming (32345102)
September	Theory + Practicals	• Programming using if else and loops • Using break and continue as control statements • Working with Array • Defining functions	Generic Elective for BA/BSc Hons, I Year	Introduction to Programming (32345102)
October	Theory + Practicals	• Creating structures • Working with classes and objects • Difference between class and structure • Constructor function	Generic Elective for BA/BSc Hons, I Year	Introduction to Programming (32345102)
November	Theory + Practicals	• Understanding concept of inheritance • Working with derived and base class • Disk file I/O with streams	Generic Elective for BA/BSc Hons, I Year	Introduction to Programming (32345102)

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Name of the Faculty Member: Ms. Hunny Gaur
Department: Computer Science
Year: 2018-19

Month	Theory/ Practical/ Tutorials	Topics	Course	Paper code/ Name
January	Theory + Practicals	• Introduction: computer network as a threat • Understanding vulnerabilities: Hardware and software • Coding ceaser and rail-fence cipher • Introduction to symmetric and asymmetric key cryptography	Generic Elective for BA/BSc Hons, II Year	Information Security & Cyber Laws (32345401)
February	Theory + Practicals	• Risk analysis and threat • Analysis process, data protection • Understanding terms: access control, security assurance • What is incident response plan	Generic Elective for BA/BSc Hons, II Year	Information Security & Cyber Laws (32345401)
March	Theory + Practicals	• Information gathering techniques: Tools for scanning, spoofing and password cracking • Working with Nmap • Understanding session hijacking and MITM attack • Safety tools: firewall, IDPS	Generic Elective for BA/BSc Hons, II Year	Information Security & Cyber Laws (32345401)
April	Theory + Practicals	• What is digital crime • Cyber forensics • Difference between Digital and electronic signatures • Cyber laws as per IT rule 2008	Generic Elective for BA/BSc Hons, II Year	Information Security & Cyber Laws (32345401)

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Physical Education Department

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Name of the Faculty Member: SUJAY JOHN K

Department: PHYSICAL EDUCATION

Year: 2018-19

Month		Topics	Course	Paper Name	Paper Code
July	Theory	UNIT-I Meaning and definition of Sports, Motivation towards Sports for fun, competitions, Health, rehabilitation. UNIT-II Meaning and definition; Components of health related Physical Fitness.	GE	Sports for All GE III	62555501
	Practical	Practical 1, 2 and 3			
	Tutorial				
	Theory	Health Education: Meaning, Concept and Principles Health – Importance, Components, Health Promoting Behaviours	GE	Health Education Anatomy and Physiology GE II	12555321
	Practical	Asanas and Therapeutic Value : Karnapeedasana, Padmasana, Dhanurasana			
	Tutorial				
	Theory	WHOLISTIC PERSONALITY DEVELOPMENT - Unit 1 Introduction to Personality & holistic Personality, Meaning and Definition of Personality & holistic Personality. Introduction to the acronym CAKE	SEC	Holistic Personality	62553339

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Practical	Measuring self-responsibility of 24 hours recall method.		Development SEC	
Tutorial				
Theory	Unit-I Physical Activity and Wellness Concept, Benefits of Participation in Physical Activities with Specific Reference to Health Concept, Components, Significance of Positive Lifestyle and Quality of Life.	SEC	Wellness and Fitness SEC	62553503
Practical	Introduction : Walking, Jogging, Running, Calisthenics, Rope Skipping, Cycling, Swimming, Circuit Training, Weight training, Adventure Sports			
Tutorial				
Theory	Unit-I: Introduction Concept, Definition, Need and Scope of Physical Education Objectives, Principles and Components of Physical Education	GE	Introduction to Physical Education in the Contemporary Context	62551101
Practical	Introduction to Suryanamaskar			
Tutorial				

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August	Theory	UNIT-III SPORTS FOR FUN: Fun, Games Festival; Organizing Games Festival; Games Festival Facility; Sports Clubs. SPORTS FOR COMPITITIONS: Competition; Sports Selections; Sports participation and sports competitions.	GE	Sports for All GE III	62555501
	Practical	Practical 4, 5 and 6			
	Tutorial				
	Theory	Role of Personal Hygiene, Mental Hygiene, Sleep Hygiene, Occupational Hygiene in PE & sports Role of Different Agencies in Promoting Health (WHO, UNICEF, Local Bodies)	GE	Health Education Anatomy and Physiology GE II	12555321
	Practical	Asanas and Therapeutic Value : Sarvangasana, Paschimottanasana, Chakrasana,			
	Tutorial				
	Theory	Components of holistic Personality in relation to existing knowledge on personality and character building. PEST MOVES. Holistic personality as represented by the car and its four wheals.	SEC	Holistic Personality Development SEC	62553339
	Practical	Measurement of holistic personality			

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	Tutorial				
	Theory	Unit-II Fitness Concept, Components (Health Related, Skill Related, Cosmetic),	SEC	Wellness and Fitness SEC	62553503
	Practical	Significance; Aerobic and Anaerobic Exercise, Target Heart Rate, Warming Up, Conditioning, Cooling Down,			
	Tutorial				
	Theory	A Brief Historical Perspective of Physical Education Development of Physical Education in Greece, Rome, Germany, India	GE	Introduction to Physical Education in the Contemporary Context	62551101
	Practical	Performing the Suryanamaskar			
	Tutorial				
September	Theory	UNIT-IV SPORTS FOR HEALTH: Health; Diagnosis of ill-health, Prevention and Treatment of ill health and Sports. SPORTS FOR PHYSIOTHERAPY : Physiotherapy & Handicap. Exercise and Sports for physiotherapy. Testing of physiotherapy progress.	GE	Sports for All GE III	62555501

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	Practical	Practical 7, 8, 9			
	Tutorial				
	Theory	Need and Importance of Anatomy & Physiology in PE Definition and Description of Cell, Tissue, Organ and System Brief Introduction to Skeletal System, Muscular System, Circulatory System, Respiratory System	GE	Health Education Anatomy and Physiology GE II	12555321
	Practical	Asanas and Therapeutic Value : Matsyasana, Ardhmatsyendrasana, Usthrasana			
	Tutorial				
	Theory	UNIT-II: PHYSICAL PERSONALITY DEVELOPMENT	SEC	Holistic Personality Development SEC	62553339
	Practical	1. Personality development prescription to type A, type B and type C mental personality people. 2. Application of MEN Acronyms.			
	Tutorial				

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	Theory	Unit II: 2. General Principles of Training: Introduction, Significance and Benefits of each Principle	SEC	Wellness and Fitness SEC	62553503
	Practical	General Principles of Training: Practical Training and Concept of Training			
	Tutorial				
	Theory	Unit-II: Physical Education - A Holistic Approach Physical Education in relation to Humanities Physical Education in relation to Science Disciplines:	GE	Introduction to Physical Education in the Contemporary Context	62551101
	Practical	Physical Fitness through Calisthenics / Aerobics / Circuit-Training / Weight-Training			
	Tutorial				
October	Theory	Effects of Exercise on different systems of the body Concepts Warming-up, Conditioning, Cooling-down Fatigue, Stitch, Cramp, Oxygen Debt, Second Wind Maximum Heart Rate, Vital Capacity, Stroke Volume, Temperature Regulation, Lactate Threshold and VO2 max.	GE	Health Education Anatomy and Physiology GE II	12555321
	Practical	Asanas and Therapeutic Value : Mayurasana,Shirshasana, Vajrasana Demonstrate Warming-up / Conditioning / Cooling-down exercises.			

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Tutorial				
Theory	UNIT-III: MENTAL & SPIRITUAL PERSONALITY DEVELOPMENT	SEC	Holistic Personality Development SEC	62553339
Practical	1. Personal identity measurement from health variables. 2. Personality measurement from fitness and from wellness variables.			
Tutorial				
Theory	Unit III: Effects of Exercise on Skeletal, Muscular, Circulatory and Respiratory	SEC	Wellness and Fitness SEC	62553503
Practical	Basic Anatomical and Physiology of Selected Systems of the Human Body			
Tutorial				
Theory	UNIT-V SPORTS FOR CHALLENGED POPULATIONS : Visually, Auditory, Physical and Modified Sports. SPORTS FOR FIGURE & PERSONALITY: Meaning, concept and definition of Figure; disfigure effects; weight control, exercise and Sports.	GE	Sports for All GE III	62555501

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Practical	Practice of Measurement of Health Paramenters on Self and others			
Tutorial				
Theory	Unit-III: Promotion of Physical Education, Sports and Olympic Movement Promotion of Physical Education and Sports – Policies, Schemes, Awards, Honours and Awardees, Trophies / Cups Olympic Movement, Indian Olympic Association and International Olympic Committee Performance of India at Olympic Games and Eminent Sports Persons	GE	Introduction to Physical Education in the Contemporary Context	62551101
Practical	Select any one game available in the college and learn different techniques involved in its play.			
Tutorial				

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Name of the Faculty Member: SUJAY JOHN K

Department: PHYSICAL EDUCATION

Year: 2018-19

Month		Topics	Course	Paper Name	Paper Code
January	Theory	Unit 1: Total Fitness: Physical Activity, Concept; Types, Components of Physical Fitness and Principles	GE	Fitness, Wellness and Nutrition	12555260
	Practical	Measurement of Fitness Components			
	Tutorial				
	Theory	Unit 1: Posture Concept - Good or Bad; Types; Effects and Deformities	GE	Posture, Athletic Care and First Aid	12555422
	Practical	Identifying Different Postural Deformities - Stretches associated			
	Tutorial				

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Theory	Unit 1 Balanced Education and Unit 2 Health Concept, Types and Importance of difference factors	GE	Balance Education	62555629
Practical	Measurement of body height, weight, BMI, and Pulse rate.			
Tutorial				
Theory	Unit I Introduction and overview of Sports Industry and Sports Marketing; Contingency Framework for Strategic Sports Marketing	SEC	Sports Industry and Marketing	62553601
Practical	Marketing Plan: Environmental Factors and Product Plan Draft bibliography/works cited			
Tutorial				
Theory	UNIT-I INTRODUCTION & WRITING SKILLS Meaning, scope and changing trends of journalism in sports. Role of journalism in sports promotion Historical development & role of print and electronic media in sports promotion Media, ethics and responsibilities of journalist & editor (social, legal and professional)	SEC	Sports Journalism	62553650

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	Practical	Introduction to Speaking Skills and Write Ups for: exhibitions, fairs, street drama, public speaking, radio, televisions, newspapers, films, posters, pictures, and graphics			
	Tutorial				
February	Theory	Unit II: Wellness: Positive Lifestyle; Quality of Life; Factors effecting Wellness; Wellness Programmes	GE	Fitness, Wellness and Nutrition	12555260
	Practical	Anthropometric Measurements; Calculating BMI and WHR			
	Tutorial				
	Theory	Postural Deformities and their Corrective Exercises Illnesses due to improper posture	GE	Posture, Athletic Care and First Aid	12555422
	Practical	Active and Passie Exercises			

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	Tutorial				
	Theory	Unit 3: Wealth: Concept HRPF, Principles of Physical Fitness and Technology used to develop fitness	GE	Balance Education	62555629
	Practical	Meditation techniques and importance of man-made and natural environment.			
	Tutorial				
	Theory	Environment and Structure of the Sports Industry; Overview of the Strategic Sports Marketing Process ownership Structure, Major and Minor Pro League Sports; Amateur Sports; Unorganized Sports	SEC	Sports Industry and Marketing	62553601
	Practical	Understanding the Sports Industry in India			
	Tutorial				

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	Theory	UNIT-II ORGANIZATIONAL AND PRESENTATION SKILLS FOR MEDIA Organizational set-up of a newspaper- printing, process sequences of operations in the printing of a newspaper Introduction of various sports organization and agencies- Olympic Games, Asian games, commonwealth games, awards and trophies. Different types of Write-ups	SEC	Sports Journalism	62553650
	Practical	Writing reports of sports events Writing features on sports			
	Tutorial				
March	Theory	Unit IIII: Nutrition: Concept and Fundamental of Diet and Nutrition; Gimmicks. Energy Balance Equation	GE	Fitness, Wellness and Nutrition	12555260
	Practical	Wellness Program ONE - Able Bodied Health Fitness and Wellness			
	Tutorial				
	Theory	Unit II: Athletic Care Injuries - Principles of Injury prevention; Common Injuries in Sports and Management	GE	Posture, Athletic Care and First Aid	12555422

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	Practical	Asanas and their Therapeutic Benefits			
	Tutorial				
	Theory	Unit IV: Physical Fitness and Wellness Introduction and inter relation between the concepts, factors influencing both concepts	GE	Balance Education	62555629
	Practical	Importance of healthy environmental choices with the help of meditation, exercise and nutritional habits			
	Tutorial				
	Theory	Unit II Social Impact of Sports, Sports and Culture: Commercialization: Legal and Ethical Issues; Competition and Aggressiveness as Dominant Social Values	SEC	Sports Industry and Marketing	62553601
	Practical	Developing and Pitching Sponsorship proposal			
	Tutorial				

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	Theory	UNIT-III EXTENDED RELEVANT DIMENSIONS Theory and principles of advertising in sports Public relations in sports, press release, conferences Public Relation Media – advertising, press release, conferences, exhibitions, fairs, street drama, public speaking, radio, televisions, newspapers, films, posters, pictures, and graphics	SEC	Sports Journalism	62553650
	Practical	Designs and make-up of sports page			
	Tutorial				
April	Theory	Unit III: Weight Management: Obesity, NCD, Health Related Problems associated with Obesity Weight Management through Behavioral Modifications	GE	Fitness, Wellness and Nutrition	12555260
	Practical	Wellness Program TWO - Challenged Populations			
	Tutorial				
	Theory	Unit III: First Aid, Ergogenic Aids and Rehabilitation; Therapeutic Modalities; Muscle Strengthening	GE	Posture, Athletic Care and First Aid	12555422
	Practical	PRICE and FIRST AID			
	Tutorial				

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	Theory	Unit 5 Longevity and relation with Success and Happinesss	GE	Balance Education	62555629
	Practical	Skills to Managem of wellness.			
	Tutorial				
	Theory	Unit III Economic Impact of Sports Globalization and Sports, Implementing and Controlling the Strategic Sports Marketing Process Research tools for developing a sports story Introduction to various types of information technology Satellite communication: use of satellite in radio and T.V. communication for sports information	SEC	Sports Industry and Marketing	62553601
	Practical	Developing a budget plan for an event Athlete branding			
	Tutorial				
	Theory	UNIT-III EXTENDED RELEVANT DIMENSIONS Theory and principles of advertising in sports Public relations in sports, press release, conferences Research tools for developing a sports story Introduction to various types of information technology Satellite communication: use of satellite in radio and T.V. communication for sports information	SEC	Sports Journalism	62553650
	Practical	Editing sports report Collecting information about current affairs on sports			
	Tutorial				

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