Prasanta Chandra Mahalanobis Mahavidyalaya

Lesson Plan (2018-19)

GEOGRAPHY HONOURS/ PROGRAMME COURSE

SEMESTER-I HONOURS (CBCS)

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
July-September	**Honours**	**GEOACOR01T -** Geotectonics and Geomorphology	1. Earth's tectonic and structural evolution with reference to geological time scale 2. Earth's interior with special reference to seismology. Isostasy: Models of Airy and Pratt 5. Degradational processes: Weathering, mass wasting and resultant landforms 6. Development of river network and landforms on uniclinal and folded structures 9. Glacial and glacio-fluvial processes and landforms 11. Models on landscape evolution: Views of Davis, Penck and Hack	Black Board Teaching, PPT and ICT mode of Teaching	Continuous Evaluation & Class Test	25 Hours	AR, RB,SC, SR & SD
		GEOACOR01P - Geotectonics and Geomorphology	1. Megascopic identification of (a) *mineral samples*: Bauxite, calcite, chalcopyrite, feldspar, galena, gypsum, hematite, magnetite, mica, quartz, talc, tourmaline; and (b) *rock samples*: Granite, basalt, dolerite, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite, marble 2. Interpretation of geological maps with unconformity and intrusions on uniclinal and folded structures	Black Board Teaching & Hands On Practice	Continuous Evaluation & Class test	30 hours	AR & SC

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		GEOACOR02T – Cartographic Techniques	1. Maps: Classification and types. Components of a map 2. Concept and application of scales: Plain, comparative, diagonal and vernier 3. Survey of India topographical maps: Reference scheme of old and open series. Information on the margin of maps 4. Coordinate systems: Polar and rectangular	Black Board Teaching & Hands On Practice	Class Tests- & Internal Evaluation	35 hours	AR, RB & SR
		GEOACOR02P - Cartographic Techniques	1. Graphical construction of scales: Plain, comparative, diagonal and vernier 3. Delineation of drainage basin from Survey of India topographical map. Construction and interpretation of relief profiles (superimposed, projected and composite), relative relief map, slope map (Wentworth), and stream ordering (Strahler) on a drainage basin.	Black Board Teaching & Hands-on Practice	Continuous Evaluation & Class test	25 Hours	AR & RB
October - December	**Honours**	**GEOACOR01T -** Geotectonics and Geomorphology	3. Plate Tectonics as a unified theory of global tectonics: Processes and landforms at plate margins and hotspots 4. Folds and Faults—origin and types 7. Development of landforms on granites, basalts and limestones. 8. Coastal processes and landforms 10. Aeolian and fluvio-aeolian processes and landforms	Black Board Teaching, PPT and ICT mode of Teaching	Continuous Evaluation & Class Test	35 Hours	AR, RB,SC, SR & SD
		GEOACOR01P - Geotectonics and Geomorphology	1. Megascopic identification of (a) *mineral samples*: Bauxite, calcite, chalcopyrite, feldspar, galena, gypsum, hematite, magnetite, mica, quartz, talc, tourmaline; and (b) *rock samples*: Granite, basalt, dolerite, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite, marble	Hands on Practice & Field Visit in Geological survey of India, Kolkata	Continous Evaluation & Class test	30 hours	AR & SC

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			2. Interpretation of geological maps with unconformity and intrusions on uniclinal and folded structures				
		GEOACOR02T – Cartographic Techniques	5. Concept of generating globe and UTM projection 6. Grids: angular and linear systems of measurement 7. Map projections: Classification, properties and uses	Black Board Teaching & Hands On Practice	Class Test	20 Hours	AR & SR
		GEOACOR02P - Cartographic Techniques	2. Construction of projections: Polar Zenithal Stereographic, Simple Conic with two standard parallels, Bonne's, Cylindrical Equal Area, and Mercator's 4. Correlation between physical and cultural features from Survey of India topographical maps using transect chart.	Black Board Teaching & Hands On Practice	Continuous Evaluation & Class test	35 hours	AR, RB & SR
		Total				235 Hours	

Recommended Text books:

- Billings, M.P. 1971. Structural Geology, Pearson.
- Kale, V.S., Gupta, A. 2001.Introduction to Geomorphology, Orient Longman.
- Strahler, A. 2016. Introducing Physical Geography, 6th ed, Wiley.
- Summerfield, M.J. 2003. Global Geomorphology: An Introduction to the Study of landforms, Longman.
- Thornbury, W.D. 1969. Principles of Geomorphology, 2nd ed, Wiley-India / CBS.
- Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata.
- Robinson, A.H., Morrison, J.L., Phillip, C.M., Kimerling, A.J., Guptill, S.C. 1995. Elements of Cartography, 6th ed, Wiley.
- Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan Private Ltd.
- Sen, P.K. 1989. Geomorphological Analysis of Drainage Basin: An Introduction to Morphometric and
- Hydrological Parameters, University of Burdwan.
- Singh, R.L., Singh, R.P.B. 2008.Elements of Practical Geography, Kalyani Publishers.
- Vaidyanadhan, R., Subbarao, K.V. 2014.Landforms of India from Topomaps and Images, Geological Society of India.

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Semester-I General & Programme Course (CBCS)

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
July-September	**General**	GEOGCOR01T - Physical Geography	6. Physical Geography – Definition and Scope, Components of Earth System. 7. Internal Structure of Earth based on Seismic Evidence, Plate Tectonics and its associated Features. 10. Formation of erosional and depositional landforms by coastal and aeolian processes 11. Insolation and Heat Balance. 15.Hydrological Cycle, Ocean Bottom Relief Features, ocean currents.	Black Board Teaching, PPT and ICT mode of Teaching	Class Test	40 Hours	AR, RB, SC & SD
October - December	**General**	GEOGCOR01T - Physical Geography	8. Influence of rocks on topography**:** Limestone and Granite 9. Evolution of landforms under fluvial process, Normal Cycle of Erosion of Davis Insolation and Heat Balance. 12. Horizontal and Vertical distribution of temperature and pressure 13. Planetary wind system, characteristics of Monsoon and Tropical Cyclone 14. Climatic Classification: Köppen	Black Board Teaching, PPT and ICT mode of Teaching	Class Test	45 Hours	AR, RB, SC & SD
		Total				85 Hours	

Recommended books:

- Kale, V.S., Gupta, A. 2001.Introduction to Geomorphology, Orient Longman.
- Lal, D.S. 2012. Climatology. Sharda PustakBhawan.
- Raghunath, H.M. 2006. Hydrology: Principles, Analysis, Design, 3rd ed, New Age International Publishers
- Husain M., 2002: Fundamentals of Physical Geography, Rawat Publications, Jaipur.
- Monkhouse, F. J. 2009: Principles of Physical Geography, Platinum Publishers, Kolkata.
- Strahler A. N. and Strahler A. H., 2008: Modern Physical Geography, John Wiley & Sons, New York.

PART-II HONOURS (1 + 1+ 1 System)

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
July-September	**Honours**	**PAPER-III:** Climatology, Soil Geography & Biogeography	**GROUP A: CLIMATOLOGY** 1. Nature, composition and layering of the atmosphere. 2. Factors affecting insolation & heat budget of the atmosphere. 4. Green house effect on global environment, importance of ozone layer. 5. Planetary wind system with special reference to tri-cellular model, Rossby Waves, Jet Streams	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	12 Hours	AR & SD
			GROUP B: SOIL GEOGRAPHY 1. Soil: Definition, factors and processes of formation. 3. Physical properties of soil: texture, structure, colour and moisture. 4. Chemical properties of soil: pH and organic matter.	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	10 Hours	RB & SR
			GROUP C: BIO-GEOGRAPHY 1. Definitions of biosphere and biogeography. Concept of ecosystem – basic ecological principles – ecotone, communities, niche, succession, and habitat.	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	8 Hours	SC
October - December	**Honours**	**PAPER-III:** Climatology, Soil Geography & Biogeography	**GROUP A: CLIMATOLOGY** 3. Horizontal and vertical distribution of temperature, inversion of temperature. 6. Genesis of Monsoon and its relation with Jet Stream, El Nino and La Nina. 7. Processes of condensation and mechanism of precipitation: Bergereon-Fiendison, Collision-Coalescence theories. .	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	12 Hours	AR & SD
			GROUP B: SOIL GEOGRAPHY 2. Concept of zonal, azonal and intra-zonal soils, profile development under different conditions – Podzols, Chernozems and Laterites. 5. Soil erosion: types, factors and management.	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	15 Hours	RB & SR

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			6. Principles of soil classification: Genetic and Taxonomical – with special reference to India.				
			GROUP C: BIO-GEOGRAPHY 2. Ecosystem and energy: Energy sources, laws of energy exchange, food chains and food web. 4. Spatial distribution of world fauna.	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	10 Hours	SC & SD
January - March	**Honours**	**PAPER-III:** Climatology, Soil Geography & Biogeography	**GROUP A: CLIMATOLOGY** 8. Tropical and mid latitude cyclones. 9. Climatic classification after Koppen and Thornthwaite.	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	12 Hours	AR
			GROUP B: SOIL GEOGRAPHY 7. Principles of land classification: USDA	PPT Presentation and ICT Mode of Teaching	Class Test	5 Hours	RB
			GROUP C: BIO-GEOGRAPHY 3. Concept of Biomes: study of Tropical rainforest, Taiga, Savannah, Desert, Tundra and Temperate grasslands. 5. Concept of Biodiversity and wildlife conservation in India, Projects and their importance – Project Tiger and Man and Biosphere Programme.	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	10 Hours	SC & SD
April - June	**Honours**	**PAPER-III:** Climatology, Soil Geography & Biogeography	**GROUP A: CLIMATOLOGY** All Topics (Revision and Remedial classes)	Question Answer Discussion and Blackboard Teaching		6 Hours	AR & SD
			GROUP B: SOIL GEOGRAPHY All Topics (Revision and Remedial classes)	Question Answer Discussion and Blackboard Teaching		6 Hours	RB & SR
			GROUP C: BIO-GEOGRAPHY All Topics (Revision and Remedial classes)	Question Answer Discussion and		6 Hours	SC & SD

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				Blackboard Teaching			
July - September	**Honours**	**PAPER-IV** (Practical): Applied Geographical Techniques	1. Scales: Linear, diagonal	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	12 Hours	RB
			2. Megascopic analysis of minerals and rocks : a) Rocks – Granite, Basalt, Dolerite, Shale, Sandstone, Limestone, Conglomerate, Slate, Phyllite, Schist, Marble, Quartzite, Gneiss.	Hands on Practice and Visit to Geological Survey of India	Continuous Evaluation and Class Test	10 Hours	SC
			3. Interpretation of topographical maps of Plateau region with R.F 1: 50,000: a) Demarcation of drainage basin (not more than 4th order, based on Strahler) b) Construction of profiles: superimposed, projected, composite and long profile of river (length of the river not more than 10 km). d) Road density (to be shown gridwise).	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	12 Hours	AR & SR
			4. Cartograms and thematic mapping : a) Choropleth showing density of population	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	4 Hours	SD
			5. Projections: a) Concept, classification, constructions and suitability	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	4 Hours	RB
October - December	**Honours**	**PAPER-IV** (Practical): Applied Geographical Techniques	1. Scales: Vernier, enlargement and reduction of map	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	8 Hours	SR
			2. Megascopic analysis of minerals and rocks : b) Minerals and ores – Talc, Gypsum, Calcite, Mica, Feldspar, Quartz, Syllabus for BA/BSc Honours Course of Geography, West Bengal State University, 2009-10 13 Chalcopyrite, Hematite, Magnetite, Bauxite, Galena.	Hands on Practice	Continuous Evaluation and Class Test	5 Hours	SC
			3. Interpretation of topographical maps of Plateau region with R.F 1: 50,000: c) The morphometric analysis to be done in 10 X 12cm grid i Drainage density (to be shown by isopleth) ii Average slope (Wentworth's method	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	12 Hours	AR & SR

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			to be shown by isopleth) iii Relative Relief (to be shown by isopleth) e) Interpretation of relief, drainage and vegetation characteristics. f) Interpretation of settlement, transport and communication systems.				
			6. Survey: a) Closed traverse survey by Prismatic Compass.	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	8 Hours	RB
January - March	**Honours**	**PAPER-IV** (Practical): Applied Geographical Techniques	3. Interpretation of topographical maps of Plateau region with R.F 1: 50,000: g) Relationship between physical and cultural elements (Transect Chart, not more than 8 km).	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	8 Hours	SR
			4. Cartograms and thematic mapping : b) Dots and Spheres diagram showing distribution of rural and urban population. c) Proportional pie-diagrams representing economic data and landuse data.	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	6 Hours	SD
			5. Projections b) Construction and properties of: Zenithal Gnomonic and Stereographic (Polar Case), Simple Conic (with one standard parallel), Bonne's, Sinusoidal, Polyconic,	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	10 Hours	RB
			5. Projections Cylindrical Equal Area and Mercator's Projections	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	6 Hours	SC
			6. Survey: b) Levelling by Dumpy Level with at least one change point: Drawing of profile and determination of gradient.	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	10 Hours	AR
			5. Projections b) Construction and properties of: Cylindrical Equal Area and Mercator's Projections.	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	8 Hours	SC
April - June	**Honours**	**PAPER-IV** (Practical): Applied Geographical Techniques	2. Megascopic analysis of minerals and rocks : (10 marks) a) Rocks – Granite, Basalt, Dolerite, Shale, Sandstone, Limestone, Conglomerate, Slate, Phyllite, Schist, Marble, Quartzite, Gneiss. b) Minerals and ores – Talc, Gypsum, Calcite, Mica, Feldspar,	Hands on Practice		4 Hours	SC

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			Quartz, Syllabus for BA/BSc Honours Course of Geography, West Bengal State University, 2009-10 13 Chalcopyrite, Hematite, Magnetite, Bauxite, Galena.				
			6. Survey: a) Closed traverse survey by Prismatic Compass. b) Levelling by Dumpy Level with at least one change point: Drawing of profile and determination of gradient.	Hands on Practice		6 Hours	AR & RB
		Total				245 Hours	

Recommended Text books:

- Critchfield, H. J. 1983. General Climatology. Prentice Hall India Ltd (2010 Reprint).
- Lal, D.S. 2012. Climatology. Sharda PustakBhawan.
- Sidhartha, K: Atmosphere, weather and climate
- Trewartha, G.T: An Introduction to Climatology.
- Biswas, T.D. and Mukherjee, S.K. 1987. Textbook of Soil Science, Tata-McGraw-Hill.
- Brady, N.C. and Weil, R.R. 1996. The Nature and Properties of Soil, 11th edition, Longman, London.
- Chapman J.L. and Reiss, M.J. 1993. Ecology: Principles and Applications, Cambridge University Press, Cambridge.
- Dash, M.C., 2001. Fundamentals of Ecology, 2nd edition, Tata McGraw-Hill, New Delhi.
- Kormondy, E.J. 1996. Concepts of Ecology, 4th edition, Prentice-Hall, India, New Delhi
- Odum, E.P. 1997. Ecology: A Bridge between Science and Society, Sinaur Associates Inc. Publishers, Sunderland.
- Kanetkar, T.P. and Kulkarni, S.V. 1988. Surveying and Levelling, Part I, Pune Vidyarthi Griha Prakashan, Pune: 608p.
- Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata.
- Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.
- Singh, R.L., Singh, R.P.B. 2008.Elements of Practical Geography, Kalyani Publishers.
- Pal S. K., 1998. Sstatistics for Geoscientists: Techniques and Applications, Concept Pub Co.

Part-II General & Programme Course (1 + 1+ 1 System)

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
July-September	**General**	**PAPER-II: Human Geography and Regional Geography of India**	**GROUP-A: Population and Social Geography** 1. Factors of growth and distribution of world population. 3. Migration**:** Types, causes and consequences.	Black Board Teaching	Class Test	8 Hours	AR & RB
			GROUP-B: Economic Geography 1. Sectors of the economy: primary, secondary, tertiary and quaternary: Changing emphasis through time. 2. Types of agriculture**:** a) Shifting cultivation of India. b) Intensive subsistence rice farming in India. c) Plantation farming in India**:** Tea and Coffee	Black Board Teaching	Class Test	10 Hours	SD
			GROUP-C: Regional Geography and Environmental Issues of India 1. Regions of India: a) Concept of regions**:** formal and functional b) Broad physiographic regions of India: special reference to Deccan Trappe 2. Indian monsoon and its impact: problem of flood, drought and cyclone.	Black Board Teaching	Class Test	8 Hours	SC & SR
October - December	**General**	**PAPER-III (Practical): Applied Geographical Techniques**	**GROUP-A: CARTOGRAPHY**. 1. Scales: Concept of scales, drawing of linear scales. 2. Projections: Concept and major classification. Construction may be done graphically or	Black Board Teaching and Hands on Practice	Class Test	10 Hours	AR, RB & SD

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			mathematically a) Simple conic with one standard parallel b) Cylindrical Equal Area c) Polar Zenithal Gnomonic. 3. Cartograms: Choropleth, pie-graphs				
			GROUP-D: FIELD REPORT	Field Visit	Continuous Evaluation	5 Hours	SC
			GROUP-B: MAP INTERPRETATION 1. Basis of numbering and scale of Survey of India Topographical sheets.	Black Board Teaching and Hands on Practice	Class Test	2 Hours	SC
January - March	**General**	**PAPER-II: Human Geography and Regional Geography of India**	**GROUP-A: Population and Social Geography** 2. Fertility, mortality and age-sex structure of population with reference to India. 4. Contemporary Social issues**:** Literacy and poverty.	Black Board Teaching, ICT Mode of Teaching	Class Test	4 Hours	AR & RB
			GROUP-B: Economic Geography 3. Scales of production**:** cottage, small scale and large-scale industries — general characteristics and examples. 4. Location, problems and prospects of Indian industries. a) Cotton textile industry.	Black Board Teaching,	Class Test	6 Hours	RB & SD
			GROUP-C: Regional Geography and Environmental Issues of India 1. Regions of India: c) Agricultural Regions of India: special reference to Punjab-Haryana wheat belt, d) Industrial Regions of India: special reference to Asansol-Durgapur industrial belt. 3. Forest resources of India: issues concerning deforestation and social forestry.	ICT Mode of Teaching	Class Test	8 Hours	SC & SR

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			4. Causes and consequences of soil erosion in India.				
		PAPER-III (Practical): Applied Geographical Techniques	**GROUP-A: CARTOGRAPHY**. 3. Cartograms: square diagrams with proportional scales.	Black Board Teaching and Hands on Practice	Class Test	4 Hours	AR
	General		**GROUP-B: MAP INTERPRETATION** 2. Interpretation of 1:50,000 topographical sheets under the following heads: I. Interpretation of relief and drainage from topographical maps with profiles and sketches. II. Interpretation of communication and settlement from topographical maps with sketches.	Black Board Teaching and Hands on Practice	Class Test	6 Hours	SC
			GROUP-C: STATISTICS 1. Nature and classification of data. 2. Process of tabulation and graphical representation: histogram, frequency polygon, cumulative frequency curve.	Black Board Teaching and Hands on Practice	Class Test	8 Hours	RB
			GROUP-D: FIELD REPORT	Black Board Teaching, ICT Mode of Teaching	Continuous Evaluation	10 Hours	SC
April - June	**General**	**PAPER-III (Practical): Applied Geographical Techniques**	**GROUP-B: MAP INTERPRETATION** 2. Interpretation of 1:50,000 topographical sheets under the following heads: III. Relationship between physical and cultural features with the help of transect chart.	Black Board Teaching and Hands on Practice	Class Test	8 Hours	SC
			GROUP-C: STATISTICS 3. Measures of central tendency: mean, median and mode.	Black Board Teaching and Hands on Practice	Class Test	5 Hours	RB

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			GROUP-D: FIELD REPORT	Black Board Teaching and Hands on Practice	Continuous Evaluation	8 Hours	SC
		Total				110 Hours	

Recommended books:

- Bandyopadhyay, T. and Mallik, G. Arthanaitik Sampad Samiksha, Chhaya Prakashani
- Bhattacharyya, A and Bhattacharyya, B. Samaj Bijnaniya Bhugol, West Bengal State Book Board.
- Chattopadhyay, A. Sampad Samiksha / Arthanaitik Bhugol O Sampad Shastrer Parichay, TD Publications
- Guha, J .L. and Chattoraj, P.R. 1998. A New Approach to Economic Geography: A Study of Resources, 15th edition, World Press, Calcutta.
- Leong, G.C. and Morgan, G.C. 1982. Human and Economic Geography, 2nd edition, Oxford University Press, Oxford.
- Das D and Hazra J. Snatok Byaboharik Bhugol. Chhaya Prokashoni
- Sarkar A. Practical Geography. Revised edition. Orient Blackswan Private Ltd.

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PART- III HONOURS (1 + 1+ 1 System)

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
July-September	**Honours**	**PAPER-V:** Social, Political And Regional Geography	**GROUP A: SOCIAL, CULTURAL AND POLITICAL GEOGRAPHY** 1. Concept of culture and its components with special emphasis on India: language, religion and ethnicity. 2. Social geography of rural India: caste structure and social stratification; tribe – Santhals and Lepcha.	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	8 Hours	SD
			GROUP B: REGIONAL GEOGRAPHY 1. Concepts of regions; basis of regionalization with reference to India physical, economic and planning.	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	6 Hours	SC
October - December	**Honours**	**PAPER-V:** Social, Political And Regional Geography	**GROUP A: SOCIAL, CULTURAL AND POLITICAL GEOGRAPHY** 5. Concept of Political Geography and geo-politics; concept of frontier and boundary 6. Concept of cold war; bi-polarisation and unipolarisation. 7. Political geography of India: Administrative settings of India, problem of border states, partition and its geo-political implications.	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	8 Hours	RB
			GROUP B: REGIONAL GEOGRAPHY 3. Regional disparities in India: causes and implications	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	8 Hours	AR

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January - March	**Honours**	**PAPER-V:** Social, Political And Regional Geography	**GROUP A: SOCIAL, CULTURAL AND POLITICAL GEOGRAPHY** 3. Urban social Geography — Social ecology and social space. 4. Rural settlements – its forms, site and situations. Urban settlement – morphology and hierarchy.	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	10 Hours	SD
			GROUP B: REGIONAL GEOGRAPHY 2. b) Agricultural Region of India of India with special reference to Punjab-Haryana c) Industrial Region of India with special reference to Mumbai-Pune industrial bel	PPT Presentation and ICT Mode of Teaching	Class Test	6 Hours	SC
April - June	**Honours**	**PAPER-V:** Social, Political And Regional Geography	**GROUP A: SOCIAL, CULTURAL AND POLITICAL GEOGRAPHY** All Topics (Revision and Remedial classes)	Question Answer Discussion and Blackboard Teaching		4 Hours	AR & SD
			GROUP B: REGIONAL GEOGRAPHY All Topics (Revision and Remedial classes)	Question Answer Discussion and Blackboard Teaching		4 Hours	RB & SR
July-September	**Honours**	**PAPER-VI:** Philosophy of Geography and Contemporary Issues	**GROUP A: PHILOSOPHY OF GEOGRAPHY** 1. Definition and nature of Geography. 2. Selected contributors in the evolution of geographical thought Humboldt, Vidal de la Blache, Carl Sauer and David Harvey	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	10 Hours	AR
			GROUP B: CONTEMPORARY ISSUES IN GEOGRAPHY 9. Concept of third world, concept of development and under development: Basic indicators of economic, human and gender development. 10. Problems of third world – Poverty, Population explosion, food security and hunger, unemployment, malnutrition and child labour.	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	10 Hours	RB

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October - December	**Honours**	**PAPER-VI:** Philosophy of Geography and Contemporary Issues	**GROUP A: PHILOSOPHY OF GEOGRAPHY** 3. Major postulates: Determinism, Possibilism, Regional differentiation, location, time and space.	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	8 Hours	AR
			GROUP B: CONTEMPORARY ISSUES IN GEOGRAPHY . 5. Concept of hazards and disasters: Natural, quasi-natural and man-made hazards, different approaches in hazard management. 6. Climatic hazards: Flood, drought and cyclone mechanism – environmental impact and management.	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	8 Hours	SC
January - March	**Honours**	**PAPER-VI:** Philosophy of Geography And Contemporary Issues	**GROUP A: PHILOSOPHY OF GEOGRAPHY** 4. Changing approaches and methodology: Positivism, Quantitative Revolution, WelfareBehavioural approach, Structural and radical approach	Black Board Teaching, PPT Presentation and ICT Mode of Teaching	Class Test	8 Hours	AR
			GROUP B: CONTEMPORARY ISSUES IN GEOGRAPHY . 7. Geomorphic hazards: landslide, river bank erosion, coastal erosion environmental impact and management. 8. Edaphic and biotic hazards: Deforestation, desertification, loss of bio-diversity — environmental impact and management	PPT Presentation and ICT Mode of Teaching	Class Test	6 Hours	SC
April - June	**Honours**	**PAPER-VI:** Philosophy of Geography And Contemporary Issues	**GROUP A: PHILOSOPHY OF GEOGRAPHY** All Topics (Revision and Remedial classes)	Question Answer Discussion and Blackboard Teaching		3 Hours	AR
			GROUP B: CONTEMPORARY ISSUES IN GEOGRAPHY 11. Globalization and sustainable development. 12. Problem of urbanization.	Black Board Teaching and Hands on Practice		3 Hours	RB
July-September	**Honours**	**PAPER-VII:** Applied	13. Interpretation of geological maps and drawing of sections: Uniclinal,	Black Board	Continuous Evaluation	10 Hours	RB

		Geographical Techniques (Practical)		Teaching and Hands on Practice	and Class Test		
			14. Interpretation of Indian Daily Weather Maps – Monsoon	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	10 Hours	AR
			15. Remote Sensing a. Basic concept of remote sensing, EMR, Band b. Types of satellites and sensors with special reference to IRS series of satellites; types of resolutions and their applicability	PPT Presentation and ICT Mode of Teaching	Continuous Evaluation and Class Test	8 Hours	SD
			17. Field Report:	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	20 Hours	AR + RB
October - December	**Honours**	**PAPER-VII:** Applied Geographical Techniques (Practical)	13. Interpretation of geological maps and drawing of sections: folds with unconformity and igneous intrusions	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	10 Hours	RB
			14. Interpretation of Indian Daily Weather Maps –Post Monsoon.	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	8 Hours	AR
			15. Remote Sensing c. Principles of preparing standard false colour composite, landuse and land cover mapping from standard FCC with header information. d. Interpretation of aerial photograph – basic principles of aerial photography, side lap, end lap, flight line, air base, fudicial marks, .Principle Point, Nadir Point, Conjugate Principal Point,	PPT Presentation and ICT Mode of Teaching	Continuous Evaluation and Class Test	6 Hours	AR + SD
			17. Field Report:	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	18 Hours	AR + RB
			16. Geographical Information System. a. Concept of GIS and its applicability: Spatial and attribute data, raster and	Hands on Practice	Continuous Evaluation	6 Hours	SD

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			vector data structure and concept of information layers in GIS. b. Georeferencing of scanned maps and ascribing projection (Polyconic/ UTM)	through software	and Class Test		
January - March	**Honours**	**PAPER-VII:** Applied Geographical Techniques (Practical)	15. Remote Sensing e. Preparation of aerial photo mosaics, demarcation of effective area, extraction of cultural and physiographic features within this area with preparation of interpretation key.	Hands on Practice	Continuous Evaluation and Class Test	6 Hours	SR
			16. Geographical Information System c. Digitisation of point, line and polygon layers; Attachment of appropriate attribute tables. d. Preparation of thematic maps from attached data: choropleth, pie chart and bar graphs.	Hands on Practice through software	Continuous Evaluation and Class Test	10 Hours	AR + SD
			17. Field Report:	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	16 Hours	AR + RB
April - June	**Honours**	**PAPER-VII:** Applied Geographical Techniques (Practical)	15. Remote Sensing All Topics (Revision and Remedial classes)	Hands on Practice		5 Hours	SR
			16. Geographical Information System All Topics (Revision and Remedial classes)	Black Board Teaching and Hands on Practice		6 Hours	AR + SD
July - September	**Honours**	**Paper-VIII** Statistical Techniques and Contemporary Issues in Geography (Practical)	**Group-A: Statistical Techniques** 1. Nature of statistical data: discrete, continuous, parametric and non-parametric data. 2. Tabulation and classification of statistical data. 3. Frequency distribution: histogram, frequency polygon, ogive, normal and skewed distribution, measures of skewness.	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	12 Hours	AR + RB
			Group-B: Contemporary issues in Geography **Section-A : Representation of climatic and hydrological data of the Indian Sub-continent.**	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	8 Hours	SR

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			1. a) Preparation and Interpretation of a climatic chart showing relationship between rainfall, temperature, pressure and relative humidity of a station for three months, preparation and interpretation of Taylor's Climograph and Hythergraph				
			Group-B: Contemporary issues in Geography **Section-B: Economic and Human Development in Third World.** 3. Computation of Human and Gender Development Index and ranking of countries/states/districts based on HDI and GDI.	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	8 Hours	SD
October - December	**Honours**	**Paper-VIII** Statistical Techniques and Contemporary Issues in Geography (Practical)	**Group-A: Statistical Techniques** 4. Measures of central tendency: mean, median, mode, partition values : quartile, decile, percentile. 5. Measures of dispersion: mean deviation, quartile deviation, semi-quartile range, standard deviation and co-efficient of variation. 6. Simple bivariate correlation and regression trend line. 7. Time series analysis.	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	16 Hours	AR + RB
			Group-B: Contemporary issues in Geography **Section-A : Representation of climatic and hydrological data of the Indian Sub-continent.** b) Preparation of station models for different meteorological stations of India with the help of Synoptic chart.	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	5 Hours	SC
			Group-B: Contemporary issues in Geography **Section-B: Economic and Human Development in Third World.** 4. Preparation of questionnaire schedule for assessment of development and for perception survey.	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	5 Hours	SD
			Group-B: Contemporary issues in Geography **Section-A : Representation of climatic and hydrological data of the Indian Sub-continent.**	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	5 Hours	SC

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			2. Preparation and interpretation of rating curves, hydrographs and unit hydrographs of rivers flowing through the Indian Sub-continent.				
			Group-B: Contemporary issues in Geography **Section-B: Economic and Human Development in Third World.** 5. Measures of Spatial and size-class distribution. 6. a) Dominant-distinctive function. b) Rank-size rule. c) Lorenz curve	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	10 Hours	SD + SR
April - June	**Honours**	**Paper-VIII** Statistical Techniques and Contemporary Issues in Geography (Practical)	**Group-A: Statistical Techniques** All Topics (Revision and Remedial classes)	Hands on Practice		4 Hours	AR + RB
			Group-B: Contemporary issues in Geography **Section-A : Representation of climatic and hydrological data of the Indian Sub-continent.** All Topics (Revision and Remedial classes)	Hands on Practice		6 Hours	SR & SC
			Group-B: Contemporary issues in Geography **Section-B: Economic and Human Development in Third World.** All Topics (Revision and Remedial classes)	Hands on Practice		6 Hours	SD & SR
		Total				334 Hours	

Recommended Text books:

- Bhatt, L.S. 1976 Micro Level Planning in India. KB Publication, Delhi
- Chand,M., Puri, V.K. 2000. Regional Planning In India, Allied Publishers Ltd.
- Chandana, R.C. 2016. Regional Planning and Development, 6th ed, Kalyani Publishers.
- Misra, R.P. 1992. Regional Planning: Concepts, Techniques , Policies and Case Studies, Concept Publishing.
- Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi. Chapter 1, 2 and 3
- Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.
- Sinha, A. (2001). Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.
- Ahmed A., 1999. Social Geography, Rawat Publications.

- Majumdar, P.K. 2013. India's Demography: Changing Demographic Scenario in India, Rawat Publications.
- Mukherji, S. 2013. Migration in India: Links to Urbanization, Regional Disparities and Development Policies, Rawat Publications
- Adhikari, S. 2015. Fundamentals of Geographical Thought, Orient Blackswan.
- Dikshit, R.D. 2004. Geographical Thought: A Contextual History of Ideas, Prentice Hall India.
- Sarkar, A. 2015. Practical Geography: A Systematic Approach. 2nd ed, Orient Black Swan Private Ltd.
- Harris, R., Jarvis, C. 2011. Statistics for Geography and Environmental Science, Prentice Hall.
- Pal S. K., 1998. Statistics for Geoscientists: Techniques and Applications, Concept Pub Co.
- Rogerson, P.A. 2015. Statistical Methods for Geography: A Student's Guide, 4th ed, Sage.
- Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers
- Robinson A., 1953: *Elements of Cartography*, John Wiley.
- Mishra R. P. and Ramesh A., 1989: *Fundamentals of Cartography*, Concept Publishing.
- Bhatta, B. 2011. Global Navigation Satellite Systems: Insights into GPS, GLONASS, Galileo, Compass and Others, CRC Press
- Joseph, G. and Jegannathan, C. 2018. Fundamentals of Remote Sensing, 3rd ed, Universities Press.
- Lillesand, T.M., Kiefer, R.W. and Chipman, J.W., 2015. Remote Sensing and Image Interpretation, 7th ed, Wiley.

Part-III General & Programme Course (1 + 1+ 1 System)

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
July-September	**General**	**PAPER-IV: Applied Geography**	**GROUP A: (THEORETICAL): APPLIED GEOGRAPHY** **Section I: Land use and settlement Geography** 1. Concept and attributes of land. 2. Objectives and principles of land use. 4. Rural settlements: evolution, nature and effect of physical environment,	Black board teaching, PPT Presentation	Class Test	10 Hours	AR & SC

			GROUP A: (THEORETICAL): APPLIED GEOGRAPHY **Section II: Remote Sensing and Geographical Information System** 1. Concept of Remote Sensing, different methods of remote sensing – aerial photo and satellite imagery. 2. Aerial Photo: Types and interpretation keys; concept of principal point, fudicial marks, flight line, photo overlap.	Black board teaching, PPT Presentation	Class Test	6 Hours	RB
October - December	**General**	**PAPER-IV: Applied Geography**	**GROUP B: (PRACTICAL): APPLIED GEOGRAPHY** 1. Interpretation of Daily Weather Maps published by India Meteorological Department – Monsoon 2. Preparation of thematic maps: (7 Marks) i) Flow diagram 3. Aerial photo interpretation for identification of broad physical and cultural features.	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	15 Hours	AR, RB & SC
January-March	**General**	**PAPER-IV: Applied Geography**	**GROUP A: (THEORETICAL): APPLIED GEOGRAPHY** **Section I: Land use and settlement Geography** 3. Factors influencing land use and land categories: a) Agricultural land use. b) Non-agricultural landuse. 5. Urban settlements: definition, morphology and function.	Black board teaching, PPT Presentation	Class Test	6 Hours	AR & SC
			GROUP A: (THEORETICAL): APPLIED GEOGRAPHY **Section II: Remote Sensing and Geographical Information System** 3. IRS images: Sensors, different types of resolution and their applicability. 4. Concept of GIS and its applicability: Spatial and attribute data, raster and	Black board teaching, PPT Presentation	Class Test	5 Hours	RB

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			vector data structure and concept of information layers in GIS.				
April - June	**General**	**PAPER-IV: Applied Geography**	**GROUP B: (PRACTICAL): APPLIED GEOGRAPHY** 1. Interpretation of Daily Weather Maps published by India Meteorological Department – Monsoon 2. Preparation of thematic maps: (7 Marks) i) Flow diagram 3. Aerial photo interpretation for identification of broad physical and cultural features.	Black Board Teaching and Hands on Practice	Continuous Evaluation and Class Test	6 Hours	AR, RB & SC
		Total				48 Hours	

Recommended books:

- Sen Jyotirmoy. Janabasati Bhugol
- Rajan, M.S. Space Today, 2nd edition, National Book Trust, New Delhi.
- De N.K. Land – multifaceted appraisal and management
- Pradhan N and Bhattacharya D. Adhunik Bhu-bigyan
- Das D and Hazra J. Snatok Byaboharik Bhugol. Chhaya Prokashoni
- Sarkar A. Practical Geography. Revised edition. Orient Blackswan Private Ltd.

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*AR = ALPANA RAY

*RB= REKHA BISWAS

* SR = SUDIP ROY

* SC= SUDESHNA CHOWDHURY

* SD = SUCHITA DUTTA

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Lesson Plan- 2018--19

Semester IHonors. &Programme Course

Name of the Department: ECONOMICS ODD CBCS

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
August-September	**Programme Course**	ECOGCOR01T CBCS	Basic Concepts: What is economics? Scope and method of economics; the economic problem: scarcity and choice; Distinction between Microeconomics and Macroeconomics; Concept of Market, Demand & Supply – Market equilibrium. Elasticity of Demand : Price elasticity of DemandFactors affecting the price elasticity of demand-Measurement of point price elasticity of demand and Arc elasticity- Income elasticity of demand. 2. Consumers' Behaviour Marginal Utility- Law of Diminishing Marginal Utility- Derivation of demand curve from marginal utility curve- Consumers' surplus. Indifference curve: Definition and Characteristics – Budget line – Consumers'EqulibriumIncome effect and Substitution effect- Graphical presentation to show Price effect is the summation of Income effect and Substitution effect- Inferior goods and Giffen goods. 3. Producers' Behaviour Concept of Production- Factors of Production- Production Function: Concepts of TP, AP and MP. Derivation of AP and MP curve graphically from TP curve- Law of Variable Proportions- Isoquants and its Properties- Expansion Path- Laws of Returns to Scale. Concepts of Revenue- TR, AR, MR. Derivation of AR and MR curve from TR curve – Relation concerning AR, MR and Elasticity of Demand. Cost of Production –Fixed cost and Variable cost – Shape of the Short-run cost curvesRelation between AC and MC –LAC is the envelope of SACs Market Structure: Perfect Competition (10 hours) Characteristics of Perfectly Competitive Market. Short –run and Long-run equilibrium of Perfectly Competitive firm and industry.	Offline methodswith chalk and duster	Offline Internal examinatios Two examinations 10 marks each	35	SBC

December-January	**Programme Course**	ECOGCOR01TCBCS	5. Market Structure: Imperfect Competition Concept and Characteristics of Monopoly Market – Degree of Monopoly Power. Monopolistic competition and Oligopoly - Features and example Theory of Distribution (i) Marginal Productivity Theory of Distribution (ii) Rent : (a) Ricardian Theory , (b) Modern Theory , (c) Quasi- Rent. (iii) Wage: Marginal Productivity Theory of Wages – Role of Trade Union in Wage Determination under Competitive Set up. (iv) Interest: Real and Monetary Interest Rate – Lonable Fund Theory of Interest Rate – Liquidity Theory of Interest Rate. (v) Profit: Gross Profit and Net Profit – Difference Between Profit and Other Factor Incomes (concepts only)	Offline methodswith chalk and duster	Offline Internal examinations Two examinations 10 marks each	35	SBC

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Lesson Plan- 2018--19

&Programme Course

Name of the Department: __ECONOMICS

PART II &III (1+1+1) SYSTEM

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methodsand materials	Methods of Evaluation	Number of classes allotted in hours	Name ofthe Teacher assigned
J UL YT O D E CE MBE R	**Programme Course**	Paper II MACRO ECONOMICS	1. National Income National Incomeand its measurement- different methods and their drawbacks; GDP and GNP; Difference between Nominal and real GNP/GDP; GNP/GDP as a true index of	Offline methodswith chalk and duster	Test examinations 100 marks for each paper	35	SBC

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			Nation's welfare; concept of HDI. 2. Macro economic theories (i) Classical Macro economic theory and Keynesian Theory (concepts and historical background, how they are different) (ii) Simple Keynesian Model (SKM) of Income Determination- Consumption Function – Relation between Average and Marginal Propensity to Consume - Multiplier Theory . 2. Why trade occurs between nations , Distinction between internal trade & international trade, Concept of Terms of Trade ; Gains from Trade: Exchange gain & Specialization gain (concept only ; Absolute Advantage & Comparative Advantage theory of International trade Arguments for protection, free trade.				

JULY TO DECEMBER		Paper III INDIAN ECONOMICS	1. Structure of Indian Economy: Sectoral distribution of National Income and its change since inception of Planning.Occupational pattern in India-A trend analysis since 1901.Inequalities in Income distribution. Economic reforms and reduction of poverty; Poverty eradication programmesand their effectiveness. Structure and quality if employment in India; Government undertaken different schemes to reduce unemployment and underemployment. 2. Human resources and economy development: Size and growth rate of population in India. Changes in sex composition since inception of planning.Population policy and population projections for India. 3. Agriculture: Causes for low productivity.Targeted public distribution system.New agricultural policy; Green revolution and its prospects Land reforms and its appraisal. Effects of GATT on Indian Agriculture. NABARD, RRBS	Offline methodswith chalk and duster	Test examinations 100marks for each paper	35	SBC
JULY TO DECEMBER	**Programme Course**	**Paper IV** DEVELOPMENTECONOMICS&STATISTICS	1. Basic Concepts of Development: Meaning of growth and development, Distinction between Economic Growth and Economic Development-Growth indicators-NNI and PCI, Concept and formulation of HDI. 2. Development Planning & its necessity Balanced vs. Unbalanced growth. Complementary Roles of Agriculture and Industry -Role of Technology in Agriculture and Industry. 3. Population and Economic Development -- The Two Way Relation. 4. Concept and Role of Domestic Capital Formation in an Underdeveloped Country: (10 hours) The Problems -Incentives for Savings and Investment.	Offline methods with chalk and duster	Test examinations 100marks for each paper	40	SBC
			Variable, Attribute, Primary and Secondary Data, Population and Sample, Census and Sample Survey, Classification of data and Tabulation. 2. Frequency Distributions : Frequency distribution of an Attribute, Frequency distribution of a discrete variable, Frequency distribution of a continuous variable, Construction of Frequency distribution from raw data, Cumulative Frequency distribution. 3.Charts and Diagrams : Meaning and functions of Graphs – Types of Charts and Diagrams – Line Diagram, Bar Diagram, Pie Diagram, Pictogram, Statistical Map, Frequency Polygon, Histogram, Step Diagram, Ogive or Cumulative Frequency Polygon, Frequency Curve.	Offline methodswith chalk and duster	Test examinations 100marks for each paper	45	

Lesson Plan- 2018-19

Semester I Honors. &Programme Course

Name of the Department: ECONOMICS_EVEN SEMESTER CBCS

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
JANUARY TO JUNE	**Programme Course** **ECONOMICS** **GENERAL**	**(ECOGCOR02T) CBCS**	**UNIT1. NationalIncome** National Incomeandits measurement- different methods and their drawbacks; GDP and GNP; Difference between Nominal and real GNP/GDP; GNP/GDP as a true index of Nation's welfare; concept of HDI **UNIT 2. Macro economic theories** Macroeconomic theories (i) Classical Macro economic theory and Keynesian Theory (concepts and historical background, how they are different) (ii) Simple Keynesian Model (SKM) of Income Determination- Consumption Function – Relation between Average and Marginal Propensity to Consume - Multiplier Theory **UNIT 3 Money andbanking**Money and banking (i) Functions of Money – Value of Money Different Concepts of Money : M1, M2, M3 and M4. (ii) Concepts of Bank and Non-bank Financial Intermediaries – Functions and Credit Creation of Commercial Banks – Central Bank-Functions and Credit Control Measur **UNIT 4. Inflation** Concepts of Inflation, Deflation and Stagflation – Inflationary Gap – Distinction between Demand Pull and Cost Push Inflation- Effects of Inflation – Anti-inflationary Fiscal and Monetary	0ffline method is used using board Chalk duster	Test examination using 100 marks each	35	SBC

			Policies.				
JANUARY TO JUNE		**PAPER II 1+1+1 SYSTEM MACROECONOMICS**	Money and banking (i) Functions of Money – Value of Money Different Concepts of Money :M1, M2, M3 and M4. (ii) Concepts of Bank andNon-bank Financial Intermediaries – Functions and Credit Creation of Commercial Banks – Central Bank-Functions and Credit Control Measures. 4. Inflation Concepts of Inflation, Deflation and Stagflation – Inflationary Gap – Distinction between Demand Pull and Cost Push Inflation- Effects of Inflation – Anti-inflationary Fiscal and Monetary Policies. Principle of taxation,direct indirect progressive regressive proportional taxation,public debt ,internal and external burden of public debt.	0ffline method is used using Board chalk duster	Test examination using 100 marks each	30	SBC

2nd year test examination will be in February 2019. 2nd year Final examination will be in June 2019 1st year internal examination will be in September and November 2018

3rd year B.Sc general test examination will be in December 2018 3rd year bsc general test examination will be in April 2019..1st year semester I final examination will be in January2019.semester 2 final examination will be in June 2019

JANUARY TO JUNE		**Paper III** **1+1+1 SYSTEM** **INDIAN ECONOMICS**	. Industry: Review of Industrial growth under planning. Role of small-scale industries and policy perspective to help them.Role of trade union and social security measures in India. 5.Banking: (10 hours) Role of Indian Commercial Banks and Reserve Bank of India.Monetary Policy of the Reserve Bank of India.Profitability of banks in India.Indian money market and its defect. 6. Indian Public Finance: Sources of Revenue and Expenditure of Union and State Government.Union-State Financial Relation.Centre-State Conflict on Finances. 7. Foreign trade: (8 hours) Volume and direction of India's foreign trade in the post-Liberalization period. Indian planning objective success and failure. Indian planning objective success and failure.	0ffline method is used using board Chalk duster	Test examination using 100 marks each	30	SBC
JANUARY TO JUNE		**Paper IV** **1+1+1 SYSTEM** DEVELOPMENTECONOMICS &STATISTICS	International trade and economic developmentIMF & World Bank in economic development of the LDCS. 4.Measures of Central Tendency: Arithmetic Mean (AM), Geometric Mean (GM), Harmonic Mean (HM), Median, Mode (Definitions, formulae and simple numerical problems). 5. Measures of Dispersion: Meaning and necessity, Range, Quartile Deviation (QD), Mean Deviation (MD), Standard Deviation (SD), Coefficient of Variation(CV),(Concepts only).			30	SBC

Recommended Text books:

ECOGCOR02T 1. Gupta , S.B – Monetary Economics , S.Chand& Co. , New Delhi 2. Ahuja , H.L - Macroeconomics 3. Mukherjee ,Debes – Essentials of Micro and Macroeconomics, New Central Book Agency (P) Ltd.
Paper II ECOGCOR02T 1. Gupta , S.B – Monetary Economics , S.Chand& Co. , New Delhi 2. Ahuja , H.L - Macroeconomics 3. Mukherjee ,Debes –Essentials of Micro and Macroeconomics, New Central Book Agency (P) Ltd.

PaperIII1. Dutta R. and K.P.M. Sundaram: Indian Economy, S. Chand and Co. New Delhi 2. Misra S.K.V. K. Puri: Indian Economy, Himalayas Publishing Co. Mumbai. 3. Agarwal A.N: Indian Economy, Vikash Publishing Co. Delhi 4. Gupta, S.B.: Monetary Planning in India, Oxford University Press, Delhi.

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OLD SYLLABUS (1+1+1)

Name of the Department: MATHEMATICS

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
July-December	**2nd year Hons Course**	**Paper- III Group-A Classical Algebra- II**	Polynomial equations with real co-efficients: Reciprocal equations. Cardan's method of solving a cubic equation. Ferrari's method of solving a biquadratic equation. Binomial equation. Special roots. Inequalities AM ≥ GM ≥ HM. Cauchy's inequality (statement only) and its direct applications.	Chalk and Duster, PDF	Assignment	20	Mrs. Neha Ghorui Mundhra
		Group-B Modern Algebra- II	Cosets and Lagrange's theorem on finite group. Cyclic group, Sub-groups of a cyclic group, Generator. Permutations : Cycle, Transposition. Even and odd permutations. Permutation Group, Symmetric group, Alternating group.	Chalk and Duster, PDF	Assignment	12	Ms. Piyali Saha
		Group-C Linear Algebra- II	Vector/Linear space over a field. Sub-spaces. Sum of two sub-spaces. Linear combinations. Linear dependence and independence of a finite set of vectors. Linear span. Generators of a vector space. Finite	Chalk and Duster, PDF	Assignment	15	Ms. Piyali Saha

			dimensional vector space. Existence of Basis, Replacement Theorem. Extension theorem - Extraction of basis from generators. Formation of basis from linearly independent sub-set. Row Space and Column Space of a Matrix				
			Linear homogeneous system of equations. System of linear non-homogeneous equations : Necessary and sufficient condition for the consistency of the system. Solution of the system of equations (Matrix method, Cramer's Rule). Characteristic equation of a square matrix. Eigen value and Eigen vector. Cayley-Hamilton Theorem. Simple properties of Eigen value and Eigen vector. Diagonalisation of matrices. Inner Product Space. Norm. Euclidean vector spaces (EVS), Triangle Inequality and Cauchy-Schwarz Inequality in EVS. Orthogonality of vectors. Orthonormal basis, Gram-Schmidt process of orthonormalisation.	Chalk and Duster, PDF	Assignment	30	Mrs. Neha Ghorui Mundhra
		Group-D Real Analysis- II	Sub-sequence : Subsequential limits. Upper limit and Lower limit as the L.U.B. and G.L.B. respectively of a set Inequalities and	Chalk and Duster, PDF	Assignment	40	Ms. Piyali Saha

			equalities with upper and lower limits. Infinite series of real numbers: Cauchy's criterion of convergence. Abel-Pringsheim's Test. Series of non negative real numbers: Cauchy's condensation test. Upper limit and lower limit criteria for (i) Comparison test, (ii) Ratio test, (iii) Root test, (iv) Rummer's test. Statements of Raabe's test, Bertrand's test, Logarithmic test and Gauss test. Series of arbitrary terms : Absolutely convergent and conditionally convergent series. Alternating series : Leibnitz test, Root test and Ratio test. Non-absolute convergence-Abel's and Dirichlet's test (statements and applications). Rearrangement of series through examples.				
			Real valued functions defined on an interval : Uniform continuity. Properties of continuous functions on closed intervals : Boundedness, attainment of bounds, Bolzano's theorem. Intermediate-value property and allied results. Continuous function carries closed and bounded	Chalk and Duster, PDF	Assignment	15	Mrs. Neha Ghorui Mundhra

			interval into closed and bounded interval. Lipschitz condition and uniform continuity. Existence of inverse function of a strictly monotone function and its continuity with special reference to inverse circular functions.				
			Concept of differentiability and differential: chain rule, sign of derivative. Successive derivative: Leibnitz theorem. Theorems on derivatives: Darboux theorem, Rolle's theorem, Mean value theorem of Lagrange and Cauchy, Taylor's theorem with Schlomilch-Rouche's form of remainder, Lagrange's and Cauchy's form of remainder. Young's form of Taylor's theorem. Maclaurin's series. Indeterminate forms: Statement of L. Hospital's rule and its consequences. Point of local extremum (maximum, minimum and saddle point) of a function in an interval. Sufficient condition for the existence of a local maximum/ minimum of a function at a point.	Chalk and Duster, PDF	Assignment	25	Mrs. Neha Ghorui Mundhra
		Group-E Functions of Several Variables	Point set in two and three dimensions - Concept only of neighbourhood of a point, interior point, accumulation point,	Chalk and Duster, PDF	Assignment	30	Ms. Piyali Saha

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			open set, closed set, Bolzano-Weierstrass theorem. Functions of two and three variables - Limit and continuity, Partial derivatives. Sufficient condition for continuity. Differentiability and its sufficient condition, differential as a map, Chain rule. Euler's theorem and its converse. Commutativity of the order of partial derivatives - Theorem of Young and Schwarz. Jacobian for functions of two and three variables - Simple properties including functional dependence. Concept of Implicit Function : Statement and simple application of implicit function theorem for two variables. Differentiation of implicit function. Jacobian of implicit function. Partial derivative as ratio of two Jacobians in case of function of two variables.				
		Group-F Application of Integral Calculus II	Area : Area enclosed by a curve, area enclosed between a curve and a secant, area between two curves and area between a curve and its asymptote (if there be any). Problems on volume and surface area of solids of revolution. Statement of Pappus	Chalk and Duster, PDF	Assignment	8	Mrs. Neha Ghorui Mundhra

			theorem and its direct application to well-known curves. Determination of C. G. and moments & products of inertia-simple problems only.				
		Paper- IV Group-A Analytical Geometry of Two & Three dimensions-II	Circle, Parabola, Ellipse and Hyperbola : Equations of pair of tangents, from an external point, chord of contact, poles and polars, conjugate points and conjugate lines. Sphere, Cone, Cylinder. Surface of Revolution (about axes of reference only). Ruled surface. Transformation of rectangular axes by translation, rotation and their combinations. General equation of second degree in three variables: Reduction to canonical forms. Classification of Quadrics. Ellipsoid, Hyperboloid, Paraboloid : Canonical equations and the study of their shape. Tangent planes, Normals, Enveloping cone. Generating lines of hyperboloid of one sheet and hyperbolic paraboloid. Knowledge of Cylindrical, Polar and Spherical polar co-ordinates.	Chalk and Duster, PDF	Assignment	40	Mrs. Neha Ghorui Mundhra
		Group-B Differential Equation II	Simple eigenvalue problems. Simultaneous linear differential equations. Total differential equation:	Chalk and Duster, PDF	Assignment	15	Ms. Piyali Saha

			Condition of integrability. Partial differential equation (PDE) : Introduction, Formation of P.D.E, Solution of PDE by Lagrange's method of solution and by Charpit's method.				
January-March		**Group-C Linear Programming and Game Theory**	Hyperplane, Convex set, Cone, Extreme points, convex hull and convex polyhedron. The collection of all feasible solutions of an L.P.P. constitutes a convex set. The extreme points of the convex set of feasible solutions correspond to its B.F.S. and conversely. Reduction of a F.S. to a B.F.S. Slack and surplus variables. Standard form of L.P.P. Theory of simplex method. Feasibility and optimality conditions. The algorithm. Two phase method, Degeneracy in L.P.P. and its resolution.	Chalk and Duster, PDF	Assignment	25	Ms. Piyali Saha
			Duality Theory. The dual of the dual is the primal. Relation between the objective values of dual and the primal problems. Relation between their optimal values. Complementary slackness, Duality and simplex method and their applications.	Chalk and Duster, PDF	Assignment	35	Mrs. Neha Ghorui Mundhra

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			Transportation and Assignment problems. Mathematical justification for optimality criterion. Hungarian method. Travelling Salesman problem. Concept of Game problem. Rectangular games. Pure strategy and Mixed strategy. Saddle point and its existence. Optimal strategy and value of the game. Concept of Dominance. Fundamental Theorem of Rectangular games. Algebraic method. Graphical method and Dominance method of solving Rectangular games. Inter-relation between the theory of Games and L.P.P				
		Group-D Analytical Dynamics of a Particle	Fundamental Ideas and Principles of Dynamics. Laws of motion. Work, Power and Energy. Principles of conservation of energy and of momentum - Impulse and Impulsive forces. Motion in a straight line under variable acceleration. Motion under inverse square law, Composition of two S. H. M's of nearly equal frequencies. Motion of a particle tied to one end of an elastic string. Rectilinear motion in a resisting medium. Damped	Chalk and Duster, PDF	Assignment	30	Mrs. Neha Ghorui Mundhra

			forced oscillation. Motion under gravity where the resistance varies as some integral power of velocity, Terminal velocity. Impact of elastic bodies. Newton's experimental law of elastic impact. Direct impact. Loss of K.E. in a direct impact Oblique impact of two elastic spheres, Loss of K. E. in oblique impact. Motion of particle moving in a plane with reference to a set of rotating axes. Motion of a particle in plane.				
			Central forces and central orbits. Tangential and Normal accelerations. Circular motion. Motion of a train or cyclist on a banked tract.. Motion of a particle in a plane under different laws of resistance. Motion of a projectile in a resisting medium in which the resistance varies as the velocity. Trajectories in a resisting medium where resistance varies as some integral power of the velocity. Motion on a smooth curve under resistance. Motion under inverse square law in a plane. Escape velocity, Planetary motion and Kepler's laws. Time of describing an arc of the orbit. Motion	Chalk and Duster, PDF	Assignment	35	Ms. Piyali Saha

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			of artificial satellite Slightly disturbed orbits. Conservative field of force and principle of conservation of energy. Motion of a rough curve (such as circle, parabola, ellipse, cycloid etc.) under gravity. Equation of motion of a particle of varying mass.				

Recommended Books:

- The Theory of Equations (Vol. I) - Burnside and Panton.
- Higher Algebra - Barnard and Child.
- Modern Algebra - Surjeet Singh & Zameruddin.
- First Course in Abstract Algebra – Fraleigh
- Topics in Algebra – Hernstein
- Linear Algebra - Hadley
- Text Book of Matrix - B. S. Vaatsa
- Co-ordinate Geometry - S. L. Loney
- Solid Analytic Geometry - C. Smith.
- Basic Real & Abstract Analysis - Randolph J. P. (Academic Press)
- A First Course in Real Analysis - M. H. Protter & G. B. Morrey (Springer Verlag, NBHM)
- Differential & Integral Calculus (Vols. I & II) - Courant & John.
- Introduction to Real Analysis - Bartle & Sherbert (John Wiley & sons)
- Mathematical Analysis - Shantinarayan (S. Chand & Co.)
- Differential Calculus - Shantinaryan.
- Intergral Calculus – Shantinarayan
- Linear Programming : Method and application - S. I. Gass
- Linear Programming - G. Hadley
- Differential Equations - S. L. Ross (John Wiley)
- Differential Equations - H. T. H. Piaggio
- An Elementary Course in Partial Differential Equation-T. Amarnath (Narosa)
- An Introductory Course on Ordinary Differential Equation-D.A. Murray.
- An Elementary Treatise on the Dynamics of a Particle & of Rigid bodies - S. L. Loney (Macmillan)

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Lesson Plan- 2018-19 (CBCS)
Semester I Programme Course
Name of the Department: CHEMISTRY

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
September -November	**Programme Course**	CEMGCOR01 T	Atomic Structure Chemical Periodicity Fundamentals of OrganicChemistry Stereochemistry	Notesprepared and EResources ICT	ClassTest	15 8 10	KN KM KM
		CEMGCOR01P	Estimation Qualitative Analysis of Single Solid Organic Compound	Experimental Instructions and Demonstratios	Laboratory Work	15 15	KN KM
December-January	**Programme Course**	CEMGCOR01 T	Nucleophilic Substitution and Elimination Reactions Aliphatic Hydrocarbons Acids and bases Redox reactions	Notesprepared and EResources ICT	ClassTest	8 12 15	KM KM KN
		CEMGCOR01P	Estimation Qualitative Analysis of Single Solid Organic Compound	Experimental Instructions and Demonstrations	Laboratory Work	15 15	KN KM

Recommended Text books:

1. Sen Gupta, Subrata. *Basic Stereochemistry of Organic molecules.*
2. Kalsi, P. S. *Stereochemistry Conformation and Mechanism*, Eighth edition, New Age International, 2014.
3. Bahl, A. & Bahl, B.S. *Advanced Organic Chemistry*, S. Chand, 2010.

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Semester II Programme Course(CBCS)
Name of the Department: CHEMISTRY

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
March-April	Programme Course	CEMGCOR02T	Liquids Solids Comparative study of p-block elements:	Offline Notes prepared and E Resources	ClassTest	6 6 7	KM KM KN
		CEMGCOR02P	Viscosity measurement Qualitative semimicro analysis of mixtures	Experimental Instructions and Demonstration	Laboratory work	8 8	KM KN
May-June	Programme Course	CEMGCOR02T	Chemical Kinetics Comparative study of p-block elements:	Offline Notes prepared and E Resources	ClassTest	8 7	KM KN
			Study the kinetics Qualitative semimicro analysis of mixtures	Experimental Instructions and Demonstration	Laboratory work	8 8	KM KN

Recommended Text books:

1.Palit, S. R., *Elementary Physical Chemistry* Book Syndicate Pvt. Ltd.

2.. Mandal, A. K. *Degree Physical and General Chemistry* Sarat Book House

3. Pahari, S., *Physical Chemistry* New Central Book Agency

4. Pahari, S., Pahari, D., *Problems in Physical Chemistry* New Central Book Agency5.Svehla, G. *Vogel's Qualitative Inorganic Analysis*, Pearson Education, 2012.

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Lesson Plan- 2018-19

Part-2 Programme Course

Name of the Department: CHEMISTRY

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
September -November	**Programme Course**	CEMGT 22A, CEMGT 22B	Thermodynamics II: Spontaneous processes, Chemical equilibrium, Phase equilibrium, Chemical kinetics and catalysis, Acids-bases and solvents, Solutions of electrolytes	Notesprepared and EResources ICT	ClassTest	15 8 10	KN KM KM
		CEMGP 23A	Qualitative Analysis of Single Organic Compound (Solid), Qualitative Analysis of Inorganic Mixture	Experimental Instructions and Demonstratios	Laboratory Work	15 15	KN KM
December-January	**Programme Course**	CEMGT 22C	Photochemistry, Electrode potential, Solutions of non-electrolytes, Colloids, Basic organic chemistry III, Aldehydes and ketones, Phenols	Notesprepared and EResources ICT	ClassTest	8 12 15	KM KM KN
February-March		CEMGT 22D	Basic inorganic chemistry, Coordinate bonds, Preparation and uses of some compounds, Comparative study of s-block elements, Amino acids, Proteins	Experimental Instructions and Demonstrations	Laboratory Work	15 15	KN KM

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Part-3 Programme Course

Name of the Department: CHEMISTRY

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
September -November	**Programme Course**	CEMGT 34A	Chemical analysis, Volumetric Analysis, Polymers	Notesprepared and EResources ICT	ClassTest	15 8 10	KN KM KM
		CEMGP 34D	Quantitative Chemical Analysis	Experimental Instructions and Demonstratios	Laboratory Work	15 15	KN KM
December-January	**Programme Course**	CEMGT 34B	Industrial chemistry I, Paints, Varnishes and Synthetic Dyes, Drugs and pharmaceuticals	Notesprepared and EResources ICT	ClassTest	8 12 15	KM KM KN
February-March		CEMGT 34C	Environmental chemistry, Fats-Oils-Detergents, Pesticides, Food Additives	Experimental Instructions and Demonstrations	Assignment	15 15	KN KM

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Lesson Plan- 2018-2019

Semester I Honors. &Programme Course

Name of the Department: Food and Nutrition

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned

September - November	**Hons.**	**FNTACOR01T : HUMAN NUTRITION (THEORY)**	1**. Introduction to Food and Nutrition** Foods: Energy giving, body building and protective. Nutrients: macro and micro nutrients, Diet and balanced diet, Menu. Health and nutritional status. Malnutrition, functional food, prebiotics, probiotics, Phytochemicals, nutraceuticals. Fibre. Functions of foods: physiological, psychological, social. Food groups, food pyramid, Relation between food and nutrition, health and diseases. **2. Foods, Nutrients and cooking of food** Foods and their nutrient contents: Nutrients present in cereals and millets, pulses, nuts and oil seeds, fruits and vegetables, milk and milk products, flesh food, eggs, Condiment and spices, salt. Nonnutrient components of foods: phytate, tannins, oxalate, trypsin inhibitor,goitrogens and other toxic agents in food. Cooking: Beneficial and adverse effects of cooking. Different methods of cooking-dry, moist, frying, and micro wave cooking- advantage, disadvantage and the effect of various methods of cooking on foods, Solar cooking.	Chalk and board method, Lecture method, power point presentation and texts and reference books	Class Assignment	4 hrs	Dr. Priyadarshini Chakraborty

		FNTACOR01P: HUMAN NUTRITION (PRACTICAL)	1. Process involved in cooking, microwave, steaming, grilling, deep fat frying. 2. General concepts of weights and measures, Eye estimation of raw cooked foods 3. Preparation of food from different food groups and their significance in relation to health	Hands on demonstration of practical class	Assignments	10hrs 3hrs 12hrs	Dr. Priyadarshini Chakraborty

		FNTACOR02T : PHYSIOLOGY IN NUTRITION (THEORY)	**1.Unit of Life: Cell and Tissue Structure** Difference between prokaryotic and eukaryotic cells & plant and animal cells, Structure and basic functions of animal cell organelles, Structure and functions of plasma membrane, Role of membrane in transport and communications, Importance of cell junction- tight, gap and desmosome, Types of human tissue- location, structure and functions. Structure of muscles, bones, teeth and joints. **2.Blood and body fluids** Blood and its composition, Morphology, formation and functions of formed elements, Blood groups and its importance in transfusion, hazards of mismatch blood transfusion. Mechanism of blood coagulation, Haemoglobin- structure and function. Extracellular fluid, lymph.	Chalk and board method, Lecture method	Assignments	10hrs	Rana Adhikary

		FNTACOR02P: PHYSIOLOGY IN NUTRITION(PRACTICAL)	1. Determination of pulse rate in Resting condition and after exercise (30 beats/10 beats method) 2. Determination of blood pressure by Sphygmomanometer (Auscultatory method). 3. Interpretation of normal ECG curve with 6 chest leads.	Hands on demonstration of practical class	Assignments	4hrs 4hrs 4hrs	Rana Adhikary

September - November	**Programme Course**	**FNTGCOR01T :FOOD AND NUTRITION (THEORY)**	**1. Introduction to Food and Nutrition** Definition of Food, Nutrition, Nutrient, Nutritional status, Dietetics, Balance diet, Malnutrition, Energy (Unit of energy – Joule, Kilocalorie). **2. Food and Nutrients** Carbohydrate, Protein, Fat, Vitamins and Minerals (calcium, phosphorus, sodium, potassium, iron, iodine, fluorine)- sources, classification, functions, deficiencies of these nutrients. Functions of water and dietary fibre. **3. Five food groups** Basic 5 food groups: Types, composition, nutritional significance, role of cookery of cereals, pulses, milk & milk products, meat, fish, egg, vegetables & fruits, nuts, oil & sugar. **4. Food Chemistry** Chemistry of carbohydrate, proteins and	Chalk and board method, power point presentation , notes and text books	Assignments	4 hrs 10 hrs	Juthi Saha

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			fats. Vitamins and minerals				Juthi Saha
		FNTGCOR01P : FOOD AND NUTRITION (PRACTICAL)	1. Elementary idea of weights & measures. 2. Preparation of cereals, pulses, vegetable, egg, milk, fish, nuts dishes. 3. Planning and preparation of diet of an adult male/female.	Hands on demonstration of practicals	Assignments	4hrs 6hrs	Juthi Saha

November - January	**Hons.**	**FNTACOR01T : HUMAN NUTRITION (THEORY)**	**3.Food energy and energy requirements** The energy value of foods: Physical and physiological calories. Bomb calorimeter Energy requirement of an individual: Basal metabolic rate (BMR) and physical activity. . BMR: Measurement (direct and indirect), factors affecting BMR, SDA of foods. physical activity ratio (PAR). Classification of activities based on occupations. Nutritional requirements and Recommended dietary allowances (RDA): factors affecting RDA, Application of RDA, Reference man and woman.. **4. Digestion of Foods** Components of gastrointestinal tract. Structure of different segments of GI tract. Digestive glands: structure of salivary glands, gastric glands and intestinal glands. Structure of pancreas and liver., Digestive secretions: salivary juice, gastric juice, pancreatic juices and intestinal juices. Bile and bile secretion. Digestion and absorptions of carbohydrate, protein, lipid, fat soluble vitamins, water soluble	Chalk and board method, Lecture method, power point presentation and reference books, journals and notes	Class Assignment	15 hrs	Dr. Priyadarshini Chakraborty

			vitamins(thiamine, riboflavin, niacin, pyridoxine, folate, vit B12, vit C), minerals (Ca, Fe, I, F, Cu, Zn)				
		FNTACOR01P: HUMAN NUTRITION (PRACTICAL)	4. Preparation of supplementary food from different age group and their nutritional significance 5. Planning and preparation of low cost diet	Hands on demonstration of practical class	Assignments	12hrs	**Juthi Saha**

			for Grade I and Grade II malnourished child .			4hrs	
		FNTACOR02T : PHYSIOLOGY IN NUTRITION (THEORY)	**3. Cardiovascular system** Structure of heart, artery, vein and capillary, Properties of cardiac muscle, Cardiac cycle, cardiac output, heart rate, heart sounds, ECG- normal and abnormal. Systemic and pulmonary circulation. Blood pressure, pulse pressure Radial pulse, coronary circulation **4. Respiratory system** Structure of lungs: alveoli and airways. Respiratory volumes and capacities,Mechanics of breathing. Oxygen and carbon dioxide transport, Neural and chemical control of breathing. **5. Renal Physiology, skin and body temperature** Anatomy of renal system: kidney, ureter, urethra and urinary bladder, Nephron: structure, Juxtaglomeralarapparatus GFR	Lecture method and notes	Assignments	10hrs 10hrs	Rana Adhikary

			and GFI, Tubular functions, Urine formation: Counter current exchanger andmultiplier. Role of kidney in water and electrolyte balance. pHregulation by kidney. Structure of skin. Sweat and sweat glands. Sebum. Core body temperature, heat loss and heat gain, Regulation of body temperature.			10hrs	

		FNTACOR02P: PHYSIOLOGY IN NUTRITION(PRACTICAL)	4. Measurement of Peak Expiratory flow rate.(By spirometer) 5. Determination of Bleeding Time (BT) and Clotting Time (CT). 6. Detection of Blood group (Slide method).	Hands on demonstration of practical class	Assignments	6hrs	Rana Adhikary
	Programme Course	**FNTGCOR01T :FOOD AND NUTRITION (THEORY)**	**5. Nutrients Metabolism** Elementary idea of metabolism, enzymes and hormones- name and their important functions. Metabolism in brief (Glycolysis, Glycogenesis, Gluconeogenesis, Cori's cycle, Kreb's cycle, Deamination, Transamination. Role of hormones in carbohydrate metabolism. **6. Basic Metabolism Rate (B.M.R)** B.M.R: Definition, factors affecting B.M.R. and Total Energy Requirement (Calculation of energy of individuals).	Chalk and board method, Lecture method, power point presentation and text books	Assignments	12 hrs	**Juthi Saha**

			7. Deficiency diseases Deficiency diseases (Nutritional anaemia, PEM, IDD, VAD)- Aetiology, Prevalence, Clinical findings, Prevention & Treatment.			6hrs	
		FNTGCOR01P : FOOD AND NUTRITION (PRACTICAL)	4. Planning of a day's diet for pregnant & lactating mother. 5. Preparations of supplementary foods for infants.	Hands on demonstration of practical class	Assignments	6hrs 6hrs	**Juthi Saha**

Recommended Text books:

For FNTACOR01T:

1. B.Srilakshmi : Nutrition Science, New Age International Publishers

2. Guthrie, A.H.: Introductory Nutrition, 6th Ed. The C.V. Mosby Company

3. Robinson, C.H.Lawer, M.R.; CheiToweth, W.L. and Garwick, A.E.: Normal and Therapeutic Nutrition.17th Ed. Mac Milan Publishing Co.

4. Swaminathan, M : Essentials of Foods and Nutrition, Vols-1and II. Ganesh and Co. Madras.

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3. Robinson, C.H.Lawer, M.R.; CheiToweth, W.L. and Garwick, A.E.: Normal and Therapeutic Nutrition.17th Ed. Mac Milan Publishing Co.

4. Swaminathan, M : Essentials of Foods and Nutrition, Vols-1and II. Ganesh and Co. Madras.

5. Chatterjee CC (1988). Text Book of Physiology – Vol I & II.

6.Murray, R. K. Grannen, D. K.; Mayes, P. A. and Rodwell. V. W: Harper's Biochemistry. Lange Medical Book

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Lesson Plan- 2018-2019

PART-II Honors. & Programme Course

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
August-January	**Hons**	**PAPER III UNIT I COMMUNITY NUTRITION**	**Introduction to community nutrition**. Concept of community. Characteristics of community, Types of community. Different factors affecting health of the community (like social, cultural, economic, political and environmental factors) **Direct nutritional assessment of human**:	Chalk and board method, Lecture method, power point presentation and text books	Assignment /class tests	4hrs	**Dr. Guddi Tiwary**

			Nutritional anthropometry, Clinical signs, Biochemical and Biophysical methods. **Nutritional Anthropometry**: its need and importance in brief. Parameters of nutritional anthropometry and techniques of measurement. Growth chart and its usage. **Clinical Signs**: its need and importance in brief. Clinical signs of PEM, vitamin A deficiency, IDD, Anaemia. **Diet Survey**: its need and importance in brief. Important factors for diet survey in brief (like trained personnel, sampling, method etc).			4hrs 12hrs	

			Different methods for conducting diet survey. Concept of consumption unit. Adequacy of diet with respect to RDA. Food security. **Malnutrition**: its sociological factors. Food production and availability, socio-economic factor, cultural influence, food consumption, population problem with respect to food production and availability, medical and educational services, psychological factor, emergency and disaster condition. Prevention of malnutrition.			4hrs	Juthi Saha

		PAPER III UNIT II PUBLIC HEALTH & EPIDEMIOLOGY	**Health & its dimensions:-** definition of health, different dimension of health. Positive health versus absence of disease. **Secondary sources of community health data:-** Sources of relevant vital statistics of infant. Child & maternal mortality rate. Brief idea about of epidemiology of nutritionally related diseases (amoebiasis, hyperlipidaemia, clotting disorder, beriberi, rotaviruus infection). **Public health & epidemiology:-** definitions, Components of epidemiology and	Chalk and board method, Lecture method, power point presentation and text books	Assignment /class tests	16 hrs	Dr. Guddi Tiwary

			aims, different tools & measurements of epidemiology. Brief idea about epidemics. Epidemiological methods: analytical epidemiology - case control & cohort study, epidemics and its types, vital statistics, epidemiological triad, demography and life expectancy. **Communicable & infective disease control: -** definitions related to communicable diseases. Infection, contamination, decontamination, disinfection, transmission (direct & indirect) brief idea about different vector borne diseases- brief				

			idea about AIDS, malaria, poliomyelitis, dengue, tuberculosis, MMR, chicken pox, pertussis, chikungunya, epidemiological principles of disease prevention and control				
		PAPER IV UNIT I FOOD COMMODITIES	**Cereals & their products**: - Structure, nutritive value of cereals. Rice - composition, processing, Brief idea about different fermented rice products. Wheat: - composition, processing. Brief idea about different wheat products - millet like Jowar, Ragi, Bajra. Role of cereals in cookery. Gelatinization, Gluten	Chalk and board method, Lecture method, power point presentation and text books	Assignment /class tests/practical demonstration/notebooks	10hrs	Dr.Priyadarshini Chakraborty

			formation. Breakfast cereal. **Pulses**: - composition, nutritive value, processing (soaking, germination, fermentation). Toxic constituent present in pulses. Pulse cookery. Factors affecting cooking quality. Role of pulses in cookery **Milk and milk products**: - composition of milk. Nutritive value of milk. Physical properties of milk. Pasteurization of milk. Microbial spoilage of milk. Effect of enzyme, acid and heat on milk. Role of milk in cookery. Different fermented milk products like cheese, butter, curd.			8hrs	

			Brief idea about different non fermented milk products like ice cream, skimmed milk, toned milk, double toned milk, sweetened condensed milk, recombined milk etc. **Egg: -** Structure, nutritive value, composition. Effect of heat on egg, and factors affecting coagulation of egg protein. Hard and soft egg. Egg foaming and factors affecting egg foaming. Preservation of egg, Role of egg in cookery. **Meat, Fish, Poultry:-** classification of meat. Nutritive value of meat. Ageing, tenderization, artificial			12hrs	

			tenderization, curing of meat. Smoking of meat Fish:-composition, nutritive value, selection .spoilage of fish. Poultry:- processing, classification, composition **Vegetables and Fruits:**- classification of Vegetables. Nutritive value, composition of vegetables. vegetable cookery. Effect of cooking on pigments present in vegetables. Loss of nutrient during cooking. Prevention of loss of nutrient. Storage of Vegetables. Classification of Fruits. Nutritive value, composition of Fruits. Pigments present in				

			fruit. Bitterness in fruit. Ripening of fruits: Browning reaction.				
		Paper – IV, Unit-II Community Nutrition (Practical)	Anthropometric Measurement of infant-Length, Weight, Circumference, Chest, Med- upper arm circumference, precautions to be taken. Comparison with norms and interpretation of the nutritional assessment date and its significance. Weight for age, height for age, weight for height, Z scores body Mass Index (BMI), Waist-Hip Ratio (WHR). Growth charts-plotting	Hands on practical demonstration	Assignment	15hrs	Dr.Guddi Tiwary

			of growth charts, growth monitoring and promotion.				
	Programme course	**PAPER II-UNIT-I (FOOD SCIENCE)**	1. Definitions of food, nutrition, nutrient, health, nutritional, nutritional status, balanced diet, malnutrition, energy (units). 2. Definitions of BMR, factors controlling BMR, energy balance, RDA. 3. Basic 5 Food groups: Types, composition, nutritional significance, role in cookery of cereals, pulses, milk % milk products, meat, fish, egg, vegetables& fruits, nuts, oils, and sugar.	Chalk and board Lecture, power point presentation and notes;	Assignment	15 hrs	Juthi Saha

		UNIT II- (THERAPEUTIC NUTRITION)	4. Principle and objectives of meal planning. Dietary management in Gastro intestinal Diseases(diarrhoea, constipation , gastritis, peptic ulcer & flatulence), fever (short term), Diabetes mellitus(Type II - NIDDM), Heart diseases(hypertension, atherosclerosis, hyperlipidaemia), Liver diseases(infective hepatitis, cirrhosis of liver)Gout, Obesity(including	Hands on demonstration	Assignment	15 hours	Juthi Saha

			assessment indices), under weight,				
		PAPER III (PRACTICAL)	5. Preparation of cereals, pulses, vegetables, egg, milk, fish, nuts.(One from each group) 6. Preparation of ORS 7. Preparation of jam, jelly, squash, pickles. 8. Planning of a day's diet for a pregnant & lactating mother.	Hands on demonstration of practical	Assignment	15hrs	Juthi Saha

			9. Planning & preparation of a day's diet for the following conditions -Peptic ulcer, Fever, Hypertension, Diabetes mellitus (Type II-NIDDM).				

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PART –III Honors. &Programme Course

Name of the Department: _Food and Nutrition _____

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned

August-January	**Hons**	**Paper V: Unit I NUTRITIONAL BIOCHEMISTRY**	**1. Enzymes & Coenzymes** Enzymes: Definition & Classification, Kinetics (Gibs free energy change, Reaction initiation energy), michalies-Menten equation, Reciprocal plot & its significance, Vmax & Km, substrate specificity, enzyme inhibition (irreversible-Penicillin inhibition**,** reversible explained from Reciprocal plot, allotter-ribonucleotide reductase inhibition by nucleotides), isozymes-ex, LDH. COENZYMES-Definition, Biochemical functions of NAD, NADP, FAD, CoA, Tetrahydrofoltate, TPP, Names of vitamins present in those coenzymes.	Chalk and board method, Lecture method, power point presentation and texts and reference books	Assignment/ class tests	4hrs 4hrs	**Dr. Priyadarshini Chakraborty**

			3.LIPIDS Beta Oxidation, (alpha and omega oxidation-definition only), Synthesis & utilization of ketone bodies, Ketosis, Causes of Fatty liver. **5.NUCLEIC ACID; Structure of purines & Pyrimidines, Nucleosides &Nucleotides, Formation of Nucleic acid chain from Nucleotides, Importance of Thymine in D & their functions (in brief), Structure of t-RNA, Codons, Definition of Central Dogma (Replication, Transcription, Translation- elementary idea only0, &**			12hrs 4hrs	Juthi Saha

			Machineries needed in each step (only names of the enzymes and coenzymes)				
		Paper V **Unit II: Microbiology**	**1. Microscope:** Different parts of Microscope and its functions. **2.Cultication of Bacteria:** Nutritional requirements of mcroorganisms, typesof growth media (selecstive, differential, enriched media-definition with example). Pure culture methods (streak plate, sprrad plate, pour plate, slant culture), Anaerobic cultivation of bacteria. **3.Growth of Bacteria-** Definition , Growth	Chalk and board method, Lecture method, power point presentation and texts and reference books	Assignment/ class tests	16 hrs	Dr. Priyadarshini Chakraborty

			phase, direct and indirect measurement of growth, Factors affecting growth (pH, temp and oxygen) **4.Stains and staining techniques** – dye (Chromophore, auochrome- definition with example). Clasification of stains, principles, simple staining, negative staining, differential staining (Gram staining and acid fast staining).				
		Paper VI (Unit I: DIET THERAPY	1. Basic concept of diet therapy- different definitions related to diet therapy 2. Routine Hospital Diet- Modification of normal diet into therapeutic diet. Purpose of diet therapy. Different modifications. 3. Diet with Energy	Chalk and board method, Lecture method, power point presentation and texts and reference	Assignment/ class tests/practical demonstration/notebooks	10hrs	Juthi Saha

			Modification- Energy modification & nutritional care for weight management , identifying the overweight obese, aetiological factors contributing obesity, prevention & treatment of obesity. Low energy diet & balanced energy reduction. Underweight- aetiology, an assessment , high energy diets for weight gain. 4. DIET FOR FIBRILE CONDITION- different causes of fever. Metabolic changes during fever (elementary idea), General dietary consideration. Causes , clinical features, treatments & dietary management of Short time fever (influenza, Chronic fever (tuberculosis), Intermittent fever	books		8hrs 8hrs	

			(Malaria). 5.Diet during Surgery- General introduction, Pre- & Post operative diet (brief idea), Dietary management.				
		Paper VI Unit – II: DIET THERAPY	1.CARDIOVASCULAR DISEASES; General information & brief idea. Causes or factors of CHD in brief. Dietary management. Causes , symptoms in brief & dietary management of the following: Atherosclerosis, hypertension, hypercholesterolemia, IHD, Congestive cardiac failure. 2. RENAL DISEASES- General introduction. Causes , symptoms in brief & dietary management of the following; Type I or Glomerulonephritis, Type II or Nephrotic	Chalk and board method, Lecture method, power point presentation and texts and reference books	Assignment	15hrs	Dr.Priyadarshini Chakraborty

			Syndrome, Acute & Chronic renal failure , Renal calculi.				
		PAPER VII UNIT I: BIOCHEMISTRY PRACTICAL	GROUP A- QUALITATIVE ESTIMATION- 1. Qualitative estimation of carbohydrate (Mono, di and poly saccharides), Glucose, Fructose, Sucrose, Lactose, Starch, Dextrin. 2.Colour reactions of protein. GROUP B- QUANTITATIVE ESTIMATION: 1.Satandard curve of protein by Biuret method using BSA. 2.Standard curve of Protein by Folin Phenol method using BSA. 3.Estimation of unknown protein from egg or serum protein	Hands on demonstrations of practicals.		10 hrs 10 hrs	Juthi Saha Dr. Priyadarshini Chakraborty

			4. Standard curve of PNP 5. Preparation of Buffer.				
		PAPER VII- UNIT II- (FOOD PRESERVATION AND PREPARATION) PRACTICAL	**1**. Introduction to food preservation and different methods of food preservation. Purpose of food preservation. 2. Use of natural and chemical preservatives in preparartion of different preserved products- jam, jelly, squash, pickles, murabba etc	Hands on demonstrations of practical.	Class assignments	12hrs	Dr. Priyadarshini Chakraborty

						2hrs	
		PAPER VIII, UNIT-I: DIET THERAPY PRACTICAL	1. Introduction to therapeutic nutrition, its objectives. Different modification techniques (demonstration). 2. Planning and preparation of normal diet 3. Planning and preparation of clear fluid and full fluid diet 4. Planning and preparation of soft diet.	Hands on demonstration of practical	Assignment/ project report/ Notebooks	15hrs	Juthi Saha

		PAPER VIII-UNIT II-MICROBIOLOGY	1.Basic idea of process of sterilization 2.Preparationof Nutrient Agar media	Hands on demonstration of practical	Assignment	12 hrs	Dr.Priyadarshini Chakraborty
		PAPER VIII-UNIT III-(PROJECT AND SEMINAR)	1. Review and Project work 2.Seminar presentation	Preparation of chart/ poster preparation,	Assignment	8 hrs	Dr. Priyadarshini Chakraborty

			models related to health and nutrition education.	and dissertation		15hrs	Dr.Guddi Tiwary
	Programme course	**PAPER IV-UNIT-I (GROUP-A; COMMUNITY NUTRITION)**	1.Concept of community 2. Methods of assessment of nutritional status- Anthropometry, Clinical, Biochemical , Dietary surveys, Vital health statistics. 4. Nutrition education in community- Definitions, methods Uses.	Chalk and board method, Lecture method, power point presentation and texts	Assignment	15 hrs	Juthi Saha

		PAPER IV- UNIT-I (GROUP B- FOOD MICROBIOLOGY &SANITATION)	1. Elementary structure and characteristics of microbes. Bacteria , Virus, Fungi including mould, yeast and protozoa. 2. Food spoilage: Cereal, Pulses, Vegetables & Fruits, Milk & milk products, Feshy foods, Fats & oils. 4. Food preservation- Definition, objectives, Methods- main principle. Procedure, common examples.				Dr. Priyadarshini Chakraborty

		PAPER IV-UNIT-II (PRACTICAL)	1. Diet survey in household of slums/rural area	Hands on demonstration of practical	Assignment	5hrs	Dr. Guddi Tiwary

Recommended Text books:

For PAPER V & VII:

1. Lehninger, A.L.; Nelson, D. L. and Cox, M. M. Principles of Biochemistry. CBS Publishers and Distributors.
2. A.C Deb, (2001) Fundamental of Biochemistry, New Central Book Agency (p) Ltd; 9th edition.
3. Debajyoti Das, Biochemistry, 14th Ed, Academic publishers.
4. Frazier, W. C. and Westhoff, D. C. (1988): 4th edition, Food Microbiology, MaGraw Hill Inc.
5. Jay James. N. (1986) : 3rd edition, modern Food Microbiology, Van Nestrand Reinhold Company Inc.
6. Pelczar, M.I. and Reid, K. D. (1978): Microbiology, McGraw Hill Company, New York.
7. Benson Harold, J. (1990) : Microbiological Application, Publishers, U.S.A.
8. Colling, C.E. and Lyne, P.M. (1976) : Microbiological Methods Butterworth. London
9. Jay JM, Modern Food Microbiology, CBS Publication New Delhi 3rd Ed. 1987

For PAPER VI :

1. Anderson, L., Dibble, M.V., tukki, P.R., Mitchall, H.S., and Rynbergin H.J.: Nutrition in Health and Disease, 17th edition, J. B. Lipincott& Co. Philadelphia.
2. Antia F. P.: Clinical Dietetics and Nutrition, Second Edition, Oxford University Press, Delhi.
3. Mahan, L. K., Arlin, M. T.: Krause's Food, Nutrition and Diet Therapy. 8th edition, W. B. Saunders Company, London.
4. Robinson. C.H. Lawler, M.R. Chenoweth, W. L., and Garwick, A. E. (1986): Normal and Therapeutic Nutrition. 17th edition, MacMilian Publishing Co.
5. Williams. S. R.: Nutrition & Diet Therapy, 6th edition, Times Mirror/Mosby College Publishings, St. Louis.

Prasanta Chandra MahalanobisMahavidyalaya

Lesson Plan- 2018-2019

Semester II Honours &Programme Course

Name of the Department: Food and Nutrition

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
March-April	**Hons.**	**FNTACORO03T -FOOD CHEMISTRY, BIOPHYSICS AND BIOCHEMICAL PRINCIPLES(THEORY)**	**1.Proteins and Amino acids-** • Classification of proteins. • Protein structure and organization: primary, secondary, tertiary and quaternary structure. • Amino acid classification. • Physical and chemical properties of amino acid and protein. • Biological value of proteins (BV), Net protein utilization (NPU) and Protein efficiency ratio (PER). **2.Carbohydrate Chemistry** • Carbohydrates: classification- mono-, di- & polysaccharide • Stereoisomerism in carbohydrates. • Physical and	Powerpoint Presentation. Lecture. Board work. E-books, Study materials Online class. Powerpoint Presentation. Lecture. Board work, Study materials as pdf	Class Assignment Class Assignment	10hrs 20hrs	Dr.Priyadarshini Chakraborty

			chemical properties of mono-, di- and polysaccharides; • Dietary fibre - definition; Fibre components - cellulose, hemicellulose, pectin substances, lignin.				
		FNTACOR03P: FOOD CHEMISTRY, BIOPHYSICS AND BIOCHEMICAL PRINCIPLES (PRACTICAL)	1. Qualitative tests for the identification of: Glucose, Galactose, Fructose, Sucrose, Lactose, Starch, Dextrin. 2. Glucose estimation in blood 3. Qualitative tests for the identification of - Albumin, Gelatin, Peptone, urea, uric acid.	Hands on practical class demonstration	Continuous assessment Continuous assessment	10hrs 6hrs	Priyadarshini Chakraborty

		FNTACOR04T: HUMAN PHYSIOLOGY (THEORY)	**1. Physiology of excitable cells:** • Different types of muscles and their structures • Mechanism of skeletal muscle contraction and relaxation, • Muscle energetic, • Isometric and isotonic muscle contraction. • Structure of nerves. • Nerve impulse and its conduction. • Synapse and Neuromuscular junctions. • Synaptic transmission. • Neutrotrophins	Lecture method; text books	Assignments	24 hrs	Bikash Majumder
		FNTACOR04P: HUMAN PHYSIOLOGY (PRACTICAL)	1. Test for Visual acuity, Colour vision. 2. Identification with reasons of histological slides (Lung, Liver, Kidney, Small intestine, Stomach, Thyroid, Adrenal, Pancreas, Testis, Ovary and Muscle of mammals).	Offline hands-on practical class	Assignments	2hrs 4hrs	Bikash Majumder

	Programme Course	**FNTGCOR02T: HUMAN BODY AND NUTRITION (THEORY)**	**1. Animal cell** • Animal cell: definition, structure and functions of different parts. Organelle **2. Blood and body Fluids:** • Blood, composition, blood corpuscles, functions, blood groups and its importance in transfusion, hazards of mismatch blood transfusion. Rh factor, blood coagulation. • Lymph: Compositionand function. **3. Cardiovascular and Respiratory system** • Heart: Junctionl tissues and functions. Cardiac cycle, cardiac output, blood pressure and its regulation. Mechanism of respiration, Respiratory centre. Respiratory regulation.	Lecture method; Chalkboard, PDF	Assignments	5hrs 10hrs 6 hrs	Dr.Priyadarshini Chakraborty Bikash Majumder
		FNTGCOR02P: HUMAN BODY AND NUTRITION (PRACTICAL)	1. Determination of pulse rate in Resting condition and after exercise (30 beats/10 beats method)	Hands on practicals	Assignments	6hrs	Bikash Majumder

			2. Determination of blood pressure by Sphygmomanometer (Auscultatory method). 3. Identification of permanent sections (Blood cells, Stomach, Small intestine, large intestine, Liver, pancrea**s).**			6hrs 6hrs	
May-June	**Hons.**	**FNTACORO03T -FOOD CHEMISTRY, BIOPHYSICS AND BIOCHEMICAL PRINCIPLES(THEORY)**	**1.Lipid Chemistry** • Lipids: Classification- Fatty acids, triglycerides, phospholipids, Glycolipids, sterols and steroids. Eiconoids. • Edible fats and oils - physical and chemical properties, Hydrogenation and importance of fats in the diet. • Physical and chemical properties of saturated, monounsaturated, polyunsaturated fatly acids, Trans fatty acids, phospholipids, cholesterols and liposomes. • Essential fatty acids. **2. Enzymes** • Enzmes: Definition and structure.	Online class. Powerpoint Presentation and Lecture. E-books, Study materials	Class assignment	15 hrs 10hrs	Dr. Priyadarshini Chakraborty

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			• Enzyme substrate interaction. • Enzyme kinetics, • MichaelisMentenc onstant(Km). • Enzyme inhibition • .Factors regulating enzyme activities, • Isoenzymes, Pro-enzymes, Ribozymes, Abzymes, • Concept of Rate limiting enzymes.				
		FNTACOR03P: FOOD CHEMISTRY, BIOPHYSICS AND BIOCHEMICAL PRINCIPLES(PRACTICAL)	1. Protein estimation by Biuret and Lowry methods. 2. Estimation of urea and uric acid in blood. 3. Determination of acid value of oils by titrimetric method. 5. Determination of specific gravity of liquid (fruit juice, blood).	Offline Hands-on Practical Class	Class assignments	6hrs 6hrs	Dr. Priyadarshini Chakraborty
		FNTACOR04T: HUMAN PHYSIOLOGY (THEORY)	**1.Endocrine system** • Structure, hormones and functions of pituitary, thyroid, parathyroid, adrenal gland and pancreas. • Hypothalamus as an endocrine gland. • Gastrointestinal hormones. Growth factors.	Lecture method; Chalkboard, PDF	Assignments	8 hrs	Bikash Majumder

		FNTACOR04P: HUMAN PHYSIOLOGY (PRACTICAL)	1. Qualitative determination of glucose in blood or urine. 2. Total count (TC) and Differential count (DC)	Hands on demonstration of practical	Assignments	6hrs	Bikash Majumder
	Programme Course	**FNTGCOR02T: HUMAN BODY AND NUTRITION (THEORY)**	**1.Digestive system and Digestion** •Digestive system: Structures involved in digestive system (mouth, oesophagus, stomach, small intestine, large intestine,liver pancreas, gallbladder), and their functions, composition of different digestive juices & their functions. Digestion and absorption of carbohydrate, protein and fat. **2. Excitable cells** •Brief description about the mechanism of muscular contraction. Neuro-muscular transmission. **3.Regulatory systems** •General idea about the Hormones in human body and their significance on nutrition. Brief	Chalk and board Lecture method,Notes	Assignments	8hrs 10hrs	Dr.Priyadarshini Chakraborty Bikash Majumder

			idea about brain and sinal cord. somatic and autonomic control of body.				
		FNTGCOR02P: HUMAN BODY AND NUTRITION (PRACTICAL)	1. Determination of Bleeding Time (BT) and Clotting Time (CT). 2. Detection of Blood group (Slide method).	Offline hands on practical	Assignments	6hrs	Bikash Majumder

Recommended Text books:

For FNTACOR03T:

1. Fennema, Owen R (1996), Food Chemistry, 3rd Ed., Marcell Dekker, New York.

2. Murray, R. K. Grannen, D. K.; Mayes, P. A. and Rodwell. V. W: Harper's Biochemistry. Lange Medical Book.

3. Potter,N.N.andHotchkiss,J.H (1995), Food Science, 5th Ed., Chapman & Hall.

4. Lehninger, A.L.; Nelson, D. L. and Cox, M. M. Principles of Biochemistry. CBS Publishers and Distributors.

5. A.C Deb, (2001) Fundamental of Biochemistry, New Central Book Agency (p) Ltd; 9th edition.

6. Debajyoti Das, Biochemistry, 14th Ed, Academic publishers.

For FNTACOR4T and FNTGCOR02T:

1. Berne, R. M., Koeppen, B. M., & Stanton, B. A. (2010). *Berne & Levy physiology*. Philadelphia, PA: Mosby/Elsevier.

2. Barrett, K. E., & Ganong, W. F. (2012). *Ganong's review of medical physiology*. New York: McGraw-Hill Medical.

3. Hall, J. E., & Guyton, A. C. (2011). *Guyton and Hall textbook of medical physiology*. Philadelphia, PA: Saunders Elsevier

Prasanta Chandra MahalanobisMahavidyalaya

Lesson Plan- 2018-2019

PART II Honors. &Programme Course

Name of the Department: ___Food and Nutrition_____

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
February-June	**Hons**	**PAPER III** **UNIT I COMMUNITY NUTRITION**	Concept of **surveillance** : food and nutrition surveillance, need for surveillance, objectives of surveillance, indicators of nutritional surveillance, importance and use of surveillance. International, national, regional **Agencies and Organisations** : WHO, FAO, CARE,UNICEF, International Red Cross, NIN, ICMR, ICAR,CFTRI, FNB, NNMB, Indian Red Cross, CSWB, Nutrition Foundation of India. **Nutritional intervention program** to combat malnutrition. **Nutrition Education**: (elementary idea) Reason for Nutrition Education, objectives.	Chalk and board method, Lecture method, power point presentation and text books	Assignment/ class tests	6hrs 6hrs	**Dr. Guddi Tiwary** Juthi Saha

		PAPER III **UNIT II** **PUBLIC HEALTH & EPIDEMIOLOGY**	**Immunization:-** Definition**.** Host defenses and immunity. Immunizing agents: its types. National immunization schedule- its importance. Immunization for adults & foreign travelers. Hazards of immunization. Health advice to the foreign travelers. **Community water & waste management:** Importance of water to the community. Sources of water. Concept of water pollution. Purification of water in small & large scale. Drinking water handling & safe drinking water. Water borne diseases (diarrhea, dysentery, arsenic toxicity). **Waste-**Types and methods of disposal, sewage disposal and treatment, Treatment and disposal technologies of health care wastes. **Community food protection**:- Epidemiology of food borne diseases. Mode of transmission. Prevention & control (Salmonellosis, Shigellosis, typhoid, botulism, Cholera, E.coli food poisoning, Staphylococcal food	Chalk and board method, Lecture method, power point presentation and text books	Assignment/ class tests	16 hrs	Dr. Guddi Tiwary

			poisoning).				
		PAPER IV **UNIT I** **FOOD COMMODITIES**	**Sugar and its products:** - Properties of sugar. Different sugar and their product. Crystallization of sugar. Factors affecting crystallization. Brief idea about different crystalline and non-crystalline candies. Caramelization. Role of sugar in cookery. Different natural and artificial sweeteners. F**ats and Oils:**- Classification & Nutritive value of fats and Oils. Different fatty acids. Structure of fat. Composition of fat. Chemical properties. Analysis of fats & oils. Degradation of fat, factors affecting it & its prevention. Smoking temperature of fat. **Food Preservation:**- Objectives of preservation in brief. Different methods of preservation. Basic idea of food spoilage. Preparation of preserved products like jam, jelly, squash, pickles etc. **Food Additives:**- Brief idea about food additives. **Leavening agent:**- Brief idea about different leavening agent like baking powder, egg etc.	Chalk and board method, Lecture method, power point presentation and text books	Assignment/ class tests/notebooks	10hrs 12hrs	Dr.Priyadarshini Chakraborty

			Food adulteration & Food Standards:- Different food standards: BIS, Agmark, FPO, PFA, MPO etc. basic idea about food adulteration, quality. Factors responsible for food adulteration. **Convenience Food:**- Basic idea, types, role of convenience food. **Spices:-** Different spices, their composition, medicinal value & use. Basic idea about herbs. **Beverages:**- Classification. Tea: nutritional aspect, classification, processing of tea, different types of tea. Coffee: composition, processing, nutritional aspect of coffee. Bitter substances present in coffee, different coffee products. Chocolate & cocoa: processing, composition & nutritional aspect. Alcoholic beverages: beer, rum, wine- their processing. Carbonated beverage				
		Paper – IV, **Unit-II** **Community Nutrition (Practical)**	Clinical assessment and signs of nutrient deficiencies, Anaemia, Rickets, B-Complex deficiencies Estimation of food and nutrient intake- Household food consumption date, per consumption unit, 24 hours dietary recall, 24	Hands on practical demonstration	Assignment	12hrs	Dr.Guddi Tiwary

			hours record. Weighment method, food diaries, food frequency data, use of each of the above, information available through each individual, collection of data, estimation of intakes. Community field survey				
	Programme course	**PAPER II- UNIT-I (FOOD SCIENCE)** **UNIT II- (THERAPEUTIC NUTRITION)**	5. Nutritional requirements (RDA), dietary guidelines of pregnant and lactating women, infants, pre-school children , school children (School lunch programme), adult males and females, old age people. 6. Deficiency diseases (Nutritional anaemia, PEM, IDD, VAD)- Aetiology, Prevalance, Clinical findings, Prevention & treatment. 1. Basic concepts of diet therapy. Principles and classification of the therapeutic diet, 2. Hospital diet: regular, soft, fluid, special feeding methods advantages & disadvantages. 4. Food allergy - Definion,Sources,	Lecture, power point presentation and notes	Assignment	6 hrs 12 hrs	Dr.Priyadarshini Chakraborty Dr.Priyadarshini Chakraborty

		PAPER III [PRACTICAL]	Symptoms, Diagnosis, Treatment ;Food intolerance 1. Elementary idea of weights & measures 2. Processes involved in food preparations - Boiling, Roasting, Stewing, Poaching, Frying, Grilling, Pressure cooking.(One of each type)) 3. Preparation of supplementary foods for infants(minimum two). 4. Planning and Preparation of fluid diet, soft and semi-solid diet (One from each group)			12 hrs	Dr.Priyadarshini Chakraborty

Recommended Text books:

For FNTACOR08T:

1) Das Suryatapa. Textbook of community nutrition.4th Edition. Academic Publishers.
2) Park: Park's Textbook of preventive and Social Medicine. 9th edition. M/s. BanarasidasBhanot. Jabalpur.
3) Gopalon. C. : Nutrition Foundation of India, Special Publication service.
4) Beghin, 1. Cap. M: Dujardan. B. : A Guide to Nutrition Status Assessment. W.H.O. Geneva.
5) Gopaldas, t. Seshadri, S. : Nutrition Monitoring a Assessment: Oxford University Press. 7. Mason, J. B., Habicht, J. P.; Tabatabai. H. Valverde. U.: Nutritional Surveillance, W.H.O.
6) Jelliffe, D. B. : Assessment of the Nutritional Status of the Community; World Health Organisation.

For FNTACOR09T:

1.Park: Park's Textbook of preventive and Social Medicine. 9th edition. M/s. BanarasidasBhanot. Jabalpur.

For FNTACOR10T:

1. Anderson, L., Dibble, M.V., tukki, P.R., Mitchall, H.S., and Rynbergin H.J.: Nutrition in Health and Disease, 17th edition, J. B. Lipincott& Co. Philadelphia.

2. Anita F. P.: Clinical Dietetics and Nutrition, Second Edition, Oxford University Press, Delhi.

3. Mahan, L. K., Arlin, M. T.: Krause's Food, Nutrition and Diet Therapy. 8th edition, W. B. Saunders Company, London.

4. Williams. S. R.: Nutrition & Diet Therapy, 6th edition, Times Mirror/Mosby College Publishings, St. Louis.

5. Raheena, Begum: A textbook of food, nutrition and dietetics Sterling Publishers, New Delhi.

6. Joshi, S. A. : Nutrition and Dietetics, Tata McGraw Hill, Publications, New Delhi.

For FNTGCORO4T:

1. Anderson, L., Dibble, M.V., tukki, P.R., Mitchall, H.S., and Rynbergin H.J.: Nutrition in Health and Disease, 17th edition, J. B. Lipincott& Co. Philadelphia.

2. Anita F. P.: Clinical Dietetics and Nutrition, Second Edition, Oxford University Press, Delhi.

3. Mahan, L. K., Arlin, M. T.: Krause's Food, Nutrition and Diet Therapy. 8th edition, W. B. Saunders Company, London.

4. Williams. S. R.: Nutrition & Diet Therapy, 6th edition, Times Mirror/Mosby College Publishings, St. Louis.

5. Raheena, Begum: A textbook of food, nutrition and dietetics Sterling Publishers, New Delhi.

6. Joshi, S. A. : Nutrition and Dietetics, Tata McGraw Hill, Publications, New Delhi.

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Lesson Plan- 2018-2019

PART III Honors. & Programme Course

Name of the Department: _Food and Nutrition _____

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
February-June	**Hons**	**Paper V: Unit I** **NUTRITIONAL BIOCHEMISTRY**	2.**CARBOHYDRATES;** Glycolysis.Citric acid cycle, electron transport chain (brief idea), glycogenolysis, gluconeogenesis, HMP Shunt. **3.PROTEIN** Tertiary & Quarternary structures of protein with Haemoglobin & Collagen as examples, Deamination& Transamination, amino acid metabolism. **6. VITAMINS;** Structure & Biochemical roles, Deficiency disorders of Vitamin A, D, E, K, B1, B2, B6, Folic acid, Pantothenic acid, Niacin & Vitamin C. **7. MINERALS:** Biochemical functions of Na, K, Ca, P, I, Fe,Se-Disordersrelated to Hyperactivity & Deficiencies of those elements.	Audio recorded Lecture,power point presentation and e-resources available on SWAYAM (Inflibnet Centre); E-PG Pathshala, Egyankosh;	Assignment/ class tests	4hrs 12hrs	Dr. Priyadarshini Chakraborty Dr. Priyadarshini Chakraborty Juthi Saha

			8. CELLULAR TRANSPORT: Preliminary idea about membrane permeability, Active & Passive transport, Facilitated transport, a brief idea about gated channels & membrane –bound transport protein.			4 hrs 4hrs	Dr. Priyadarshini Chakraborty
		Paper V **Unit II: Microbiology**	**5.Morphology of Bacteria-** Slime layer, capsule, cell wall, flagella, pilli, fimbriae, cell membrane, ribosome, cytoplasmic inclusions (inorganic), endospore(structure, formation and germination. 6. Control of microbes- Sterilization, Disinfection, Antiseptics, detergents, methods of sterilization- Pysical (heat, low temp, radiation, filtration), Chemical (alcohol, phenol, halogen, heavy metals, formaldehyde). 7. **Food Microbiology-** milk as a growth medium of bacteria, normal microflora in milk, undesirable microbes in milk, Pasteurization, phosphatase test,	ICT,Lecture method; power point presentation and e-resources available on SWAYAM (Inflibnet Centre); E-PG Pathshala, Egyankosh; video demonstrations	Assignment/ class tests	4hrs 4hrs	Dr. Priyadarshini Chakraborty

			Methylene blue reduction test. Normal microflora of vehgetables & fruits, meat, fish, egg, canned food, cereal & cereal products, enumeration of microbespresent in food& milk. Outline of methods for detection of microorganisms in drinking ater (presumptive, confirmatory and completed test), distinction between faecal and non faecal coliforms- IMVic test. Extrinsic & intrinsic parameters affecting growth & survival of microbes. **8. Food borne diseases-** Food borne infection & intoxication. Different food borne diseases like Shigellosis, salmonellosis, Clostridium Perfringens food poisoning, Typhoid, E.Coli food poisoning, Bacillus cereus food poisoning- causative agent, symptoms, pathogenicity & preservation			4hrs 8hrs	
		Paper VI (Unit I: DIET THERAPY	6. Diseases of liver- General introduction , Symptoms of liver diseases, Reasons of liver diseases, Basic idea of liver function tests, Causes , clinical features , treatment & dietary	Audio recording Lecture method, Google meet virtual class, power point	Assignment/ class tests/practical demonstration/notebooks	10hrs	Juthi Saha

			management of – Infective hepatitis & jaundice, Cirrhosis of liver, Hepatic coma, Infantile biliary cirrhosis. 7. GALL STONE DISEASE- General Introduction, Type of Stones, Dietary management. 8. PEPTIC ULCER- General introduction of peptic ulcer disease. Causes of peptic ulcer disease, Mechanism of ulcer formation, symptoms of peptic ulcer disease, treatment & dietary management. 9. INTESTINAL DISORDERS- General introduction and dietary management of different intestinal disorders. Constipation- causes, complication, type(in brief), dietary management. Flatulence- causes, treatment, dietary management. Diarrhoea- causes, physiological isturbances in the body during Diarrhoea. Different types of Diarrhoea, Symptoms, Complication, Prevention& treatment. ORS. Steatorrhoea- causes, treatment, dietary management. Ulcerative colitis- causes , symptoms, treatment& dietary management. Irritable bowel syndrome- causes , symptoms, dietary management.	presentation and e-resources available on SWAYAM (Inflibnet Centre); E-PG Pathshala, Egyankosh, e-book		8hrs 8hrs	

		Paper VI Unit – II: DIET THERAPY	3.Diabetes Mellitus- General introduction & Classification. Factors responsible for diabetes. Role of hormones, Characteristics of Type I & Type II diabetes. Treatment & dietary management of diabetes, Complications associated with it. 4. FOOD ALLERGY; Introduction & definition related to food allergy, Predisposing factors of food allergy. Reasons for allergy. Classification of allergy. Allergic reaction (elementary idea), Symptoms of allergy, Role of food as allergen, Treatment & dietary management of food allergy, with elimination diet	Audio recording Lecture method, Google meet virtual class, power point presentation and e-resources	Assignment	15hrs	Dr. Priyadarshini Chakraborty

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		PAPER VII UNIT I: BIOCHEMISTRY PRACTICAL	GROUP A- QUALITATIVE ESTIMATION- 3. Qualitative estimation of fat. Solubility test, Unsaturation test, Saponifacation test, Test with soap & acrolin layer. 4. Chromatographic separaration of Amino acids from mixture of amino acids & determination of Rf value. GROUP B- QUANTITATIVE ESTIMATION: 6. Quantitative estimation of serum acid phosphatase 7. Quantitative estimation of serum alkaline phosphatase. 8. Quantitative estimation of Vitamin C in lemon juice. 9. Quantitative estimation of glucose using fehling solution 10. Determination o facid value of fat.	Audio recorded Lecture, power point presentation and Video demonstrations of practical.		10 hrs 10 hrs	Dr. Priyadarshini Chakraborty Dr. Priyadarshini Chakraborty

		PAPER VII- UNIT II- (FOOD PRESERVATION AND PREPARATION) PRACTICAL	3. Use of sun drying for preservation of food. 4. Preparation of fermented food product 5. Visit- Milk industry visit Food testing lab visit .	Audio recorded Lecture, power point presentation and Video demonstrations of practical. Virtual Lab visit conducted	Class assignments	12hrs	Dr. Priyadarshini Chakraborty
		PAPER VIII, UNIT-I: DIET THERAPY PRACTICAL	5.Planning and preparation of diets for the following condition- Jaundice, peptic ulcer, diabetes, Fever, CHD, Gout, Renal failure (acute	Online demonstration of practical	Assignment/ project report/ Notebooks	10hrs	Juthi Saha

			or chronic), Obesity.				
		PAPER VIII- UNIT II- MICROBIOLOGY	3. Inoculation of one gram positive and one gram negative bacteria 4.Gram staining	Online demonstration of practical	Assignment	6 hrs	Dr. Priyadarshini Chakraborty
		PAPER VIII- UNIT III- (PROJECT AND SEMINAR)	1. Review and Project work 2.Seminar presentation models related to health and nutrition education.	Preparation of chart/ poster preparation, and dissertation	Assignment	8 hrs	Dr. Priyadarshini Chakraborty Dr.Guddi Tiwary

	Programme course	**PAPER IV- UNIT-I (GROUP-A; COMMUNITY NUTRITION)**	3. Role of National & International organizations in improving community health- Who, FAO, UNICEF, CARE, NIN, CFTRI, ICMR. 5.Current National Nutrition Intervention Programmes in India- SNP, ANP, ICDS, Mi day meal, NIDDCP, NPPMB,NNAPP.	Audio recorded Lecture, power point presentation and e-resources available on SWAYAM (Inflibnet Centre); E-PG Pathshala, Egyankosh;	Assignment	15 hrs	Juthi Saha
		PAPER IV- UNIT-I (GROUP B- FOOD MICROBIOLOGY &SANITATION)	3. Food borne infections and infestations. Causative organisms, Symptoms, Mode of transmission, method of preservation. 5. Food adulteration- Definition, types, Introduction to food standards and food laws- PFA Act, AGMARK, PFO, MPO, Codex Allimeterious, Consumer Protection Act, HACCP				Dr. Priyadarshini Chakraborty

		PAPER IV-UNIT-II (PRACTICAL)	2.Pllotting of growth chart 3.Identification of unknown microbes (prepared slides)	Online demonstration of practical	Assignment	10hrs	Dr. Guddi Tiwary

Recommended Text books:

For FNTACOR13T:

1.Subalakshmi, G and Udipi (2001), S.A. Food processing and preservation; New Age International Publishers, New Delhi.

2. Srilakshmi, B. (2003), Food Science. New Age International Publishers, New Delhi.

3. Potter, N.N. and Hotchkiss J. H. (1996), Food Science. CBS publishers and distributors.

4. Srivastava, R.P.O. and Kumar, S. (1994) Fruit and vegetable preservation, International Book distribution Company, Lucknow.

5. MC Williams, M and Paine, H. (1994), Modern Food preservation. Surjeet Publications, Delhi.

6. Cruess, W.V.(1997), Commercial Fruits and Vegetable Products, Anees Offset press, New Delhi.

For FNTACOR14T:

1. Kothari C R(2004) Research Methodology, Methods &Techniques, 2nd Edi. New Age International Publishers.
2. Mahanjan BK (2010) Methods in Biostatistics, 7th Edi, Jaypee Brothers Medical Publishers (P) LTD.
3. Gun AM, Gupta MK,DasGupta b. (2008). Fundamentals of Statistics, 8th Edi, World press.
4. Malhotra OP, Gupta SK (1990) Elementary Statistics , 5thedi., S chand and Company.

For FNTADSE04T:

1. West B Bessie & Wood Levelle (1988) Food Service in Institutions 6th Edition Revised ByHargar FV, Shuggart SG, &Palgne Palacio June, Macmillan Publishing Company New York.

2. SethiMohini (2005) Institution Food Management New Age International Publishers

3. Knight J B &Kotschevar LH (2000) Quantity Food Production Planning & Management 3rd edition John Wiley & Sons

4. Philip E Thangam (2008) Modern Cookery for teaching and Trade Part I & II Orient Longmam

5. Taneja S and Gupta SL (2001) Enterpreneurship development, Galgotia Publishing

For FNTADSE05T:

1. Webb and Johnson (1988), Fundamentals of Dairy Chemistry, 3rd ed., CBS Publishers, New Delhi.

2. Pieter Walstra Jan T. M. Wouters Tom J. Geurts (2006), Dairy Science and Technology, Second Edition, CRC Press, Tayor and Francis group.
3. M.P.Mathur, D.D.Roy&P.Dinakar (2008), Textbook of Dairy Chemistry, Published by ICAR.

For FNTGDSE03T:

1. Manay NS, Shadaksharaswamy M. (2008) Foods facts and Principles, 3rdedi., New Age International (p) limited , publishers.

Recommended Text books:

For PAPER V & VII:

1. Lehninger, A.L.; Nelson, D. L. and Cox, M. M. Principles of Biochemistry. CBS Publishers and Distributors.
2. A.C Deb, (2001) Fundamental of Biochemistry, New Central Book Agency (p) Ltd; 9th edition.
3. Debajyoti Das, Biochemistry, 14th Ed, Academic publishers.
4. Frazier, W. C. and Westhoff, D. C. (1988): 4th edition, Food Microbiology, MaGraw Hill Inc.
5. Jay James. N. (1986) : 3rd edition, modern Food Microbiology, Van Nestrand Reinhold Company Inc.
6. Pelczar, M.I. and Reid, K. D. (1978): Microbiology, McGraw Hill Company, New York.
7. Benson Harold, J. (1990) : Microbiological Application, Publishers, U.S.A.
8. Colling, C.E. and Lyne, P.M. (1976) : Microbiological Methods Butterworth. London
9. Jay JM, Modern Food Microbiology, CBS Publication New Delhi 3rd Ed. 1987

For PAPER VI :

1. Anderson, L., Dibble, M.V., tukki, P.R., Mitchall, H.S., and Rynbergin H.J.: Nutrition in Health and Disease, 17th edition, J. B. Lipincott& Co. Philadelphia.
2. Antia F. P.: Clinical Dietetics and Nutrition, Second Edition, Oxford University Press, Delhi.
3. Mahan, L. K., Arlin, M. T.: Krause's Food, Nutrition and Diet Therapy. 8th edition, W. B. Saunders Company, London.

Prasanta Chandra MahalanobisMahavidyalaya

Lesson Plan- 2018-2019

Semester I Programme Course

Name of the Department: COMPUTER SCIENCE

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
September-November	**Programme Course**	**CMSGCOR01T** **CMSGCOR01P**	Computer Fundamentals Planning the Computer Program Techniques of problem Solving Overview of Programming Introduction to Python	Chalk and Board method, Lecture method and texts and reference books	class test Internal	30 30	SS SD
December-january	**Programme Course**	**CMSGCOR01T** **CMSGCOR01P**	Creating Python Programs Structures Introduction to Advanced Python	Chalk and Board method, Lecture method and texts and reference books	class test Internal	30 30	SS

Recommended Text books:

1. T. Budd, Exploring Python, TM H, 1st Ed, 2011

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Lesson Plan- 2018-19

PART II Programme Course

Name of the Department: COMPUTER SCIENCE

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
August to January	**Programme Course**	CMSG PAPER-II Practical **Group B : Wordprocessing , Document Preparation & Presentation and Spreadsheet**	***WORDPROCESSING:*** Opening, creating, saving, quitting documents. Using menus and toolbars. **Text** **Picture** ***SPREADSHEET:*** Data Entry **Excel practical:** Calculation and use of formula, display, print. **Excel practical:** Graphs and Charts ***Macros:*** Creation, running shortcut Mail Merge Filter operation **DOS Practical:** Files and Directories, Copy, Delete, Rename Directory, Creation, Navigation, Editor, Pipes and Filters, Pattern searching.	Hands on Practical Demonstration	Assignment	20	SD
		Group C : Programming in C	**Basic Structure** **Operators:** Arithmetic, Relational, Logical, Assignment, Increment and Decrement, Conditional **Arrays:** One-dimensional and 2-dimensional. Different types of uses.	Hands on Practical Demonstration	Assignment	30	SD

			User defined functions: Call by Reference and Call by value; return values and types; nesting of functions; recursion. **Structures** **Pointers:** *:* Declaration and initialization; operators; pointer arithmetics; accessing variables, pointer & arrays **File handling**				
February-June	**Programme Course**	CMSG PAPER-III **Group A: (Theoretical)** **Group A1 : System Analysis and Design** **Group A2: Database Management** **Practical** **Database Design and Applications**	**Introduction :** **System Life Cycle :** Waterfall model **Planning :** DFD and ERD **Design and Modelling:** feasibility study. Cost-benefit analysis **Modularity :** Module specification concepts; coupling and cohesion **Maintenance***:* Evaluation, testing and validation. Maintenance issues ***Overview:*** **Files and database.** ***Traditional Models:*** Network, Hierarchical and Relational. Comparison ***Relational Model*** ***Relational Algebra*** ***Relational Calculus*** ***Query Language*** *:* Normalization (upto 3NF) ***File Organizations*** *Database Design* ***SQL:*** Constructs; insert, delete, update, view, temporary tables; nested queries, API types of call, native API, ODBC	Chalk and Board method, Lecture method and texts and reference books Hands on Practical Demonstration	class test Assignment	20 20 20	SD SD SD

Recommended Text books:

1. An Integrated Approach to Software Engineering by Pankaj Jalote, Narosa Publishing House

2. Database System Design y Elmasri, Navathe, Somayajulu, Gupta, Pearson Education

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Lesson Plan- 2018-19

PART III Programme Course

Name of the Department: COMPUTER SCIENCE

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
August – January	**Programme Course**	CMSG **Paper IV Group A : Communication and Computer Networks**	***Communication Concepts :*** Analog and Digital communication strength, bandwidth, data rate, channel capacity. S/N ratio, modulation and demodulation FSK, ASK. **Transmission media:**Guided (twisted pair, co-axial, optical fiber) and unguided (microwave, satellite) ***Audio and Video communication systems :*** Analog and digital telephone, AM & FM radio,	Chalk and Board method, Lecture method and texts and reference books	class test	30	SD

			cable TV network, ISDN, paging, cordless and cellular phones, ATM.				
February-June	**Programme Course**	CMSG **Paper IV**	**Computer Networks** *:* *L*AN, MAN, WAN *Architecture* – OSI, TCP/IP and http protocol **LAN :** Ethernet and Token Ring topology High speed LANs Internetworking Modems, bridges and routers, connectivity concepts. Network **security.** **The Internet :** basic idea, DNS and URL, IP address, browsers **E-mail**	Chalk and Board method, Lecture method and texts and reference books	class test	30	SD
		Practical **Group B1 : Shell Programming**	*Files & Directories :* Copy, delete, rename, compare files, create, navigate, remove directories, access vi editor, status of users, background jobs; Pipes & filters; cutting, pastings and sorting of files, pattern searching in a string. ***Shell Programming :*** Concept and simple	Hands on Practical Demonstration	Assignment	40	SD

			programming problems				

Recommended Text books:

1. Data Communications and Networking by Behrour A. Forouzan, 4th Edition, TMH

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Lesson Plan- 2018-19

Semester II General Course

Name of the Department: Computer Science

Period	Hons/ Programme Course	Paper Name and Paper Code	Topics	Methods and materials	Methods of Evaluation	Number of classes allotted in hours	Name of the Teacher assigned
March-April	**Programme Course**	**CMSGCOR02T**	Introduction to DBMS ERD	Chalk and Board method, Lecture method, Power point presentation and texts and reference books	class test Internal	30	SD
		CMSGCOR02P	Practical	Hands on Practical Demonstration	Assignment	20	SD
May-June	**Programme Course**	**CMSGCOR02T**	Relational Data Model Database design	Chalk and Board method, Lecture method ,Power point presentation and texts and reference books	class test Internal	30	SD
		CMSGCOR02P	Practical	Hands on Practical Demonstration	Assignment	20	SD

Recommended Text books:

1. R. Elmasri, S.B. Navathe, Fundamentals of Database Systems 6th Edition, Pearson Education, 2010.