DR. PATANGRAO KADAM MAHAVIDYLAYA, RAMANANDNAGAR (BURLI)

Re-accredited (3rd Cycle) with 'A' Grade (CGPA 3.02 out of 4.00) by NAAC

Affiliated to Shivaji University, Kolhapur.

(Managed by Rayat Shikshan Sanstha, Satara)

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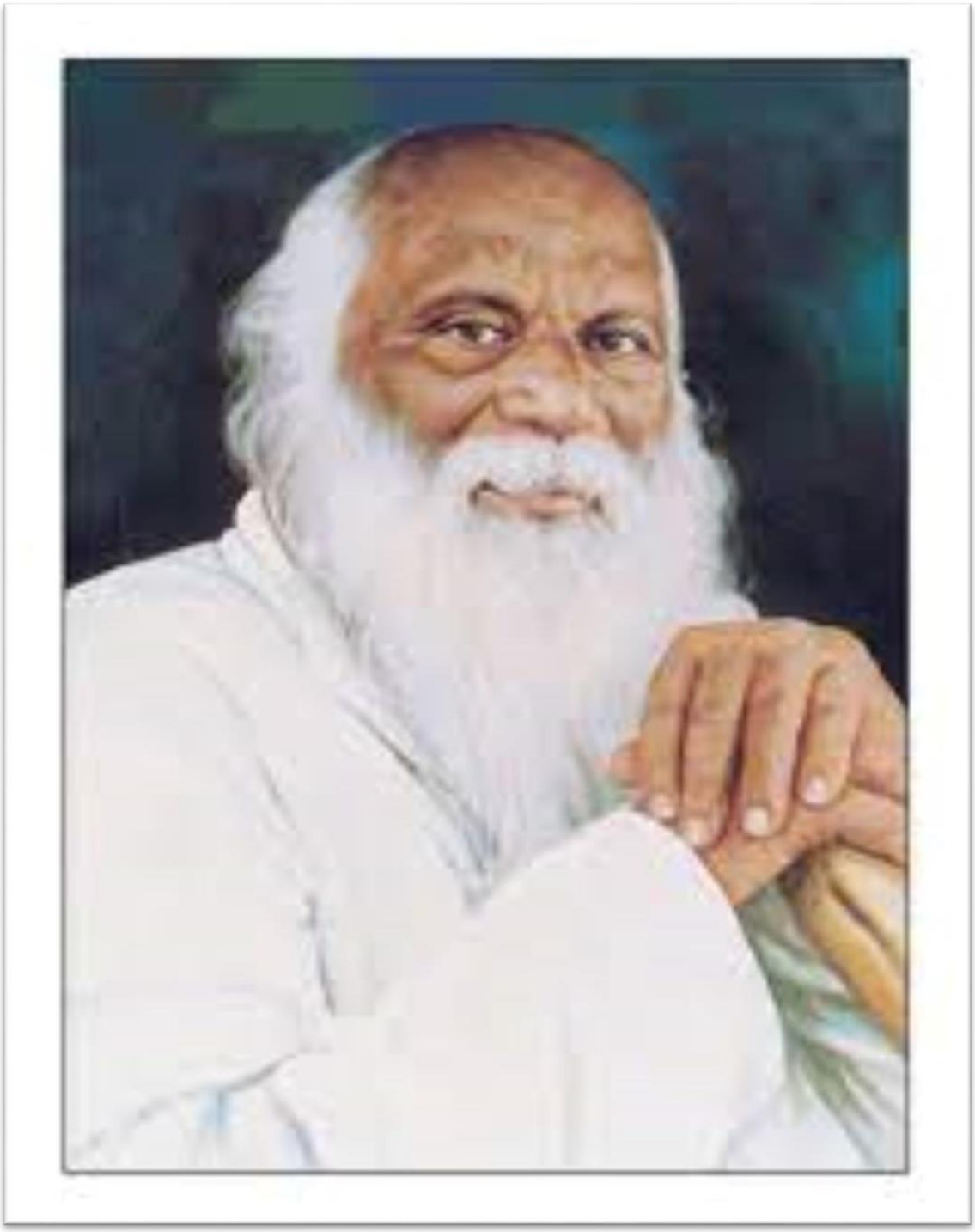
Learning Outcomes, Program Outcome, Program Specific Outcome and Course Outcome

(For those students admitted during the Academic Year 2021-22 and after)



Founder: Padmabhushan Dr. Karmaveer Bhaurao Patil

Late Dr. Patangrao Kadam

PREAMBLE:

Learning Outcome Based Education (LOBE), is a means of adherence to student-centric learning approach to measure student's performance based on pre-determined set of outcomes. Learning Outcome based Curriculum Framework (LOCF), is a consolidated document for Bachelor of Arts, Science, Commerce , Bachelor of Computer Application and Post Graduates of English, History and Analytical Chemistry at Dr. Patangrao Kadam Mahavidhyalaya, Ramanandnagar (Burli) (Affiliated to Shivaji University, Kolhapur) which describes the processes and curriculum adopted to attain the expected outcome. Learning Outcome Based Education focuses on bringing out reforms in curriculum framework that has to be outcome based; constant up gradation of academic resources; raising quality of research and teaching; integrating technology in the teaching-learning processes, using appropriate teaching-learning pedagogies, designing appropriate assessment modes; bringing out clarity among students as to what is expected from them after completion of the programme and for teachers in bringing focus on what to teach, how to teach and evaluate.

Infrastructure and facilities

Providing the appropriate resources and infrastructure for effective teaching- learning is crucial to establish effectiveness of the curriculum. Course teaching is carried out in an ICT enabled classrooms, flipped classroom, well equipped laboratories and Department Museum harbouring diverse organisms and rare specimen. Students can carry out practical's and research work at the 'Research lab' of the college, with latest facilities and ultramodern studies. The various departments also has specialized Research Laboratory which offers summer-winter hands on trainings to students. Besides student learning experience is enhanced by Student support Service centre, N.C.C, N.S.S, Auditoriums and Library.

Opportunities for students/Activities:

The various department organizes various activities for the students focused on executing the mission of the department. The students are given ample opportunities to enhance their academic skills as well as soft skills through the co-curricular and extracurricular activities. Concern for the environment and responsibility towards the community is a virtue taught to the students.

a) Learning platform: As per the institutional policy, learning resources are made accessible to the students by the course faculty on Google Classroom based platform. Learn Anytime Any Place. Google Classroom is a medium where course curriculum, learning objectives, Evaluation Rubrics, assessment dates and modes, laboratory manuals/journals, results of assessment and class lab policies etc. are uploaded for each course by the concerned course faculty.

b) Learning Resources: Resources provided to the students include PowerPoint presentations of the lectures, word docs/PDFs of matter, Links to recent advances on topic taught, Animations / Videos, Worksheets, Concept maps,

EBooks, journal resources,

c) Extensive usage of ICT: Teaching-Learning-Evaluation processes are ICT integrated. This creates a conducive learning environment for students. Students are encouraged to use electronic gadgets in the classroom and laboratories and enhance their learning.

d) Industry-Academia Lectures: To acquaint the students with recent progress in specific areas and expose them to opportunities in areas of wildlife, ecotourism and research, Industry academia lectures are regularly organized for the students.

e) Summer trainings and short term courses: Students can also enhance their employability skills through specialized trainings and short term courses offered by the department. Specialized courses include Certificate courses in Medical Lab Techniques.

f) Field Based Learning: Many courses at the department are integrated with field based activities to offer experiential learning.

g) Linkages for research and internship: Associations in the form of MoUs and linkages are created to offer research and internship opportunities to students. The majority of department have linkages with many multinational firms.

h) Social Responsibility: As part of social responsibility, the students have to carry out mandatory community outreach activities. Every year under the guidance of all the faculty members of the department community outreach activities are carried out.

i) Extracurricular Activities: To make students more responsible and understand the process of organizing events, the department has student focused activities. Clubs, activities and newsletters edited by students give opportunities to students to develop leadership qualities by being on committees, and understand the importance of team spirit to coordinate and methodically execute multiple events successfully. Clubs of the department include Birders Club, Butterfly garden and Vermicomposting. Annual intercollegiate event 'Avishkar is organised and executed by the students.

v) Student progression: On completion of the programme, most students pursue post graduate degree courses, while some opt to pursue professional diplomas or take up jobs. Also many students pursue higher education in top universities in India.

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DEPARTMENT OF ECONOMICS:

Programme Outcomes (POs)

After completing the graduation in Economics the student will be able to,

PO 1: Illustrate knowledge with facts and figures related concerned with Economics.

PO 2: Justify knowledge of Indian economy.

PO 3: Explain market structure and pricing policy.

PO 4: Analyse poverty and employment policies.

PO 5: Interpret monetary policy and fiscal policy.

PO 6: Evaluate international trade issues.

PO 7: Predict economic growth in five year plans.

PO 8: Analyse export and import policies of Indian economy.

PO 9: Use of development theories in the future life.

PO 10: Use of various research techniques in his/her future research.

PO 11: Explain bank structure and operation on bank accounts.

PO 12: Justify cooperative movements and its characteristics.

Program Specific Outcomes (PSOs)

After completing the graduation in Economics the student will be able to,

PSO 1: Outline basic concepts of economics.

PSO 2: Analyse economic behavior in practice.

PSO 3: Explain the economic way of thinking.

PSO 4: Justify historical and current events from an economic perspective.

PSO 5: Write clearly expressing an economic point of view.

PSO 6: Find alternative approaches to economic problems through exposure to coursework in allied fields.

PSO 7: Create students ability to suggest solutions for various economic problems.

PSO 8: Predict growth rate of Primary, Secondary and Service sector of the economy with help of economic parameters.

Course Outcomes (COs)

B. A. in Economics

1. Economics Course - Indian Economy I

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

CO 1: Explain features of Indian economy at independence era and structural changes in the Indian economy.

CO 2: Analyse inclusive growth in Indian economy with sustainable development.

CO 3: Express his /her own views on poverty and unemployment.

CO 4: Analyse problems of social inequality and rising of economy, problems and remedies of regional imbalance in India.

CO 5: Explain concept of National Income, Per capita Income and Human Development Index.

CO 6: Identify trend of population growth, impact of population on economic growth and population policy 2000.

2. Economics Course - Indian Economy II

CO 7: Identify changing role of agriculture in Indian Economy.

CO 8: Outline agricultural productivity, Green Revolution, need of 2nd Green Revolution and agricultural pricing and procurement.

CO9: Analyse need of industrialization, Industrial Policy since 1991, Problems and prospects of Cottage and Small scale Industries and Foreign Investment Policies since 1991.

CO10: Describe growing importance of service sector, Significance of Banks, financial Institutions and Insurance, Importance of IT[1], transport, communication and tourism.

CO 11: Explain concept, implementation and impact on Indian economy of Liberalization, Privatization and Globalization.

CO 12: Remembering recent export promotion policy.

3. Economics Course – Principles of Macro Economics I

CO 13: Analyse concept of macroeconomics with definition, nature and scope.

CO 14: Analyse inclusive growth in Indian economy with sustainable development.

CO 15: Explain concept of GNP[2], NNP[3], GDP[4], and GDP at market price, Per Capita Income and Disposable Income.

CO 16: Analyse methods of measuring national income with difficulties and importance.

CO 17: Explicate functions of money and theories of money, Index numbers and its importance.

CO 18: Analyse Say's market law, Keynesian theory of employment, consumption function, investment function and multiplier.

4. Economics Course – Money and Banking

CO 19: Analyse functions of commercial banks, types of banks, investment policy of commercial banks, process of credit creation and its limitations.

CO 20: Analyse features of bank account, opening, KYC[5] and closing account, bankers and customers rights and obligations.

CO 21: Identify History and organizational structure of Reserve Bank of India with functions, monitory policy and credit creation.

CO 22: Explicate bank Ombudsman scheme with meaning, power and duties.

CO 23: Analyse process and importance of loan, advantages and disadvantages of bank merge.

CO 24: Justify NPA and its causes and remedies.

5. Economics Course – Principles of Macro Economics II

CO 25: Explain inflation with meaning, types, causes, effects and remedies of controlling inflation.

CO 26: Describe trade cycles and its Phases.

CO 27: Identify Hawtrey and Schumpeter theory of trade cycles.

CO 28: Analyse meaning, nature and scope of Public Finance with principle of maximum social advantage. As well as taxation and budget.

CO 29: Justify public expenditure with meaning and causes of growth of Public expenditure.

CO 30: Illustrate public debt, Deficit Financing and Fiscal Policy.

6. Economics Course – Banks and Financial Markets

CO 31: Describe financial system in India. Structure and Importance of Financial System and Features and Structure of Money and Capital Market in India.

CO 32: Compare Capital Market and Money market in India with Role of SEBI[7].

CO 33: Demonstrate Indian Financial Institutions, like Non-Bank Financial Institutions, Loan companies in India, EXIM Bank and Mutual Funds.

CO 34: Analyse Recommendation of the Narasimham Committee of 1991 and 1998.

CO 35: Interpret Foreign Direct Investment in banking and Payment Bank with Small Finance Banks.

CO 36: Applying E-Banking Service in daily use.

7. Economics Course - Principles of Micro Economics I (DSE E-71)

CO 37: Explain Meaning, Nature and Scope of Micro Economics as well as its importance and limitations.

CO 38: Framework economic analysis using economic parameters.

CO 39: Express his /her own views about consumer behavior.

CO 40: Deep explain how to fluctuate demand and supply in market.

CO 41: Describe various parameters related to demand and supply.

CO 42: Explain production theories and cost-benefit analysis of the firm.

8. Economics Course - Economic of Development (DSE E-72)

CO 43: Explain concept of economic development and difference between economic development and growth.

CO 44: Explain indicators of economic development, Sustainable and green development.

CO 45: Identify underdeveloped economies, characteristics of underdeveloped economies, affecting factors on economic development.

CO 46: Illustrate features of economic development and development status of Indian economy.

CO 47: Analyse Recardian classical approach to the development, Myrdal's theory of economic development, Rostow's stages of economic growth and balanced and unbalanced theory of growth.

CO 48: Build up resources for economic development like Human Capital, Technology, FDI[9], Aids etc.

9. Economics Course - International Economics I (DSE E-73)

CO 49: Explain what trade is and trade theories of Ricardian and Hecksher-Ohlin theory of international trade.

CO 50: Explain unmistakably importance of international trade and its study, Similarities and dissimilarities in inter-regional and international trade.

CO 51: Clarify of gains from International trade and its measurement.

CO 52: Analyse how to become trade engine of economic growth, terms of trade and factors affecting terms of trade.

CO 53: Explain meaning of exchange rate, PPP[10] theory, concept of fixed exchange rate, flexible exchange rate and floating exchange rate.

CO 54: Explicate tariffs and quotas, free trade and trade protection policy.

10. Economics Course - Research Methodology in Economics I (DSE E-74)

CO 55: Analyse basic concept of research and its methodology.

CO 56: Explain types of research with meaning and objectives.

CO 57: Carry out a literature review, Steps of research, features of good research design and importance of research design.

CO 58: Analyse and clarify concept of hypothesis which is very important for research with Kinds of hypothesis, features of hypothesis and importance of hypothesis.

CO 59: Use of methods of data collection in his/her research.

CO 60: Clarify sources of primary and secondary data and importance of data collection.

11. Economics Course - History of Economic Thoughts I (DSE E-75)

CO 61: Explain basic economic ideas of economist of the world.

CO 62: Explain thoughts of classical economist like, Adam Smith's theory of value and canon and taxation, Malthusian theory of population etc.

CO 63: Describe economic thoughts of great economist Fredrick List on stages of economic growth.

CO 64: Interpret concept of nationalism and theory of protectionism.

CO 65: Analyse thoughts of Karl Marks about economic development.

CO 66: Manipulate scientific concept of socialism and materialist, Theory of value, Theory of Surplus value and Concept of falling rate of profit.

12. Economics Course - Principles of Micro Economics II (DSE E-196)

CO 67: Identify the market structure.

CO 68: Analyse the economic behavior of individual firms and markets

CO 69: Explain a firm's profit maximizing strategies under different market conditions

CO 70: Justify the factor pricing.

CO 71: Interpret modern theory of rent.

CO 72: Comprehension classical and Keynesian theory of interest and risk and uncertainty theory of profit.

13. Economics Course – Economics of Planning (DSE E-197)

CO 73: Illustrate economic planning and its importance in development.

CO 74: Analyse development of planning and planning machinery in India.

CO 75: Evaluate sectorial performance of the Indian economy.

CO 76: Explain NITI Ayog, need for establishment, organization, objectives and work.

CO 77: Identify plan models in Indian plan period.

CO 78: Compare and analyse Indian models of economic development.

14. Economics Course – International Economics II (DSE E-198)

CO 79: Illustrate difference between balance of trade and balance of payments.

CO 80: Analyse the balance of payments.

CO 81: Analyse measures to correct disequilibrium in balance of payments.

CO 82: Discuss the various types of foreign capital.

CO 83: Compute the trends of Foreign Direct Investment in India.

CO 84: Analyse the impact of international institutions on Indian economy.

15. Economics Course - Research Methodology in Economics II (DSE E-199)

CO 85: Explain the sampling techniques as a method of data collection.

CO 86: Analyse optimum size of sampling.

CO 87: Use techniques of data analysis in research.

CO 88: Classified the data in tabular form.

CO 89: Justify how to write a research report and thesis.

CO 90: Clarify how to write a research proposal for grants.

16. Economics Course - History of Economic Thoughts II (DSE E-200)

CO 91: Interpret economic ideas of Alfred Marshall.

CO 92: Illustrate views of Mahatma Phule on agriculture and education.

CO 93: Analyse views of Rajarshi Shahu Maharaj on agriculture and Cooperation.

CO 94: Explain views of Dr. Babasaheb Ambedkar on money, agriculture and development policy. As well as Drain theory of Dadabhai Nauroji.

CO 95: Justify views of Mahatma Gandhi views on village development, Swadeshi and Gram Swarajya.

CO 96: Clarify economic thoughts of Gopal Krishna Gokhale, D. R. Gadgil, V. M. Damdekar and Amartya Sen.

Courses of B.Com.

1. Micro Economics Paper I

CO 1: Explain Demand and consumer behaviour with indifference curve.

CO 2: Use application of indifference curve in real life.

CO 3: Analyse importance of demand forecasting in business decision and various methods of demand forecasting.

CO 4: Apply firm theories in business situation.

CO 5: Explain production cost curves and revenue curves of the firm.

CO 6: Apply tools of consumer behavior to business situation.

2. Micro Economics Paper II

CO 7: Explain Equilibrium of firm and industry in short run and long run with measuring producer's surplus under perfect competition.

CO 8: Illustrate Price determination and price discrimination under monopoly as well as measurement of monopoly power.

CO 9: Analyse characteristics of Monopolistic competition and equilibrium of firm in short run and long run under Monopolistic competition.

CO 10: Interpret price war, price leadership and kinky demand curve under Oligopoly market.

CO 11: Justify Ricardo's & Modern theory of rent, Money and Real wage and Wage differentials.

CO 12: Clarify Liquidity preference theory of interest and Bearing and Uncertainty theories of profit.

3. Macro Economics Paper I

CO 13: Analyse concept of macroeconomics with variables and components of macroeconomics.

CO 14: Explain the relevance of national income, concepts and its applications in economic policy making.

CO 15: Illustrate methods of measuring national income with difficulties and importance.

CO 16: Analyse changing value of money and its impacts on economy.

CO 17: Justify Keynesian theory of employment.

CO 18: Explicate the output and employment generation process through investment and consumption.

4. Money and Financial System Paper I

CO 19: Explain functions of money and measurement of money supply.

CO 20: Analyse functions of commercial banks and types of banks.

CO 21: Clarify banking business and its importance, process of credit creation and its limitations.

CO 22: Interpret changing nature of banking business.

CO 23: Explicate banking system and its functioning in India.

CO 24: Identify recent trends in banking system.

5. Macro Economics Paper II

CO 25: Illustrate trade cyclical phenomenon in the economy.

CO 26: Apply practical decisions at their business level in future.

CO 27: Analyse public finance system of state and its impact on economy.

CO 28: Clarify and impact of public finance system of state on citizens of the nation.

CO 29: Justify the trade and business practices through international trade theories and other relevant concepts.

CO 30: Explicate the international monetary exchange system and determination of rate exchange.

6. Money and Financial System Paper II

CO 31: Apply e-banking services.

CO 32: Explain working of RBI in India.

CO 33: Prepare provide consultancy and guidance for investment in financial markets.

CO 34: Analyse business practices of NBFCs and AIFI Expected Skills Impartation.

CO 35: Explicate administrative structure, Functions and Role of NABARD and SIDBI.

CO 36: Identify administrative structure, Functions and Role of NHB and EXIM Bank.

7. CC-C5 – Co-operative Development Paper I

CO 37: Explain meaning, definition, features and principals of co-operation.

CO 38: Analyse role of co-operation in economic development.

CO 39: Identify agriculture and non-agriculture credit co-operative institutions.

CO 40: Explain co-operative banking and various credit societies in India.

CO 41: Analyse types, management, progress and problems of urban co-operative banks.

CO 42: Analyse role and problems of consumer co-operatives as well as sugar co-operatives.

8. CC-C7 – Business Environment Paper I

CO 43: Explain relationship between business environment and sustainable development. .

CO 44: Analyse present status of Indian agriculture, agriculture price policy and marketing problems.

CO 45: Justify food security and agriculture renewal action plan.

CO 46: Explicate 1991's industrial policy, MSME's, progress of industrial sector in globalization era.

CO 47: Identify problems of Indian economy like as population, unemployment and poverty, inequality of income etc.

CO 48: Analyse problems of rural and urban economy.

9. CC-C6 – Co-operative Development Paper II

CO 49: Illustrate cooperative legislations and fund management.

CO 50: Interpret institutional arrangement for cooperative education and training.

CO 51: Interpret nature, registration, legislation and audit of housing cooperatives.

CO 52: Clarify nature and elements of audit of co-operative housing societies.

CO 53: Explain cooperative audit system and provisions.

CO 54: Analyse responsibilities and powers of cooperative auditor.

10. CC-C8 – Business Environment Paper II

CO 55: Analyse concept of Liberalization, Privatization and Globalization.

CO56: Explain implementation and impact of Liberalization, Privatization and Globalization on Indian Economy.

CO 57: Justify economic planning and service sector in India.

CO 58: Interpret need of foreign capital in India and Policy of Government of India abut foreign capital.

CO 59: Identify relationship between Indian rupee and foreign currency with multinational corporations.

CO 60: Extend objectives and performance of IMF[18], IBRD[19], WTO[20] and SAARC[21].

DEPARTMENT OF ENGLISH:

After completion of this Programme students will be able to:

PO1: Demonstrate practical knowledge of the subject

PO2: Explain the basic concepts, critical theories, advanced concepts in the programme.

PO3: Comment on literature in creating aesthetic, mental, moral, intellectual development of an individual and creating a healthy society.

PO4: Relate influence of social science literature and how literature can provide solutions to the social issues through written articles, novels, stories to spread the message of equality, nationality, social harmony, etc.

PO5: Analyze critically the literature inrelation to social issues and appreciate the strength and suggest the improvements for better results.

PO6: Apply study of literature and social sciences to make the life more happy and meaningful.

PO7: Participate in various social and cultural activities.

PO8: Build the self as multifaceted personality who is self-dependant; to offer earning ability

PO9: Apply knowledge of literature and social sciences cultivate human as well as moral values which generate positive attitude are necessary qualities for leading a successful life which we inculcated.

PO10: Demonstrate enhancement of communication skills such as reading, listening, speaking which will help to express ideas and views clearly and effectively.

Programme Specific Outcomes

PSO1: Compose literary works.

PSO2: Appreciate the work of literature through critical point of view.

PSO3: Use communication skills effectively in personal, social and professional life.

Course Outcomes

After completion of these courses students will be able to:

B.A. Part I

Ability Enhancement Compulsory Course (AECC 1) (Compulsory English) (CBCS)

CO1: Demonstrate effective use of vocabulary

CO2: Use English for effective oral communication

CO3: Explain human values

CO4: Demonstrate enhancement of four basic skills of English language (LSRW)

CO5: Read and appreciate prose and poetry

CO6: Discuss themes of poetry and prose

Discipline Specific Core) (DSC- A3) (English Paper –I)

Modern Indian Writing in English Translation (CBCS)

CO7: Read and analyze translated texts in Modern Indian literature in English.

CO8: Explain and narrate short story

CO9: Demonstrate development of literary competence.

CO10: Appreciate short story

CO11: Recite dialogues from play

CO12: Explain human values

Core Generic Elective (CGE-15) (Additional English) (Paper I)

An Introduction to Literature: Poetry

CO13: Recite prescribed poems

CO14: Explain themes and poetic devices in the poems prescribed

CO15: Illustrate poetic diction

CO16: Differentiate the lyrical types

CO17: State definition of poetry and its features

CO18: Demonstrate increase in vocabulary

B. A. Part II

Ability Enhancement Compulsory Course (AECC) (CBCS)

English for Communication (Compulsory English

CO19: Demonstrate development of oral and written communication skills in English.

CO20: Use language skills in personal, academic and professional lives.

CO21: Demonstrate confidence and other soft skills required in job market.

CO22: Give example of broad human and cultured outlook.

CO23: Read and appreciate prose and poetry

CO24: Demonstrate increase in vocabulary

(Discipline Specific Core) (DSC-C5)

English (Paper III) (Semester III) Literature And Cinema (CBCS)

CO25: Explain basic film terminology

CO26: State features of film adaptations

CO27: Demonstrate enhancement of active vocabulary

CO28: Compare film and text on which film is based

CO29: Write film review

CO30: Discuss themes in film

(Discipline Specific Core) (DSC-C6)

English (Paper IV) (Semester III) Partition Literature (CBCS)

CO31: Explain the hidden human dimensions of the partition to the students

CO32: Discuss the stories and incidents related to Partition

CO33: Narrate the evil side of violence during partition

CO34: Explain importance of peace, non violence and brotherhood in contemporary scenario.

CO35: Explain human values

CO36: Demonstrate increase in reading competence.

B.A. Part III
Compulsory English

Ability Enhancement Compulsory Course (CBCS)

ENGLISH FOR COMMUNICATION

CO37: Communicate in English, in oral and written modes, in their day-to-day lives as well as at workplaces.

CO38: Illustrate skills useful to face job interviews confidently and efficiently.

CO39: Demonstrate soft skills required at workplaces and in real life.

CO40: Respect others' opinions and views and develop democratic attitude in group discussions

CO41: Read and appreciate poetry and prose passages.

CO42: Explain human values.

INTRODUCTION TO LITERARY CRITICISM (CBCS) Discipline Specific Elective

Semester V (Paper VII) (DSE- E11) & Semester VI (Paper XII) (DSE- E136)

CO43: Explain concepts of literary criticism

CO44: Read and explain original contributions made in the field of literary criticism.

CO45: Describe various literary and critical movements.

CO46: Analyze themes and poetic devices of poetry

CO47: Explain contribution of contemporary critics

CO48: Memorize definitions of critical terms

ENGLISH DRAMA (CBCS) Discipline Specific Elective

Semester V (Paper IX) ((DSE – E13) & Semester VI (Paper XIV) (DSE – E138)

CO49: Explain different forms of drama.

CO50: Comment on ideological or socio-political contexts of drama.

CO51: Read and recite interesting dialogues

CO52: Demonstrate enhancement of understanding of human nature through characters in drama

CO53: Explain various aspects of the dramas

CO54: Discuss characters in dramas

ENGLISH NOVEL (CBCS) Discipline Specific Elective Semester V (Paper X) ((DSE – 14)

& Semester VI (Paper XV) (DSE – E139)

CO55: Show increase in reading competence

CO56: Comment ideological or socio-political contexts of novels.

CO57: Explain various aspects of the novel.

CO58: Compose short stories and articles

CO59: Explain development of novel

CO60: Comment on characters in the novel

English Special ENGLISH POETRY (CBCS) Discipline Specific Elective

Semester V (Paper VIII) (DSE – E12) and Semester VI (Paper XIII) (DSE – E137)

CO61: Explain development of the poetry in English from the days of Shakespeare to contemporary India.

CO62: Read, recite, appreciate and analyze the poems properly.

CO63: Demonstrate comprehensive view of the Western and Eastern poetic tradition with reference to literary movements.

CO64: Do lively and interesting presentation of poems.

CO65: Demonstrate enhancement in vocabulary

CO66: Demonstrate increase in literary competence.

LANGUAGE AND LINGUISTICS (CBCS) Discipline Specific Elective

Semester V –Paper XI (DSE - E15) & Semester VI – Paper XVI (DSE - E140)

After completion of this course students will be able to:

CO67: Explain the concept of communication.

CO68: Compare varieties of the English language.

CO69: Illustrate basic units of grammar.

CO70: List words and phrases.

CO71: Identify elements and types of clauses.

CO72: Identify types of sentences and construct.

B.Sc. Part I

Ability Enhancement Compulsory Course (AECC –A) (Compulsory English) (CBCS)

English for Communication

CO73: Demonstrate effective use of vocabulary

CO74: Use English for effective written communication

CO75: Explain human values

CO76: Demonstrate enhancement of four basic skills of English language (LSRW)

CO77: Use of English language in routine life

CO78: Describe persons, objects in English language

B. Sc. Part III

Compulsory English Ability Enhancement Compulsory Course (CBCS)

ENGLISH FOR COMMUNICATION

CO79: Communicate in English, in oral and written modes.

CO80: Illustrate skills useful to face job interviews confidently and efficiently.

CO81: Demonstrate soft skills required at workplaces and in real life.

CO82: Use written communication skills for media writing

CO83: Read and appreciate poetry and prose passages.

CO84: Explain human values.

B.Com. Part I

– Ability Enhancement Compulsory Course (Compulsory English) (CBCS)

English for Business Communication

CO85: Demonstrate effective use of vocabulary

CO86: Use English for effective oral communication

CO87: Explain human values

CO88: Demonstrate enhancement of four basic skills of English language (LSRW)

CO89: Use of English for commercial purpose

CO90: Illustrate writing skills of business correspondence

B.COM. Part II

ABILITY ENHANCEMENT COMPULSORY COURSE (AECC) (CBCS)

ENGLISH FOR BUSINESS COMMUNICATION (Compulsory English)

CO91: Use oral and written communication skills in English.

CO92: Use language skills in personal, academic and professional lives.

CO93: Demonstrate confidence and other soft skills required in job market.

CO94: Participate actively in learning process.

CO95: Give example of broad human and cultured outlook.

CO96: Explain the banking correspondence with usage of English

DEPARTMENT OF GEOGRAPHY:

Program Outcome of Bachelor of Arts (B.A.) Student seeking admission for B.A. program are expected to imbue with following quality which help them in their future life to achieve the expected goals.

A. Realization of human values and virtues.
B. Development of moral values.
C. Sense of social awareness and social service.
D. Inculcating values of responsible citizen.
E. Creating critical approach towards social problems.
F. Created innovative sense in their specialized discipline.
G. Developing communication skills.
H. Gained analytical ability.

PROGRAMME SPECIFIC OUTCOME

After graduation the students will be able to -

PSO 1: Understand the geography as the earth sciences and its importance and interrelationship and place in other discipline.

PSO 2: Acquire knowledge of physical geography particularly formation of landform and its associated processes, world distribution of flora and fauna and their factors, marine resources etc.

PSO 3: Acquire knowledge on elements and factors affecting on climate and its influence on mankind in a global perspective.

PSO 4: Understand man-nature relationship and their significance.

PSO 5: Able to know physical environment and their impact on biotic and non-biotic aspects.

PSO 6: Handle population data including estimation of population, causes and consequences of population growth, population theories and population policies.

PSO 7: Acquire knowledge of statistical data, analyze and interpretation.

PSO 8: Understand map making and reading.

PSO 9: Earn knowledge of advance technologies including interpretation of Satellite Imagery, Aerial Photographs, Geographical Information System and Global Positioning System (GPS).

PSO 10: Acquire expertise in various types of surveys like plane table, prismatic compass, subsequently able to prepare map on local level for the planning purpose.

COURSE OUTCOME

Physical Geography (I)

CO1. To describe fundamentals of Physical Geography

CO2. To discuss of the Landform formation.

CO3. To illustrate internal forces and external forces

CO4. Rating of landforms originated from forces.

CO5. To compare Landforms on Earth surface.

CO6. To Justify Denudation and Weathering.

Human Geography (II)

CO1To find out fundamentals of human geography

CO2 Explain Malthus theory of demographic transition

CO3To illustrate human migration

CO4. To rate settlement

CO5To explain functions of urban centres

CO6 To categorized agriculture as basic activity of human being

Soil Geography (III)

CO1. To relates the basics and fundamentals of soil.

CO2. To predict the importance of soil as resource.

CO3. The Categorisation of soil formation, development and properties of soil.

CO4. To Describe Classification, characteristics and distribution of soil.

CO5. To explain concept of soil management & its need.

CO6. To identify soil degradation

Resource Geography (IV)

CO1. To describes the concept and classification of resources.

CO2. Identify major resources its utilization, distribution. and problems

CO3. Explanation of sustainable development of resources.

CO4. Priority to human as resource

CO5. To explain cartographic techniques.

Oceanography(V)

CO1. To describe the fundamentals of oceanography

CO2. To discuss importance of oceanography

CO3. To compare the physical and chemical properties of ocean.

Co4. Imagine ocean as key resource

CO5. To study Application of Hypsographic curve and Wind rose.

Agriculture Geography (VI)

CO1. Describe the concept and development of agriculture.

CO2. To explain changing cropping pattern.

CO3. To Discuss the Agricultural Revolution.

CO4. To explain the modern agriculture.

CO5. Use of cartography in Agriculture geography

Evolution of Geographical thought ((VII)

CO1. To describe evolution of Geographical thoughts.

CO2. To compare the paradigms in geography.

CO3. To categorise schools in geography

CO4. To classify contemporary thoughts in Geography.

CO5. To rate the recent trends in geography

Geography of India (VIII)

CO1. To find out the Physiography of India.

CO2. To explain mechanism of monsoon and climatic seasons in India.

CO3. To list soil, vegetation and drainage systems in India.

CO4. To illustrate the significance and consequences of agriculture and industry in Indian economy.

CO5. To justify the economic setup of the India.

Population Geography (IX)

CO1. To define the population geography along with relevance of demographic data.

CO2. To describes the distribution and trends in population.

CO3. To compare growth and development of population in developed and developing countries.

CO4. Categories the dynamics of population.

CO5. To examine the world composition of population.

CO6. To rate contemporary issues in population Geography.

Economic Geography of India (X)

CO1. Explain basic concepts of Economic Geography.

CO2. To identify locational factors of industries

CO3. To complete the determents in Agriculture and Industries trade and transport in economic development.

CO4. To compare role of trade and transport in economic development

CO5. To describe the role of manufacturing Industries in economic development.

Urban Geography (XI)

CO1. To find out concepts in Urban Geography, urbanization & urban centres.

CO2. To classify Urban Settlements, Site and Situations.

CO3. Description of urban development and human activities

CO4. To determine urban problems.

CO5. To design urban plan.

Political Geography (XII)

CO1. To describes the fundamentals of Political geography.

CO2. Description of theories in political geography.

CO3. To justify administrative regions

CO4. To discuss resource conflicts and politics of displacement.

CO5. To prioritize the water disputes.

Basics of map making and map interpretation (XIII) (Practical paper I)

CO1. To categories map, scale and projection.

CO2. To identification the landforms.

CO3. To Interpretation of IMD charts and SOI maps.

CO4. Classification of cartographic techniques.

CO5. To explain the analysis of landforms

Advanced Tools and techniques and Field work (XIV) (Practical paper- II)

CO1. To find importance of field work and advanced Techniques.

CO2. To design field survey.

CO3. To discuss Modern tools and techniques in Geography.

CO4. Use of computer techniques in cartography

CO5. To outline the field work and excursion.

CO6. To compare Use of GIS, GPS and Remote Sensing.

DEPARTMENT OF HINDI:

Course Outcomes

ह5दी (अनिवार्य) . प्रश्नपत्र – A सज नात्मक लखन, प्रश्नपत्र – B व्यावहारिक लखन

CO1. ह5दी भाषा तथा व्याकरण का परिचय हुआ।

CO2. सृजनात्मक लेखन की विविध विधाओं (कविता, कहानी, उपन्यास, रिपोर्ताज, संस्मरण, पत्रकारिता) से , साक्षात्कार, दर ू-
अवगत हुए।

CO3. सृजनात्मक लेखन के विविध रूपों की जानकारी प्राप्त हुई।

CO4. सृजनात्मक लेखन के विविध रूपों के महत्व तथा उपयोगिता का आकलन हुआ।

CO5. ह5दी के विविध रूपों को समझ सके।

CO6. प्रयोजनमूलक ह5दी का परिचय हुआ।

CO7. पत्राचार का स्वरूप तथा प्रकारों से अवगत हुए।

CO8. अनुवाद, विज्ञापन और समाचार लेखन की जानकारी मिली।

CO9. व्यावहारिक लेखन का महत्व तथा उपयोगिता समझ में आई।

ह5दी (विशेष ऐच्छिक) . साहित्य जगत, ह5दी गद्य साहित्य प्रश्नपत्र & 1 और 2

CO10. छात्रों की ह5दी साहित्य के प्रति रुचि बढ़ गई तथा छात्रों को साहित्य की विविध विधाओं का परिचय हुआ।

CO11. छात्र ह5दी के प्रतिनिधि गद्यकारों एवं कवियों से प्रभावित हुए।

CO12. छात्रों में ह5दी भाषा के श्रवण, पठन एवं लेखन कौशल्य विकसित हुआ।

CO13. निबंध, कहानी, विचार, एकांकी, रिपोर्ताज, संस्मरण, व्यंग्य आदि विधाओं के माध्यम से छात्रों का भावात्मक विकास हुआ।

CO14. छात्रों में नैतिक मूल्य, मानवीय मूल्य एवं पारिवारिकता के प्रति आस्था निर्माण हुई। CO15. छात्रों में देश के प्रति प्रेम, मानवीय ऐक्य स्थापना एवं सामाजिक प्रतिबद्धता जागृत हुई। CO16. छात्रों की विचार क्षमता तथा कल्पनाशीलता को बढ़ावा मिला।

प्रश्नपत्र & 3 vfLerkewyd foe"kZ vkj fganh xn; lkfgR;

co17. Nk=k dks dFkk lkfgR; dk परिचय हुआ A

co18. Nk= dFkk lkfgR; d Lo:i] rRo ,o idkjk से अवगत हुए A

co19. Nk=k dks leh{kk मानदंड d vk/kkj ij dFkk lkfgR; dk आकलन हुआ A

co20. Nk=k dks dFksrj lkfgR; dk leh{kkRed ifjp; हुआ A

co21. Nk= dFksrj lkfgR; d Lo:i] rRo ,o idkjk से अवगत हुए A

co22. Nk=k dks dFkk vkj dFksrj lkfgR; dh oreku ikLaxdrk का ज्ञान हुआ

प्रश्नपत्र & 4 fganh lardkO; rFkk jk'Vh; dkO;/kkjk

co23. Nk=k dh fganh lkfgR; d ifr #fp बढ़ी A

co24. Nk=k dk lkfgR; dh fofo/k fo/kkvk dk परिचय हुआ A

co25. Nk= e/;dkyhu fganh dfo;k d परिचय स प्रभावित हुए A

co26. Nk=k e ufrd ew;] jk'Vh; ew; ,o mRrjnkf;Ro d ifr vkLFkk fuek.k हुई A

co27. Nk= vk/kfud fganh dfork e fpf=r fofo/k foe"kk l अवगत हुए A

co28. Nk=k dk fganh lardkO; l परिचय हुआ A

प्रश्नपत्र & 5 f ोजगाि पिक ह5दी

co29. Nk=k e çgnh e dk;l dju dh fopkj {kerk] dYiuk'khyrk ,o #fp fodfLr हुई A

co30. Nk=k e jkstxkjkae[k f'k{kk ,o dk'kY; का ववकास हुआ A

co31. Nk=k dks i=kpkj d Lo:i dk ifjp; हुआ A

co32. Nk=k e çgnh Hkk"kk d Jo.k] iBu ,o ys[ku dk'kY; का fuekok हुआ A

co33. Nk=k dk ग्रावह5ारिक ह5दी स परिचय हुआ 1

co34. Nk=k dk jkstxkjkae[k ाषा स परिचय हुआ 1 **प्रश्नपत्र &**

6 vfLerkewyd foe"k vkj fganh in; lkfgR; co35. Nk=k

dk fganh dfo;k का परिचय हुआ A

co36. Nk=k e fganh Hkk'kk d Jo.k] iBu ,o ys[ku dh {kerk dk c<kok मलाA

co37. Nk=k dh fganh lkfgR; d ifr #fp fuek.k हुई A

co38. Nk=k e ufrd ew;] jk'Vh; ew; ,o mRrjnkf;Ro d ifr vkLFkk fuek.k हुई A

co39. Nk=k dk lkfgR; dh fofo/k पद्य fo/kkvk dk ifjp; हुआ A

co40. Nk= vk/kfud fganh पद्य e fpf=r fofo/k foe"kk l अवगत हुए A

Á"ui= & VII & XII – fo/kk fo"k'k dk v/;;u

प ाTBó iqLrd - fnYyh Åpk lqurh gS* ¼ukVd½ &dqlqe dqekjvkre lk{; ¼mi U;k ½& paædkark

co41. ukVddkj dqlqe dqekj dh cgqe[kh ÁfrÒk औि lkfgR; का परिचय हुआ A

co42. ukVddkj dqlqe dqekj dh fopkj/kkjk l प्रभावित हुए A

co43 ukVddkj dqlqe dqekj d fu/kkfjr xFk dk l{e vky pukRed v/;;u gqआ A

co44. ukVddkj d :i e dqlqe dekj dk lkfgR;d LFkku fu/kkfjr gुआ A

co45. पप्पासकि विंकाता dh cqqe[kh ÁfrÒk औि lkfgR; का परिचय हुआ A

co46. पप्पासकि विंकाता dh fopkj/kkjk l प्रभावित हुए A

co47. पप्पासकि विंकाता d fu/kkfjr xFk dk l{e vky pukRed v/;;u gुआ Aco48. पप्पासकि d :i e विंकाता dk lkfgR;d LFkku d fu/kkfjr gुआ A Á"ui=& VIII & XIII – lkfgR;"kkó

co49. lkfgR; fuhefr dh ÁfØ;k स समझा हुए A

co50. lkfgR; @dkč; d fofÒUu vaxkj] Òsnk का परिचय हुआ A

co51. lkfgR;@dkč; dh uohu fo/kkv lे अवगत हुए A

co52. leh{kk f lन~Ekkar का समि हुआ A

co53. lkfgR; @dkč; d rRok की जानिकारी नमलती A

co54. vyadkjk औि िदे का आकलि हुआ A Á"ui=& IX & XIV – Çgnh lkfgR; dk bfrgkl

co55. Çgnh Òk"kk rFkk lkfgR; dk परिचय हुआ A

co56. Çgnh lkfgR; dh fodkl ;k=k l voxr हुए A

co57. Çgnh lkfgR; dh fodkl ;k=k e Çgnh Òk"kk d ek/;e l vyx&vyx fopkj/kkjk vkSj ÁofÝk;k l voxr हुए A

co58. Nk= e lkfgR; le>u rFkk mldk vkLoknu] eY;kadu dju dh –f"V निमाण हुई l

co59. Nk=k d lkfgR; d lanÒ e fofÒUu lkfgR;d fo/kkv d fodkl Øe की जानिकारी नमलीA

co60. Nk=k d ;xhu lkekftd] jktuhfrd ifjfLFkfr;k dk परिचय हुआ A Á"ui= & X & XV – Á;"tueyd Çgnh

co61. Çgnh e dk;l dju dh :fp fodflr हुई A

co62. j"Vxkj mUeqDk f"k{kk ,o d"kY; fodflr हुआ A

co63. ikfjÒkf"kd "kCnkoyh dk ifjp; हुआ A

co64. ljdkjh i=kpkj d Lo:i की जानिकारी नमलीA

co65. tuलापkj ,o bysDV,fud ek/;e ज्ञात हुए A

co66. vuqokn Lo:i] egRo rFkk mi;ksfxrk dk आकलन हुआ A

co67. jksxkj ijd Çgnh dh mi;ksfxrk Li"V हुई A

Á"ui=& XI & XVI – Òk"kk foKku vkSj Çgnh Òk"kk

co68. Òk"kk d fofo/k :iksa का ज्ञान हुआ A

co69. Nk= Çgnh čkdjok ls voxr हुए A

co70. Òk"kk foKku dk lkekU; ifjp; प्राप्त हुआ A

co71. Çgnh Òk"kk ,o fyfi d mn~Òo vkSj fodkl की जानकारी मिली A

co72. Òk"kk dh "kq~/krk d Áfr Nk= tkxr हुए A

co73. ekud Çgnh oruh ls Nk= voxr हुए A

DEPARTMENT OF HISTORY:

Learning Outcomes :

After completing the undergraduate programme in History, the student is expected to:

LO 1. Ability to track the critical genealogies of historiographical interventions that shaped the discipline of History from the earliest times up to the present.

LO2 : Ability to compare and differentiate significant patterns of human experience across time and between different cultures and societies.

LO3: the students are encouraged to think critically, analyze different perspectives and actively process information about the past rather than become passive recipients of singular Historical knowledge.

LO4: Support and establish such arguments with historical evidence drawn mainly from secondary sources and wherever possible also from primary sources.

LO5: Correlate the ancient past and its connected histories, the ways in which it is reconstructed, and begin to understand the fundamentals of historical methods and approaches.

PROGRAMME OUTCOME

After successfully completing this course the student are expected to imbue with following quality which help them in their future life to achieve the expected goals.

PO1 Realization of human values and Ethics.

PO2 Development of Indian historical culture.

PO3 Sense of social awareness and social Movement in Ancient to till today.

PO4 Creating critical approach towards socio-economic and cultural problems.

PO 5 Created innovative sense in their specialized discipline.

PO6 Developing awareness about historical monuments.

PO7 Gained historical analytical ability.

PO8 This Programme has been designed to impart knowledge of the methods of history to the students.

PO9 They will learn about deep and sophisticated consciousness of history embedded in the various traditions of history writing in India.

PO10 It will impart knowledge of fundamentals of digital history to the students which will help them to incorporate digital technologies and methods in their research and teaching.

PROGRAMME SPECIFIC OUTCOME

After completion of this programme students will be able to: -

PSO 1: Knowledge of multiple perspectives through which significant developments in the history of the Indian subcontinent from earliest times up to the period

after independence.

PSO 2: Familiarity with the significant patterns of development in certain parts of the modern and early modern world as well as certain non-Indian ancient societies.

PSO 3: Ability to carefully read a complex historical narrative, evaluate its deployment of evidence, and understand its argument as well as critically analyze.

PSO 4: Ability to identify patterns of change and continuity with regards to issues of contemporary significance over long durations as well as across diverse geo-cultural zones

PSO 5: Greater ability to distinguish between that which is historical that is time-place context driven, hence changeable and challengeable.

PSO 6: Sensitivity to gender and social inequities as well as acquaintance with the Historical trajectories of these issues

PSO 7: Capability to assume leadership roles and apply the above mentioned analytical abilities in various other non-familiar contexts.

PSO 8: Possess knowledge of the values and beliefs of multiple cultures so as to Effectively engage in a multi-cultural society and interact with diverse groups.

COURSE OUTCOMES

Rise of the Maratha Power (1600-1707) (I) DSE

CO1 To describe fundamentals causes of rise of Maratha power.

CO2 To discuss the Chhatrapati Shivaji Maharaja's achievement till 1664.

CO3 To discuss the Chhatrapati Shivaji Maharaja's achievement till 1680.

CO4 1600 to 1707 was a period of rapid change in the history of Marathas.

CO5 The course is designed to acquaint the students with the political, socio-economic and religious life of the people during the 1600-1707 period.

CO6 It will educate the students about the policy and contribution of Chhatrapati Shivaji Maharaj.

Polity, society and Economy under the Marathas (1600-1707) (II) DSE 2

CO 7 Describe the forts from multiple viewpoints- as sources of history, as centres of control, as sites of historical events, and as heritage sites.

CO 8 To explain history of the rise of Maratha power with main emphasis on life and work of Chhatrapati Shivaji Maharaj.

CO9 The course is also expected to apprise the students with the sacrifices made by Maratha leaders and people to protect freedom and sovereignty of the region.

CO10 Imagine the political, socio-economic and religious life of the people during the 1600-1707 period.

CO11 The course is designed to acquaint the students with the political, socio-economic and religious life of the people during the 1600-1707 period.

CO 12 to explain the policy and contribution of Chhatrapati Shivaji Maharaj.

History of Modern Maharashtra (1900 to 1960) (III) DSC

CO13 Explain the beginnings and growth of nationalist consciousness in Maharashtra.

CO14 Explain the contribution of Maharashtra to the national movement

CO15 Give an account of various movements of the peasants, workers, women and backward classes

CO16 Discuss the background and events which led to the formation of separate state of Maharashtra.

CO17 To explain concept of Modern Maharashtra.

CO18 Tell the historical events and transformations which have played an important role in making of modern Maharashtra.

History of India (1757-1857) (IV) DSC

CO19 Describe the significant events leading to establishment of the rule of East India Company.

CO20 Tell the colonial policy adopted by the company to consolidate its rule in India.

CO21 Find the structural changes initiated by colonial rule in Indian economy.

CO22 Explain the various revolts against rule of the East India Company.

CO23 To define the East India Company established and consolidated its rule in India.

CO24 To analyze the impact of colonial rule on the Indian Economy.

History of India (1858-1947) (VI) DSC

CO25 Explain the events which lead to the growth of nationalism in India

CO26 To categorized the major events of the freedom struggle under the leadership of Mahatma Gandhi.

CO27 Explain the contribution of Revolutionaries, Left Movement and Indian National Army

CO28 Define the concept of Communalism and the causes and effects of the partition of India.

CO29 Identify events leading to emergence of national consciousness in India.

CO30 Described the prolonged struggle launched by the Indian National Congress under the leadership of Mahatma Gandhi.

History of Modern Maharashtra (1960-2000) (V) DSC

CO31 This was also a period of massive expansion of education as well as social transformation.

CO32 Tell the students to significant leaders, events and transformations in history of Maharashtra.

CO33 Explain the contribution of eminent leaders of Maharashtra.

CO34 To critique the economic transformation of Maharashtra.

CO35 Recognize the salient features of changes in society.

CO36 Evaluate the History of Modern Maharashtra during the 1960 to 2000.

Social Reforms in India (IDS) DSC

CO37 To explain the salient features of prominent socio-religious reform movements.

CO38 Explain the thought and work of Mahatma Phule for radical transformation of Indian society.

CO39 Know the measures taken by Rajashri Shah Maharaj for emancipation of lower classes and women.

CO40 To Critique the thoughts of Ambedkar on the annihilation of the caste system and untouchability in India.

CO41 To discover the Indian constitution embodies the values of social justice and equality.

CO42 Discuss the social reforms in India under the British Rule.

Social Reforms in Maharashtra (IDS) DSC

CO43 Explain about the beginnings of social reforms in Maharashtra by the Paramhansa Mandali and Prarthana Samaj.

CO44 Classified the contribution of women reformers

CO45 Explain the contribution of Social reformers in the fight for social justice

CO46 Explain the role played by educational reforms in transformation of society.

CO47 Describe the Social reforms in Maharashtra under the British rule.

CO48 Explain the role of Social Reformers of Maharashtra during the Company and British rule in Maharashtra.

Early India (from beginning to 4th c. BC) VII) DSC

CO49 Evaluate the transition of humans in India from Hunters to Farmers

CO 50 Explain the transition from Early to Later Vedic period.

CO 51 Categorises the causes for the first and second urbanizations

CO 52 Discuse**s** the teachings of Gautama Buddha and Vardhamana Mahavira

CO 53 Describe the rise and growth of the Mauryan Empire

CO 54 Explain the salient features of Ashoka's Dhamma

History of Medieval India (1206-1526 AD) (VIII) DSE

CO55 Asses the fundamental changes in polity, society, religion and culture of India.

CO56 To compare historiography on political structures and cultures across different realms of the Rajputs, Delhi Sultanate.

CO 57 Describe the different types of historical sources available for writing the history of medieval India.

CO 58 Explain the contributions of medieval rulers like Allaudin Khilji, Muhammad-bin-Tuqhlaq, Krishnadevraya, and Mahmud Gavan.

CO 59 Critique the administration and economy of the Delhi sultanate and Vijayanagar Empire.

CO 60 Describe the significant developments which took place in religion, society and culture.

Age of Revolutions (IX) DSC

CO61 Explain the causes and consequences of the Reformation.

CO 62 Discover the role played by Martin Luther.

CO 63Discusses the salient features of the Industrial revolution.

CO 64 Describe the account of the American Revolution.

CO 65Explain the causes, effects and major events of French Revolution.

CO 66Explain the role of major leaders of the French Revolution

Political History of the Marathas (X) DES-E-230

CO67 Explain the political condition up to 1740

CO68 To tell the role of Madhavrao, Mahadaji shinde and Nana.

CO69 Describe the role of Agriculture and Industries Trade in economic development.

CO70 To describe the role of cultural development during the period.

CO71 Explain the causes and effects of the Battle of Panipat.

CO72 Prepare the political condition of the Marathas after 1761.

History: Its Theory (XI) DSE

CO73 Explain the definition and scope of the subject of History

CO74 Describe the process of acquiring historical data

CO75 Evaluate the methods of writing history

CO76 To determine tools of writing of History.

CO 77 Analyze the process of acquiring historical data

CO78 Explain the process of presenting and writing history

Ancient India (From 4th c. BC to 7th c. AD) (XII) DSC

CO79 To describe the fundamentals of Ancient Indian History.

CO80 Explain the great kings in Ancient India.

CO81 Give the political, economic and religious developments which took place in early

historic India

CO82 Explain the role played by Major Satavahana, Kushana, Gupta and Vakataka Kings

CO83 Give an account of the developments in the Post-Gupta period

CO84 Evaluate the society and culture of Ancient India

History of Medieval India (1526-1707 AD) (XIII) DSE

CO85 Identify the various sources for writing Medieval Indian history

CO86 Explain important developments in religion, society and culture

CO87 Describe the condition of Industry and trade

CO88 To explain the analysis religion and cultural.

CO89 Explain the role of rulers like Babar, Akbar, Chandbibi and Ibrahim Adilshah II

CO90 Categorized the administrative and revenue system

Making of the Modern World (16th to 19th Century) (XIV)

CO91 Describe the causes and consequences of the Glorious revolution in England

CO92 Explain the concept of Nationalism and account for its rise and spread.

CO93 Describe the unification of Italy and Germany.

CO94 Identify the rise, growth and impact of Imperialism.

CO95 Explain the significance of the Partition of Africa

CO96 Describe the life and thoughts of important leaders like Metternich, Karl Marx and Abraham Lincoln

Polity, Economy and Society under the Marathas (XV) DSE

CO97 Describe the various sources for writing the history of the Marathas

CO98 Explain the significant developments in the polity of the Marathas

CO99 Describe the economic conditions

CO100 Explain the social conditions.

CO101 Categorized the economic and social condition prevalent under Maratha rule.

CO102 Introduce the students to the sources of Maratha history.

Methods and Applications of History (XVI) DSE

CO103 Explain the nature of archival sources

CO104 Define the conceptual clarity about recent trends in history.

CO105 Describe about the application of history in museums.

CO106 Explain the concept and scope of heritage tourism.

CO107 Describe the trends of local and oral history and will know about the tools of local history like Survey, Interview and Questionnaire.

CO108 To the relevance of monumental heritage and its relationship with the discipline of

history through the concept of Heritage tourism.

DEPARTMENT OF MARATHI:

LOs (Learning Outcomes)

नशकृषण ामळे र ा ज्ञ ा ि ात ीण नवक ास अपने कृषत आ5े .
नवदृय ा थ्र् भ ि पडृ ि सव ाग ाछ

1. नवदृय ारा ांमे भ ाष ानवषरक मूलभूत क ौशारू व ाढ ीस ल ागत ील .
2. नवदृय ारा ांमे सजर्न शील ले ख ि ची क्षमत ा नवकनसत 5 ोईल .
3. नवदृय ार ्चा शब्दस ं5 व ाढल .
4. नवश्ले षण आनण मूल्य म ापन ात्मक दृ ि ्क ोण र ेईल .
5. समीक्ष ात्मक व प ि ीक्षण ात्मक दृ ि ्क ोण नवकनसत 5 ोईल .
6. भ ाषेत ील व्य ाकिण ीक सं कल्पन ाच ी ओळख 5 ोईल .
7. सं व ाद क ौशारू नवकनसत 5 ोईल .
8. भ ानषक क ौशारू ाच्या अध ाि े अ5व ाल ले ख ि , नि ब ंध ले ख ि , क ार्यक्रम ाि े सूत्रसंच ालन कित ा र ेईल .
9. मुद्रितशोध ि , सं प ाद ि ास ाठी व्य ावस ानरक क ौशारू ां च ा नवक ास स ाधत ा र ेईल .
10. नवदृय ारा ां च्या व्यक्तिमत्व ाच ा सव ा ंगीण नवक ास 5 ोईल .

POs (Programme Outcomes)

पदवीधि ताि नवदृय ाथी नवदृय ानि ष्ण ात व प ाि ंगत 5 ोऊ शके ल .

PO1 मि ाठी भ ाष ा स ानि5 त्य ास व सं श ोध ि ास प्र ोत्स ा5 ि नमळ ेल . PO2 नवदृय ारा ां च्या स ानि5 त्यरक क ौशारू ां ि ा च ालि ा नमळ ेल .

PO3 ि ाज्य ास ाठी सं वेदि शील , नवव ेकि , सुसं स्कृत आनण आदश नागरिक नि म ाण 5 ोईल .

PO4 मि ाठ ीच्या नवनवध ब ोल ीभ ाषत ील शब्दि ध ीच्या सं कलि ास व सं श ोध ि ास प्र ोत्स ा5 ि नमळ ेल .

POS सजर्नशील लेखि आनण भ ानषक क ौशारू ां च्या पयर्व ोजि ास ाठी त ाि 5 ोईल .

PO6 पयर्ट ि , मुद्रण , सं प ाद ि , सूत्रसंच ालि आदी व्य ावस ानरक क्ष ेत्र ात क ाम कित ाि ा आवश्यक भ ानषक क ौशारू आत्मस ात 5 ोत ील .

PO7 दैनं दि व्यव5 ाि ात भ ानषक व्य ाकिण ाच मूल्य म ापण कि ण शक्य 5 ोईल .

PO8 भ ाषेच व्य ाकिण ीक नवश्ले षण व मूल्य म ापि कि ण्य ाची क्षमत ा नवकनसत 5 ोईल . PO9 स ानि5 त्य ाच्या अभ्य ास ामुळ आकलि क्षमत ा व ाढत .

PO10 वैच ारिकत ेच्या नवक ास ाब ि ोब ि त ौलनि क दृ ि ्क ोण र ेईल .

PO11 समजूतद ाि पण ा व ाढीस ल ागूि नवदृय ाथी सक्षम 5 ोईल आनण आदश नागरिक नि म ाण कि ील .

PSOs (Programme Specific Outcomes)

पदवीधि नवृत्तीथी कार्यरतपि व सक्षम 5ोऊ शकतो.

PSO1 नवद्यार्थ्य ि मराठी साहित्य आणि भाषेचे नवनवध प्रकार, वाङ्मयीन परंपरेचे ज्ञान होईल.

PSO2 नवद्यार्थ्य ि समाज आणि संस्कृतीकडे पाहण्याचा व्यापक व विवेकी दृष्टिकोण प्राप्त होतील.

PSO3 नवद्यार्थ्य ि मराठी भाषा व साहित्यातील संशोधनाची माहिती होईल.

PSO4 नवद्यार्थी शुद्ध भाषा वापरण्यास सक्षम होईल. PSO5 नवद्यार्थी सर्जनशील लेखन करू शकतील.

PSO6 वेगवेगळ्या नवद्याशाखांतील नवद्यार्थ्यांना भाषेचा वापर, प्रसिद्धी माध्यम, ग्रंथ प्रकाशन, संपादन आणि सर्जनशील लेखन यांचे ज्ञान आत्मसात होईल.

PSO7 सदर कार्यक्रम भारताच्या चांगल्या भविष्यासाठी सर्जनशील, संवेदनशील, आदर्श, सुसंस्कृत, सुशिक्षित नागरिक बनविण्यात मदत होईल.

PSO8 साहित्याच्या अभ्यासामुळे आकलन क्षमता व वैचारिकता वाढीस लागेल.

PSO9 मराठी व भारतीय संस्कृतीची ओळख होऊन चांगला नागरिक निर्माण होईल. PSO10 तुलनात्मक व नवश्लेषणात्मक दृष्टिकोण नवकनसत होईल.

COs (Course Outcomes)

नवद्यार्थ्यांनी नवनवध नवषयांच्या अभ्यासक्रमातून पुढील निष्कर्ष अपेक्षित आहेत.

Compulsory Marathi (शब्दसंपदा)

CO1 नवद्यार्थ्यांमध्ये भाषा आणि साहित्यनवषयी अनभरुची निर्माण होईल. CO2 मराठी साहित्य परंपरा, लेखक, कवी यांचा परिचय होईल.

CO3 नवद्यार्थ्यांमध्ये मातृभाषा, राष्ट्रीय एकात्मता आणि पर्यावरण मूल्यांनवषयी व मराठी संस्कृतीनवषयी निर्माण होईल.

CO4 नवद्यार्थ्यांचा व्यक्तिमत्त्व नवकास घडवून नवनवध परीक्षा आणि स्पर्धा परीक्षांची पूर्वतयारी होईल.

COS निबंधलेखनाच्या माध्यमातून भाषा प्रयोजनाची कौशल्ये नवकनसत होतील.

CO6 नवद्यार्थ्यांना भाषानवषयक ज्ञानाचे आकलन आणि नवश्लेषण होईल,

Optional Marathi, Paper No. 1&2 (अक्षरबंध)

CO7 नवद्यार्थ्यांची मराठी भाषा आणि साहित्यनवषयी अनभरुची नवकनसत होईल.

CO8 मराठी साहित्यपरंपरा, लेखक, कवी यांचा परिचय होईल.

CO9 नवद्यार्थ्यांमध्ये मातृभाषा, राष्ट्रीय एकात्मकता आणि पर्यावरण मूल्यांनवषयी जाणीव निर्माण होईल.

CO10 नवद्यार्थ्यांच ा व्यनिमत्व नवकास घडवूि नवनवध पिनक्या आनण स्पधा पिनक्याांची पूवयतयािी करूि घेता ये्ईल .

CO11 नचत्रपट आनण प्रसाि माध्यमे यांच्या लेखि आनण पपर्योजिाच्या आकलिाचा अवकाश वाढतील .

CO12 कथावाङमय प्रकाराची ओळख होईल.

Optional Marathi, Paper No. 3 कार्यशाळा लोक नाटक (नाटक) वाङमय सट

CO13 नाटक वाङमय प्रकाराचे आकलन करून घेता येईल.

CO14 समकालीन नाटकातून नाटककारांच्या समकालाचे प्रतिबिंब कशा प्रकारे प्रकट होते त्याचा अभ्यास करता येईल,

CO15 नाट्याभ्यासाद्वारे प्रयोगरूप नाटक व नाट्यक्षेत्रातील व्यक्तिमत्वाची ओळख चालना मिळेल. CO16 नाट्याभ्यासातून सभ्यता, संस्कृती, विचार एकात्मता व बंधुता वाढीस लागेल.

CO17 महानगरीय जीवनाचे आकलन होईल.

CO18 विद्यार्थ्यांत संवादलेखन कौशल्य विकसित होईल.

Optional Marathi, Paper No. 4 (काव्यगध)

CO19 मराठी काव्यपरंपरा व प्रवाहांची ओळख पटेल.

CO20 मराठी काव्यातून प्रकट होणारे माणूस आणि समाजातील परस्पर संबंध शोधता येतील.

CO21 कवितेच्या कलात्मक आकृतिबंधाचे मोल अभ्यासता येईल. CO22 काव्यप्रकारानुरूप काव्यलेखनाचे विशेष अभ्यासता येतील.

CO23 श्रमिकांची कविता अभ्यासता येईल.

CO24 प्रासंगिकतेचे काव्यलेखन कौशल्य रुजतील. **Optional Marathi, Paper No. 5 माती, पंख** CO25 **आणि आकाश (आत्मचरित्र)**

आत्मचरित्र या वाङमयप्रकाराची ओळख होईल.

CO26 इतर वाङमय प्रकार आणि आत्मचरित्रातील अभिव्यक्तीरूपाचा अभ्यास होईल.

CO27 आत्मचरित्रकारांच्या व्यक्तिमत्वाची जडणघडण आणि त्याचा समकाल जाणून घेता येईल.

CO28 वेगवेगळ्या भारतीय प्रांतातील व परदेशातील जीवनदर्शन समजून घेता येईल.

CO29 आत्मचरित्रकाराचा जीवनपट कळेल. CO30 आत्मवृत्त लेखनकौशल्य विकसित होतील.

Optional Marathi, Paper No. 6 जगाड (कादंबरी)

CO31 कादंबरी या वाङमयप्रकाराची ओळख होईल,

CO32 समकालीन कादंबरीतील व्यक्तीचा अवकाशाचा शोध घेणे व आधुनिकतेमधील अंतर्विरोध समजेल. CO33 मानवी मूल्यांविषयी जाणीव निर्माण होईल.

CO34 कादंबरीतून सांस्कृतिक व समाजजीवनावर प्रकाश पडला आहे का जाणता येईल. CO35 कादंबरी लेखनाचे विशेष

अभ्ासता ्ेणाि .

CO36 संभाषण/वादाची कौशल्ये रुजतील,

Spl. Marathi, Paper No. 7 साहित्यविचार

CO37 प्राचीन व काव्यशास्त्राची ओळख होईल.

CO38 पाश्चात्य व आधुनिक भारतीय साहित्याचा परिचय होईल

CO39 ललित व ललितेतर साहित्याचे स्वरूप समज शकेल. CO40 काव्याची लक्षण

आणि प्रयोजन समजतील.

CO41 साहित्याची निर्मिती प्रक्रिया आणि स्वरूप जाणीव घेता येईल.

CO42 भाषेचे 'अलंकार' समजतील.

Spl. Marathi, Paper No. 8 भाषाविज्ञान आणि मराठी भाषा

CO43 आधुनिक भाषाविज्ञानाचा परिचय होईल.

CO44 भाषाविज्ञान आणि मराठी भाषा यांचा संबंध उमगेल. CO45 भाषेची

उत्पत्ती, स्वरूप कार्य समजेल.

CO46 ध्वनिविचार आणि रूपविचार यांचा परिचय होईल.

CO47 मराठी भाषेची वर्णव्यवस्था समजेल.

CO48 मराठी भाषेबद्दलची विद्यार्थ्यांची आवड विकसित होईल.

Spl. Marathi, Paper No. 9 मध्ययुगीन मराठी वाङ्मयाचा इतिहास

CO49 मध्ययुगीन मराठी वाङ्मय परंपरांचा व इतिहासाचा परिचय होईल. CO50 या कालखंडातील

वाङ्मय विविध प्रकारांचा परिचय घडेल.

CO51 या कालखंडातील वाङ्मय निर्मितीच्या प्रेरणांचा परिचय होईल.

CO52 या कालखंडातील वाङ्मयाच्या सांस्कृतिक पार्श्वभूमीचा पलगडा होईल.

CO53 या कालखंडातील प्रमुख संप्रदाय व ग्रंथनिर्मिती यांचा अभ्यास रूपे करता येतील. CO54 या काळातील मराठी

भाषेचे स्वरूप रूपे करणे शक्य होईल.

Spl. Marathi, Paper No. 10 मराठी भाषा व व्यवसाय

CO55 सर्जनशील लेखनप्रक्रिया समजून घेता येईल. CO56 वैचारिक

लेखनाचा येईल.

CO57 वैचारिक लेखनाची आणि ललित लेखनाची तुलना करता येईल. CO58 लेखन,

वाचन, भाषण या कौशल्यांचा विकास होईल.

CO59 शोधनिबंध व प्रकल्पलेखन कौशल्ये विकसित होईल.

CO60 आंतरजालावरील मराठी लेखन पद्धतीचे आकलन होईल.

िछर्ा सधी

Spl. Marathi, Paper No. 11 वाङ्मयप्रवाहांचे अध्ययन : मध्ययुगीन

CO61 मध्ययुगीन महानुभावांची संस्कृती व महानुभावपंथाचा परिचय होईल.

CO62 दृष्टांतपाठातील आशय व अनुभवांची वैशिष्ट्यांची ओळख व आकलन होईल.

CO63 दृष्टांतपाठातील भाषिक वैशिष्ट्यांचा विद्यार्थी आपल्या लेखन लेखनात उपयोग करतील.

CO64 दृष्टांतपाठातील भाषिक वैभवाचा परिचय होईल.

CO65 महानुभाव साहित्याच्या गुणांचा व स्वरूपाची ओळख होईल. CO66 धार्मिक

सोबत सामाजिक दृष्टिकोनाचा परिचय होईल.

Spl. Marathi, Paper No. 12 साहित्यविचार

CO67 शब्दशक्तीचे स्वरूप व प्रकार समजतील. CO68

साहित्यातील रसप्रक्रिया समजेल.

CO69 साहित्याची आस्वाद प्रक्रिया समजून येईल.

CO70 साहित्यनिर्मितीच्या आणि आस्वादाच्या आशयांची मीमांसा करता येईल.

CO71 विद्यार्थ्यांचा वाङ्मयीन दृष्टिकोण विकसित होईल.

CO72 भाषेतील लिंग व वचन यांचा अभ्यास करता येईल.

Spl. Marathi, Paper No. 13 भाषाविज्ञान आणि मराठी भाषा

CO73 मराठी भाषेची वर्णव्यवस्था समजू शकेल.

CO74 ध्वनी व अर्थपरिवर्तनाच्या कारणांची व प्रकारांची माहिती होईल.

CO75 प्रमाण भाषेविषयी माहिती होईल.

CO76 मराठीची शब्दव्यवस्था (शब्दांच्या जाती) समजतील. CO77 बोलीचे

स्वरूप व विशेष समजून येईल.

CO78 विद्यार्थ्यांमध्ये मराठी भाषेबद्दलची आवड विकसित होईल.

Spl. Marathi, Paper No. 14 मध्ययुगीन मराठी वाङ्मयाचा इतिहास

CO79 मध्ययुगीन मराठी वाङ्मयीन परंपरांचा व इतिहासाचा परिचय होईल.

CO80 मध्ययुगीन कालखंडातील वाङ्मय निर्मिती प्रक्रियेचा जाणून घेता येतील.

CO81 मध्ययुगीन कालखंडातील वाङ्मय निर्मितीच्या प्रेरणांचा परिचय होईल, CO82 मध्ययुगीन कालखंडातील वाङ्मयातील

सांस्कृतिक पार्श्वभूमीचा उलगडा होईल.

CO83 मध्ययुगीन कालखंडातील प्रमुख संप्रदाय व ग्रंथनिर्मिती यांचा अनुबंध स्पष्ट करता येईल. CO84 मध्ययुगीन काळातील मराठी गद्य,

पद्य रचनेचे विशेष लक्षात येईल.

CO85 प्रसारमाध्यमात वापरले जाणारे विविध लेखन प्रकार आणि भाषिक कौशल्ये यांची आवश्यकता लक्षात घेईल.

CO86 औपचारिक आणि अनौपचारिक प्रसंगांसाठी भाषिक व्यवहार करता येईल. CO87 विविध क्षेत्रातील भाषिक कौशल्ये आणि क्षमता विकसित होतील.

CO88 मुद्रितशोधनासाठी उपयोजनासाठी आवश्यक क्षमता विद्यार्थ्यांमध्ये विकसित होतील.

CO89 उपयोजित व सर्जनशील लेखनाचा विद्यार्थ्यांचा शब्दसंग्रह समृद्ध होईल.

CO90 मुलाखत संवाद, परीक्षण, ब्लॉगलेखन, संवादलेखन, अशा भाषिक आकृतिबंधांचा परिचय होईल.

CO91 स्पर्धा परीक्षांमध्ये भाषा विषयाचे महत्त्व उमगेल. CO92 उपयोजित भाषिक कौशल्यांची आवश्यकता व त्यांचे स्वरूप समजेल.

CO96 'मुलखावेगळी माणसं' मधील व्यक्तिचित्रणाचे अनुभव, निवेदनपद्धती, भाषाविशेष

Spl. Marathi, Paper No. 16 वाङ्मय प्रकाराचे अध्ययन: ललितगद्य

(व्यक्तिचित्रे)

CO93 ललित वाङ्मयप्रकाराचे स्वरूप स्पष्ट होईल.

CO94 व्यक्तिचित्र म्हणजे काय आणि व्यक्तिचित्रांचे स्वरूप अभ्यासता येईल. CO95 ग्रामीण व पारंपरिक माणसांच्या जीवनव्यवहाराचे आकलन होईल.

CO96 'मुलखावेगळी माणसं' मधील व्यक्तिचित्रणाचे अनुभव, निवेदनपद्धती, भाषाविशेष या घटकांच्या आधारे समीक्षात्मक विश्लेषण करता येईल.

CO97 'मुलखावेगळी माणसं' मधील शैक्षणिक, सामाजिक राजकीय पार्श्वभूमी समजून येईल.

CO98 मुलखावेगळी माणसं' मधील व्यक्तिविशेषांचे आकलन होईल.

DEPARTMENT OF POLITICAL SCIENCE:

Programme outcomes

After Successful Completion of three years degree program in BA Students willbe able to: -

PO 1: The students would be able to explain different approaches to politics andbuild their own understanding of politics.

PO 2: They will be able to answer why the state plays so much central place inthe discourses on politics.

PO 3: They will be able to make a distinction between nation and state.

PO 4: They will come to know about different theories on nationalism.

PO 5: Students would be able to answer what are social movements and make adistinction between the old and new social movements.

PO 6: Political Science and Society: understanding the inter relationship betweenpolicy decisions and its effects on society. This is achieved through a comprehensive teaching of the practice of public administration in India.

PO 7: Critical thinking: the ability to analyse and predict socio political phenomena based on the study of existing socio economic determinantsand past experiences.

PO8: Effective citizenship: the course curriculum inculcates among students a basic understanding of the rights and duties of citizenship and thereby toact as responsible citizens through the observation of important days suchas Independence Day, Republic Day and also spreading awareness in society through street plays based on specific socio political issues such asdomestic violence, disillusioned youth of the materialistic world etc.

PO9: Communication: Establishment of linkages between academics and civilsociety at large so as to successfully address socio political problems.

PO10: Individual and team work: Function effectively as an individual and as a member / leader in different social settings.

Course Outcomes

B.A – I (SEM – I) DSC (B4) Paper – I

Introduction to Political Science

CO1: Discuss meaning, nature and scope of political science.

CO 2: Explain the Various tradition and approaches of political theory and appreciate howthey get reflected in organizing social.

CO 3: Students will be introduced sub – disciplines of political science.

CO 4: Students are able to importance and views of democracy.

CO 5: Students are able to evaluate and judge challenges of democracy.

CO 6: Become aware about different type of democracy.

DSC (B18) Paper-II (Sem-II)

Indian Constitution

CO 7: Students will be able to apply constitutional values in their day to day life.

CO 8: Students will be able to explain ideological bases of Indian constitution.

CO 9: Students will be applying constitutional values in the functioning of government al intuitions at all level.

CO 10: Students will get acquainted with fundamental rights and they will increase societal understanding of these rights.

CO 11: Students will be able to awareness of fundamental duties.

CO 12: Become aware about democracy in judiciary role.

BA – II (Sem III) DSC (D7) Paper III

Political Process in India

CO 13: Gain Insights into the interconnections between social and economic relation and political process in India.

CO 14: Define the challenges arising due to caste, class, gender and religious diversities and also analyze the changing nature of the state in the light of these diversities

CO15: Make sense of the specificities of the political process in India in the light of changes of the state practices, electoral system, representational forms and electoral behavior

CO 16: Students are able to compare before political economy.

CO 17: They Develop the ability to predict Pre exit Poll

CO 18: discuss about regionalism politics of communalism

BA – II (Sem III) DSC (D7) Paper IV

Indian Political Thought Part – I

CO 19 Ability to develop principle based thinking.

CO 20 Define Kautilya's thinking like Saptang theory, Mandal theory and Shadgunya theory

CO 21 Explain Mahatma Phule views on state, Religion and Styashodhak Samaj

CO 22 Describe Justice M.G. Rande Thoughts on Social Reforms, Economics Ideas and Political Liberalism.

CO 23 Interpret B.G. Tilak of Cultural Nationalism.

CO 24 Explain B.G. Tilak concepts on Swarajya (Fore fold program) and Right to Resist

BA – II (Sem III) CGE PAPER - I

Public Administration

CO 25 Clarifies the meaning, scope, nature and importance of public administration, public and private administration and new public administration.

CO 26 Highlights bases of organization, line and staff, chief executive, forms of organization, Government Corporation, independent regulatory commission, principles of organization, scalar principle, unity of command, span control.

CO 27 The Student will be able to Describe Principles: Hierarchy, Coordination, Span of control, Centralization and Decentralization.

CO 28 Students will recognize the significance of Public Corporation.

CO 29 Discuss Changing Perspectives in Public administration.

CO 30 Describe Approaches to Public choice approach.

BA – II(Sem IV) DSC (D35) Paper – V

Local Self-government in Maharashtra

CO 31 Discuss Historical Background of Local self-government.

CO32 Analyze Balwantrao Mehata, Vasantrao Naik, L.N. Bongirwar and P.B. Patil Committee work.

CO 33 Describe Gram Panchayat, Panchayat Samiti and Zila Parishad.

CO 34 Explain Municipal Council and Municipal Corporation.

CO 35 Discuss the 73rd Constitutional Amendment Importance and Feature.

CO 36 Describe 74th Constitutional Amendment Importance and Feature.

BA – II (Sem IV) DSC (D36) Paper – VI

Indian Political Thought Part – II

CO 37 Students will be able to demonstrate knowledge and understanding of concepts of Indian Political Thoughts.

CO 38 Discuss concept of Swaraj refer to M.K. Gandhi.

CO 39 Describe Thought of Jawaharlal Nehru on democratic socialism.

CO 40 Criticize concept of B.R. Amabedkar's Cast System.

CO 41 Analyze the radical Democracy and its views in Marxism with reference to M .N. Roy.

CO 42 Discuss M .N. Roy's concept of New Humanism.

BA – II (Sem IV) CGE PAPER II

Public Administration

CO43 Clarifies the meaning, scope, nature and importance of public administration.

CO 44 Underline bases of organization, line and staff, chief executive, forms of organization, Government Corporation, independent regulatory commission, principles of organization, scalar principle, unity of command, span control.

CO 45 Explains process and principle of budget, audit, accounting system in India, public estimate committee and public accounts committee.

CO 46 Explain Process of Right to information.

CO 47 Explain merit and demerit Delegated Legislation.

CO48 Discuss concept of People Participation.

B.A – III (Sem V) DSE -76 Paper No VII

Political Theory

CO 49 Analysing what is Politics and explaining the approaches to the Study of Political Science – Normative, Behavioural, Post Behavioural, Feminist.

CO 50 Analysing the theory of Psycho-Analytical Theory, Sociological Theory

CO 51 Explain approaches to political theory, normative approach and empirical approach

CO 52 Classification Behaviouralism and post Behaviouralism approach

CO 53 Describing the Marxist Approach to politics.

CO 54 Discussing Marx's Theory of State with special reference to Relative Autonomy of the State.

B.A – III (Sem V) Paper No VIII DSE E -77

Public Administration

CO 55 Explaining the nature, scope and evolution of Public Administration; Private andPublic Administration; Principles of Socialist Management.

CO 56 Analysing the major Concepts in Public Administration.

CO 57 Analysing the Administrative Processes: decision making; communication andControl; leadership; co-ordination.

CO 58 Discussing on making of Budget process in India.

CO 59 Examining the Institutions of Financial Administration in India.

CO 60 Evolution of the Discipline and its Present Status

B.A – III (Sem V) Paper No IX DSE E -78

International Politics

CO 61 Acquaints with the origin and growth of International Relations (IR) as an academic discipline, meaning and scope of IR, theories of IR-liberal and realist theories.

CO 62 Explains the concept of IR like national power.

CO 63 Explaining scope and subject matter of International Relations as an autonomous Academic discipline.

CO 64 Explaining certain basic concepts like Diplomacy in contemporary world order.

CO 65 Studying the role of Diplomacy, Propaganda and Military capabilities in the makingof foreign policy.

CO 66 Studying the developments in third world countries in post-world war II era like ASEAN.

B.A – III (Sem V) Paper No X DSE E -79

Comparative Politics

CO 67 Explaining the nature, scope and Meaning of Comparative Politics

CO 68 Explaining certain basic concepts like Diplomacy in contemporary world order.

CO 69 Assessing the nature of Federalism with focus on Union-State Relations.

CO70 Critically examining Constitutionalism in United Kingdom Constitutionalism in UnitedStates of America.

CO 71 Explaining the nature Political Party and Pressure group.

CO72 Describing the Role of Political Parties and Pressure Groups**.**

B.A – III (SEM v) Paper No XI DSE E -80

Western political thought – I

CO 73 Providing an insight into the dominant features of Ancient Western Political Thought: Ancient Greek political thought with focus on Aristotle and Plato; RomanPolitical Thought: its contributions with special emphasis on the emergence of Roman law.

CO 74 Examining the features of Medieval Political Thought.

CO 75 Evaluating the Renaissance; political thought of Reformation; and Machiavelli.

CO76 Taking an insight into the following: jean – Jacques Rousseau views on socialcontract theory.

CO 77 Ability to develop Principle based thinking.

CO78 Critically examining Plato contributions to the theory of Sadgunya.

B.A – III (Sem VI) Paper No XII DSE E -201

Modern political Concepts

CO79 Describe Meaning and Development of feminism.

CO 80 Explain Evolution of feminism and features of Indian feminism.

CO 81 Discuss concept of Multiculturalism.

CO 82 Critically Evaluate International Effort for Protection of Environment.

CO83 Briefly describe concepts of civil society.

CO84 Interpret thoughts of Lock, Hegel, Marx and Gramsci on civil society.

B.A – III (Sem VI) Paper No XIII DSE E -202

Politics and Movements in Maharashtra

CO 85 Briefly describe Movement of Samyukta Maharashtra.

CO86 Explain Developments in politics of Maharashtra after 1960.

CO 87 Describe executive and Legislature powers and functions.

CO88 Interpret concept of Coalition Politics.

CO89 Analyze Peasant movements, Dalit Movements, Superstition Eradication Movements and student movements.

CO90 Comparatively study Regional Party in Maharashtra.

B.A – III (Sem VI) Paper No XIV DSE E -203

Foreign policy of India

CO 91 Describe Meaning and Objective of Foreign Policy.

CO92 Interpret concept of Foreign Policy of India in Cold war.

CO 93 Analyze influencing factors on India's Foreign Policy.

CO 94 Analyze International relations compare various countries.

CO95 Politics compare and define various countries legislatures and constitutionalism.

CO96 Briefly Describe Foreign Policy of India in Post-Cold war era.

B.A – III (Sem VI) Paper No XV DSE E -204

Comparative Government (with special reference to UK and USA)

CO97 Exploring the Constitution of UK: salient features; the executive – the Crown, Prime Minister and cabinet; the legislature: House of Lords, House Commons, speaker and Committees; Party System in UK.

CO 98 Exploring the US Constitution: salient features; the executive: President; Legislature: Senate. House of Representative; Speaker; Judiciary: the compositionand role of the Supreme Court; Bill of Rights; Party System.

CO99 Making a comparative analysis of the following institutions of UK and USA: Legislature, Executive and party systems.

CO100 Making a comparative analysis of the following Country of UK and USA: Party System.

CO101 Briefly discuss political party system.

CO102 Comparatively discuss about UK political Parties and USA political Parties.

B.A – III (Sem VI) Paper No XVI DSE E -205

Western Political Thought – II

CO103 Ability to develop Principle based thinking.

CO104 Explain J.S. Mill's views on Utilitarianism, liberty and representative Government.

CO105 Describe Karl Marx theorization on historical materialism, class and struggle, stateand revolution.

CO- 106 Interpret Antonio Gramsci's hegemony, state and civil society.

CO- 107 Describe Hannah Arendt views on Totalitarianism.

CO- 108 Comparatively discuss western tradition and historical

DEPARTMENT OF COMMERCE (B.Com.)

Learning Outcomes:

After completing the graduation in Commerce the student will be able to:

LO1: They carry out research work in business sector.

LO2: Develop self-reliant attitude by starting a small or big business.

LO3: Improve the skills required for marketing field.

LO4: Acts as an insurance representative.

LO5: Able to work as a banker.

LO6: Explains the knowledge of law in respect of the industry. LO7: Demonstrate a basic understanding of business management.

LO7: Examine the developed modern technology in the business sector.

LO8: Interpret the Income tax and auditing sector concepts and uses for development.

LO9: They develop the accounting work in company and bank.

LO10: Enables learners to get theoretical and practical exposure in the commerce sector.

Programme Outcomes 2020-21

After completing the graduation in Commerce the student will be able to:

PO1: Apply knowledge of management theories and practices to solve business problems.

PO2: Foster Analytical and critical thinking abilities for Marketing related decision making.

PO3: Ability to develop Value-based Leadership style.

PO4: Ability to analyse and communicate legal and ethical aspects of business.

PO5: Be familiar with modern statistical tools to analyse business problems.

PO6: To be able to use communication skills effectively in personal, social and professional life.

PO7: Able to equip with information of the local, National and international economic activities.

PO8: Able to start up own business independently.

PO9: The knowledge of different specialization in accounting, costing, banking, and finance with the practical exposure helps to stand in organization.

PO10: Capability of the students to make decision at personal and professional level will be increase.

PO11: Develops communication skills and built confidence to face the challenges of the corporateworld.

Programme Specific Objectives (PSOs):

PSO1: To inculcate lifelong learning for applying the core aspects of marketing aswell as management in dynamic business world.

PSO2: To pursue successful career in various industries, service sector, marketingresearch and entrepreneurship.

PSO3: To develop an understanding of professional, ethical and social issues suitable for participation and leadership in our communities.

PSO4: To Learn relevant advanced accounting career skills applying both qualitative & quantitative knowledge to their future careers in business.

PSO5: To acquire the knowledge skill in different areas of communication, decisionmaking, innovations and problem solving in day to day business activities.

PSO6: To gain through systematic subject skills within various discipline of finance, auditing and taxation, accounting, management, communication and marketing.

Course Outcomes

Principles of Marketing Semester I

CO1: To summarize with the information in the field of marketing.

CO2: To recognize importance of consumer behaviour.

CO3: To Develop approach for Market selection.

CO4: To Distinguish view about Rural marketing and other sectors.

CO5: To apply the knowledge with recent developments in marketing world.

CO6: To Develop attitude in the field of Marketing research.

Principles of Marketing Semester II

CO7: To Describe about the Product and its related things.

CO8: To Explain Pricing and its strategies.

CO9: To recognize ways and types of distribution channels.

CO10: To Discuss about Retailing sector.

CO11: To Develop creativity in the Advertising Sector.

CO12: To Identify various ways of Promotional Activities.

Insurance Semester I

CO13: To Explain about Insurance sector.

CO14: To recognize the types of Life insurance policies.

CO15: To create awareness among the students about life Insurance policies.

CO16: To discuss about LIC in India.

CO17: To Assess the working of IRDA.

CO18: To Create consciousness about career in Insurance sector.

Insurance Semester II

CO19: To Explain Fire Insurance and its importance.

CO20: To Develop awareness about Marine Insurance.

CO21: To Discuss about Miscellaneous Insurance.

CO22: To summarize General insurance business in India.

CO23: To distinguish General & Life insurance sector.

CO24: To Assess the performance of public and private insurance companies.

Management Principles and Applications Semester I

CO25: To Discuss principles and functions of business management.

CO26: To Describe planning and decision making concepts.

CO27: To create awareness among students about organizing.

CO28: To Assess importance of direction and communication skills.

CO29: To distinguish the terms authority and responsibility.

CO30: To apply importance of communication in management sector.

Management Principles and Applications Semester II

CO31: To Explain Motivation and its importance.

CO32: To Apply Leadership Styles and techniques in a business.

CO33: To Distinguish Coordination & Control.

CO34: To Discuss Emerging issues in Management.

CO35: To Assess the importance of change.

CO36: To recognize the concept of corporate social responsibility.

Financial Accounting Semester I

CO37: To Apply basic accounting knowledge in the business.

CO38: To recognize accounting knowledge of consignment.

CO39: To solve problems relating to amalgamation.

CO40: To assess the importance of accounts of Professions.

CO41: To discuss the accounting for non -profit organization.

CO42: To distinguish between accounting concepts and conventions.

Financial Accounting Semester II

CO43: To solve problems relating to conversion of single entry to double entry.

CO44: To discuss the computerized accounting.

CO45: To able to handling accounting Software's.

CO46: To discuss the conversion of partnership firms to limited Company.

CO47: To distinguish between Stock Debtor Method and Branch Trading, Profit and Loss A/c.

CO48: To Assess importance of voucher.

Corporate Accounting Semester III & IV

CO49: Discuss and learn the accounting entries of issue and forfeiture and re-issue of shares.

CO50: Demonstrate accounting for issue of debentures and redemption of debentures.

CO51: To Solve financial statements as per the provisions of Indian Companies Act 2013.

CO52: To Apply the fundamental accounting process on Tally ERP.

CO53: To Discuss the procedure of issue of shares, debentures, bonds or securities.

CO54: To Apply the books of accounts in a computerized accounting.

Corporate Accounting Semester IV

CO55: Explain the accounting entries of profit/loss prior to incorporation.

CO56: Distinguish the value of shares as per various methods.

CO57: Compute accounting for liquidation of companies.

CO58: Apply and Practice the store accounting through Tally ERP.

CO59: To create the books of accounts on a computerized accounting.

CO60: To Discuss bankruptcy code and insolvency.

Fundamentals of Entrepreneurship Semester III

CO61: To recognize theoretical knowledge of entrepreneurship.

CO62: To develop entrepreneurship qualities and skills.

CO63: To explain students with steps involved in the formation of small enterprises.

CO64: To describe students with recent trends and concepts in entrepreneurship.

CO65: To apply theories of entrepreneurship.

CO66: To distinguish between MSME and large scale industries.

Fundamentals of Entrepreneurship Semester IV

CO67: To explain family business in India.

CO68: To distinguish conceptual knowledge of service & agro entrepreneurship.

CO69: To discuss business plan and project report.

CO70: To explain the student's successful stories of entrepreneurship.

CO71: To explain project plans.

CO72: To explain opportunities in the service and agro sector.

Advanced Accountancy Paper I Semester V

CO73: Practice the preparation of financial statements of banks.

CO74: Demonstrate farms accounting.

CO75: Simulate accounting situations of insurance claim.

CO76: Explain the accounting process on Tally with GST.

CO77: Apply the Hire purchase system in businesses.

CO78: Distinguish between loss of stock policy and loss of profit policy.

Advanced Accountancy Paper III Semester VI

CO79: To understand the basic concepts of cost accounting.

CO80: To Explain and Apply the terms of Financial statement analysis.

CO81: To use the various ratios in the business.

CO82: To know the application cash flow.

CO83: To Explain the accounting process on Tally with GST.

CO84: To Distinguish between the financial statements and Balance sheet.

Advanced Accountancy Paper II Semester V

CO85: To recognize the concepts and types of audit.

CO86: To identify difference between audit & investigation.

CO87: To discuss audit specific items in financial statements.

CO88: To explain the auditing of the company.

CO89: To distinguish between special audit & audit report.

CO90: To explain principles of audit.

Advanced Accountancy Paper IV Semester VI

CO91: To identify the residential status & its implications on tax liability.

CO92: To apply the concept of exemption from income.

CO93: To know the computation of income from various sources.

CO94: To explain the basic concepts of income tax and basis of charge.

CO95: To assess the basic concepts of GST.

CO96: To Distinguish between GST & other indirect taxes.

Business Regulatory Framework Semester V

CO97: To explain concepts and law of contract.

CO98: To discuss the importance of labour laws.

CO99: To distinguish employees state insurance act & payment of gratuity act.

CO100: To apply knowledge of Sale of Goods act & GST.

CO101: To recognize Indian partnership act.

CO102: To explain limited liability partnership act.

Business Regulatory Framework Semester VI

CO103: To discuss company act 2013.

CO104: To recognize SEBI and Consumer protection act.

CO105: To explain competition act.

CO106: To describe business transitions and cyber laws.

CO107: To discuss negotiable instrument act.

CO108: To distinguish between trademark, copyright, patent & industrial design.

Modern Management Practices Semester V

CO109: To explain contribution of thinkers in modern management practices.

CO110: To discuss the importance and applicability of various modern management practices.

CO111: To impart knowledge of modern management.

CO112: To distinguish between CRM and SCM.

CO113: To explain the concept of emotional and social intelligence.

CO114: To recognize concept of learn & talent management.

Modern Management Practices Semester VI

CO115: To explain knowledge of TQM.

CO116: To distinguish between Chinese and Japanese Management practices.

CO117: To plan event management and performance management.

CO118: To use the concept of time and stress management.

CO119: To develop leadership style.

CO120: To discuss 8 keys of Japanese quality management techniques.

DEPARTMENT OF BOTANY:

Programme Outcomes (PO's) in Botany

After completing B.Sc. Botany Programme students will be able to

PO1: To provide thorough knowledge about various plant groups from primitive to highly evolved.

PO2: To make the students aware of applications of different plants in various industries.

PO3: To make the students aware about conservation and sustainable use of plants.

PO4: To equip the students with skills related to laboratory as well as field based studies.

PO5: To highlight the potential of these studies to become an entrepreneur.

PO6: To address the socio-economical challenges related to plant sciences.

PO7: To facilitate students for taking up and shaping a successful career in Botany.

PO8: To apply the knowledge of medicinal and economic Botany in day to day life.

PO9: To communicate scientific information in a clear and concise manner both orally and in writing.

PO10: To collaborate effectively on team-oriented projects in the field of life sciences.

PO11: To apply knowledge to solve the issues related to plant sciences with the help of computer technology.

PO12: To demonstrate and apply the fundamental knowledge of the basic principles of major fields of biology.

Programme Specific Outcomes (PSO's) in Botany

PSO1: A student completing the course is able to understand different branches of Botany such as systematics, evolution, ecology, developmental biology, physiology, biochemistry, plant interactions with microbes and insects, morphology, anatomy, reproduction, genetics and molecular biology of various life-forms.

PSO2: The student completing the course is capable to perform short research projects using various tools and techniques in plant sciences and develop scientific temperament and research attitude.

PSO3: They becomes competent enough in various analytical and technical skills related to plant sciences.

PSO4: The student completing the course is able to identify various life forms of plants, design and execute experiments related to basic studies on evolution, ecology, physiology, biochemistry, plant interactions with microbes and insects, morphology, anatomy, reproduction.

Course Outcomes (CO's)

Paper I: Biodiversity of Microbes, Algae and Fungi

CO1: Describe the diversity among Bacteria, Viruses and Algae.

CO2: Know the systematic, morphology and structure of Bacteria, Viruses Algae and Fungi.

CO3: Compare the life cycle pattern of Bacteria, Viruses, Algae and Fungi.

CO4: Explain the useful and harmful roles of Bacteria, Viruses, Algae and Fungi.

CO5: Classify algae and fungi according to their systems of classification.

CO6: Interpret uses and economics importance of algae and fungi.

Paper II: Biodiversity of Archegoniate- Bryophytes, Pteridophytes, Gymnosperms.

CO7: Know the evolution of Bryophytes, Pteridophytes and Gymnosperms.

CO8: Analyze the morphological diversity of Bryophytes, Pteridophytes and Gymnosperms.

CO9: Summarize the economic impotance of Bryophytes and Pteridophytes.

CO10: Recognize Gymnosperms with respect to distinguishing characters, comparison with Angiosperms, economic importance and classification.

CO11: Justify life cycle of various forms of Bryophytes, Pteridophytes and Gymnosperms.

CO12: Illustrate the life cycle of *Gnetum.*

Practical Course I:

CO13: The students should learn various forms of Bacteria.

CO14: To study the morphology and life cycle of *Nostoc.*

CO15: To study the morphology and life cycle of *Spirogyra.*

CO16: To study the morphology and life cycle of *Mucor.*

CO17: To study the morphology and life cycle of *Funaria.*

CO18: To study the morphology and life cycle of *Selaginella.*

Paper III: Plant Ecology

CO19: To study the plant communities and ecological adaptations in plants.

CO20: Classify different ecosystems and their importance.

CO21: Describe the impact of climatic condition for the growth and development of the plant

CO22: Illustrate social approach to biodiversity conservation.

CO23: Discover the Botanical regions of India and vegetation types of Maharashtra.

CO24: Know about Bioremediation, Global Warming and Climate Change.

Paper IV: Plant Taxonomy

CO25: Define plant taxonomy and taxonomic related terminologies.

CO26: Explain classification systems of angiosperms.

CO27: Determine Botanical Nomenclature of angiospermic plant.

CO28: Recognize ecological plant groups with examples.

CO29: Explain plant families with example.

CO30: Execute computer knowledge in plant taxonomy and digital herbarium.

CO31: Know modern trends in Taxonomy.

CO32: Know the conceptual development of taxonomy and systematic.

CO33: Develop knowledge about plant nomenclature.

Practical Course II:

CO34: To study of morphological and anatomical adaptations in hydrophyts.

CO35: To study of morphological and anatomical adaptations in Xerophytes.

CO36: To study of morphological and anatomical adaptations in Epiphytes.

CO37: To study of flowering twig morphology – Vegetative characters.

CO38: To study of flowering twig morphology - Floral -/reproductive characters.

CO39: To study of Vegetative and Floral characters of plant families.

Paper V: Embryology of Angiosperms

CO40: Recognize the scope and importance of Embryology.

CO41: Discuss the structure and development in microsporangium and megasporangium.

CO42: Summarize the process of microsporogenesis and megasporogenesis.

CO43: Identify the process of pollination and fertilization.

CO44: Enlightened about the basic structure of the embryo.

CO45: Illustrate the types of microscope, ovules, embryo, seed and endosperm.

Paper VI: Plant Physiology

CO46: Illustration of plant structures in the context of physiological functions of plants.

CO47: They will learn about the growth and development of plants and its regulations.

CO48: They will able to learn the physiological details of photosynthesis.

CO49: They will able to summarize red-ox systems of plants.

CO50: Explain the mechanism and application of photoperiodism.

CO51: Describe the plant growth regulators and their types.

Practical Course III:

CO52: To study of typical flower and its parts

CO53: To study of germination of pollen grains.

CO54: Detection of pollen fertility by staining technique.

CO55: To Study dicotyledon and monocotyledon embryo.

CO56: To study the structure of stomata and determination of stomatal density.

CO57: To study of evolution of oxygen during photosynthesis.

Paper VII: Plant Anatomy

CO58: Identify the scope and importance of Anatomy.

CO59: To perform the techniques in Anatomy.

CO60: Compare and contrast the connections between plant anatomy and the other major disciplines of biology

CO61: Outline and compare structural differences among different taxa of vascular plants.

CO62: Interpret the principles involved in distribution of mechanical tissues.

CO63: Analyze the various components of stem and wood during its secondary growth.

Paper VIII: Plant Metabolism

CO64: Educate about the various metabolic pathways leading to the formation of significant molecules and their catabolism.

CO65: Aware about the vital role of each of the molecules in plants.

CO66: Enrich themselves with the phenomenon of metabolism of primary and secondary metabolites and their role in plants.

CO67: Upgraded in analytical skills and instrumentation.

CO68: Determine factors affecting enzyme activity.

CO69: Demonstrate various physiological and metabolic pathways in plants.

Practical Course IV:

CO70: To study of simple tissues.

CO71: To study of complex tissues.

CO72: Double stained permanent micro preparation of any suitable material.

CO73: To study of anomalous/abnormal secondary growth in Bignonia (Dicot stem).

CO74: Study of anomalous/abnormal secondary growth in Dracaena (Monocot stem).

CO75: Determination of rate of respiration during seed germination by Ganong's respirometer.

CO76: Demonstration of fermentation.

CO77: Separation of Amino acids by Thin Layer chromatography.

DEPARTMENT OF CHEMISTRY:

After successful completion of three year degree program in Chemistry astudent should be able to:

Programme Outcomes

PO-1. Solve, Discuss and Explain major concepts in alldisciplines of chemistry.

PO-2. Solve the problem and also think methodically, independently and draw a logical conclusion.

PO-3. Employ critical thinking and the scientific knowledge to design, carryout, record and analyze the results of chemical reactions.

PO-4. Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.

PO-5. Find out the green route for chemical reaction for sustainabledevelopment.

PO-6. To inculcate the scientific temperament in the students and outside the scientific community.

PO-7. Use modern techniques, decent equipment and Chemistry software

PO-8. To explain nomenclature, stereochemistry, structures, reactivity,and mechanism of the chemical reactions.

PO-9. Identify chemical formulae and solve numerical problems.

PO-10. Use modern chemical tools, Models, Chem-draw, Charts andEquipment.

Programme Specific Outcomes

PSO-1. Use the knowledge of Chemistry through theory and practical's.

PSO-2.identify the structure-activity relationship.

PSO-3. Explain good laboratory practices and safety.

PSO-4. Create the research oriented skills.

PSO-5.Use of sophisticated instruments/equipment's.

After completion of these courses students should be able to;

B. Sc. I Semester I

DSC-3A- Chemistry paper I (Inorganic Chemistry)

CO-1. Explian the Bohr's theory of hydrogen atom and its limitations, Wave particle quality, Heisenberg uncertainty principle, Quantum numbers and their significance, Shapes of s, p and d atomic orbitals.

CO-2. Describe a) Aufbau's principle b) Hunds rule of maximum multiplicity c) Pauli's exclusion principle.

CO-3. Predict the Periodicity of the elements.

CO-4. Relate the Chemical Bonding and Molecular structure.

CO-5. Discuss Valence bond theory (VBT).

CO-6. Compare the Molecular orbital theory (MOT) and Valence bond theory (VBT).

DSC-4A- Chemistry paper II (Organic Chemistry)

CO-7.Desribe Curved arrow notations, Cleavage of Bonds: Homolysis and Heterolysis. Organic molecular species: Nucleophiles and electrophiles. Electronic Displacements: Inductive Effect, Electromeric Effect, Resonance and Hyperconjugation effect

CO-8. Explain Reactive Intermediates: Generation, Structure, Stability and Reactions of Carbocations, Carbanions and carbon free radicals.

CO-9.Predict the Nomenclature of stereoisomers: D and L, erythro and threo, R and S, E and Z.

CO-10.Discuss the Aromaticity concept and predict the Aromatic, Non aromatic, Antiaromatic, Pseudoaromatic compounds.

CO-11. Relate the Cycloalkanes, cycloalkanes and alkadienes.

CO-12.Describe a) Photohalogenation b) Catalytic halogenations c) Catalytic hydrogenation d) Effect of heat e) Reaction with hydrogen halide.

B.Sc. I Semester II

DSC-4B-Chemistry Paper IV (Analytical Chemistry)

CO-13.Expalin Analytical processes (Qualitative and Quantitative), Methods of analysis (Only classification), Sampling of solids, liquids and gases, Errors, types of errors.

CO-14. Discuss the Basic Principle of Chromatography, Basic terms, Classification of Chromatography.

CO-15.Comparison of paper chromatography and TLC

CO-16.Outline of titrimetric Analysis such as Strong acid-strong base, Strong acid-weak base, Strong base-weak acid, Complexometric titrations.

CO-17. Use and Applications Water Analysis.

CO-18. Explain the Analysis of Fertilizers.

CHEMISTRY-DSC 3B: Chemistry Paper-III (Physical Chemistry)

CO-19.Expalin the First law of thermodynamics, Statements of second law of thermodynamics, Carnot's cycle and its efficiency, Statement of Third Law of thermodynamics

CO.20.Solve the Problem based on thermodynamics

CO-21.Discuss the Concept of standard state and standard enthalpies of formations, integral and differential enthalpies of solution and dilution.

CO-22. Compare between ΔG and ΔGo, Le Chatelier's principle. Relationships between Kp, Kc and Kx for reactions involving ideal gases.

CO-23. Relate Postulates of Kinetic Theory of Gases and derivation of the kinetic gas equation.

Ideal and Non ideal gases.

CO-24. Illustrate Deviation of real gases from ideal behaviour, compressibility factor, causes of deviation. Van der Waals equation of state for real gases.

CO-25. Find the Derivation of Zero order reaction, first order reaction, Pseudo-unimolecular reactions, second order reaction.

B.Sc. Part II (CBCS)

Sem III

Paper No. DSC- C3 - Chemistry paper no. V (Physical Chemistry)

CO-26. Discuss Types of conductors, Conductivity, Equivalent and Molar conductivity and their variation with dilution for weak and strong electrolytes in aqueous solution

CO-27. Illustrate the conductance by using Wheatstone bridge. Kolharausch law of independent migration of ions and its applications such as Ionic mobility, determination of degree of ionization of weak electrolyte, solubility and solubility products.

CO-28. Describe all Physical Properties of Liquids and Third order reactions,derivation of rate constant.

CO-29. Explain the Adsorption as a surface phenomenon, Definition of adsorption, adsorbent, adsorbate, absorbent. Factors affecting adsorption, Types of adsorption

CO-30. Compare between physical and chemical adsorption, Adsorption isotherms: Freundlich adsorption isotherm, Langmuir adsorption isotherm.

CO-31. Outline of Types of Nuclear radiation, properties of α, β and γ radiations, Detection and measurement of nuclear radiations by Scintillation and Geiger muller counter methods.

Paper No. DSC-C4- Chemistry paper no. VI (Industrial Chemistry)

CO-32.Explain the Basic Concepts in Industrial Chemistry

CO-33.Compare between classical chemistry and industrial chemistry.

CO-34.Find the Normality, Equivalent weight, Molality, Molecular weight,Molarity, Molarity of mixed solution.

CO-35.Describe the method of Size reduction- Principle, Jaw crusher, ball mill, Size Enlargement –Principle, Pellet mill, tumbling agglomerators.

CO-36.Discuss the Theory of Corrosion and Elecroplating.

CO-37. Use and Manufacturing Paper Industry and Soaps and Detergent

B.Sc. Part II (CBCS)

Sem IV

Paper No. DSC-D3- Chemistry paper no. VII (Industrial Chemistry)

CO-38.Describe the concept in Co-ordination chemistry

CO-39.Compare between double salt and complex salt

CO-40.Find the IUPAC nomenclature of coordination compounds

CO-41.Explain the Chelation, classification and its applications.

CO-42.Outline of P- Block elements and its characteristics.

CO-43. Discuss the Characteristics of d-block elements with special reference to i) Electronic structure ii) Oxidation states, stability of oxidation states of Fe with respective to Latimer diagram iii) Magnetic character iv) Colored ions v) Complex formation.

CO-44.Find the Application of complex formation

Paper No. DSC- D4 - Chemistry paper no. VIII (Organic Chemistry)

CO-45.Explain the reaction and methods of Preparation of Carboxylic acids and their derivatives.

CO-46.Describe the Classification, Nomenclature, structure, Methods of preparation and reactions of Amines and Diazonium Salts.

CO-47.Compare the reducing and non-reducing sugars.

CO-48.Discuss the Classification of carbohydrates.

CO-49.Relate the Reactivity of Carbonyl group and categorize its reactions.

CO-50.Outline of Representation of conformations of ethane by using Saw- Horse, Fischer (dotted line wedge) and Newmann's projection formulae and ethane and n-butane by Newmann's Projection formula.

Course Outcomes

B. Sc III Chemistry

Semester-I

After completion of these courses students should be able to;

Paper XI PhysicalChemistry

CO 51 - Describe Heisenberg Uncertainty Principle, concept of energy operator, particle in one dimensional box.

Co 52 - Define Quantum theory, explain Schrodinger wave equation, emf measurement and its application.

CO 53 – Analyze electromagnetic spectrum, Raman Spectra compare and contrast rotational spectra, vibrational spectra, vibrational Raman spectra and rotational Raman spectra of diatomic molecule.

CO 54 – Write Photochemical Law's, reactions and various Photochemical Phenomena.

CO 55– Classify solutions, relation vapour pressure temperature relations.

CO-56.Compare between electrodes and cells.

Paper IX InorganicChemistry

CO-57. Find the meaning of various terms involved in Acids and Bases.

CO-58.Describes the shapes of d-orbitals.

CO-59. Discuss the Applications of Semiconductor and Superconductors.

CO-60.Predict the mechanism involved in Organometallic Chemistry.

CO-61.Expalin the homogenous catalysis and heterogeneous catalysis.

CO-62.Predict the degeneracy of d-orbitals.

Paper X OrganicChemistry

CO-63. Describe the principle of UV Spectroscopy.

CO-64. Impart the concept of vibrational Transitional region of IR Spectrum.

CO-65. Illustrate the Structure of Unknown Organic compounds.

CO-66. Compare between UV and NMR.

CO-67.Explain the principle of mass spectroscopy.

CO -68.Solve the problem based on UV, NMR and IR.

Paper XII AnalyticalChemistry

CO-69. Explain the Precipitation Techniques.

CO-70. Discuss the applictions of organic precipitants.

CO-71. Explain the Principle of flame photometry.

CO-72. Design the experimental set up for flame photometry.

CO-73. Describe the theory of Colorimetry and spectrophotometry.

CO-74. Identify the concept of Quality control.

CO-75.Categarised the different functional group based on Chromatography.

B. Sc III Chemistry

Semester-II

Paper XIII Inorganic Chemistry

CO 75 – Explain SN 1 and SN 2 reactions for inert and labile complexes.

Co 76 – Describe the Thermodynamic and Kinetic aspects of metal complexes.

CO 77 –Discuss the Nuclear reactions and energetic of nuclear reactions.

CO 78 – Use of Thorium, Uranium and Plutonium in atomic energy.

CO 79 – Compare between lanthanide and actinides.

CO80- Predict Biological role of alkali and alkaline earth metal ions with special referenc to Na+, K+ and Ca2+.

Paper No. XIV Organic Chemistry

CO-81. Use and application Lithium aluminium hydride LiAlH4, Raney Nickel,Osmium tetraoxide, Selenium dioxide (SeO2),Dicyclohexyl Carbodiimide (DCC), Diazomethane.

CO-82. Explain the Diels -Alder reaction, Meerwein –Pondorff-Verley reduction, Hofmann

rearrangement, Wittig reaction,Wagner- Meerwein rearrangement, Baeyer Villiger oxidation.

CO-83. Discuss the Retrosynthesis of different Molecules.

CO-84. Describe Electrophilic addition to >C=C< and −C≡C− bonds.

CO-85.Solve the problem based on addition reaction.

CO-86.Inpart the concept of Anti-Markovnikoff's addition.

CO-87. Explain Synthesis and uses of ethambutal, phenobarbitone, isoniazide, benzocaine, Chloramphenicol, paludrine.

CO-88.Outline the biogenesis of Alkaloids,Terpenoids.

Chemistry Paper No. XV (Physical Chemistry)

CO-89. Discuss Gibbs phase rule, Phase diagram, true and metastable equilibria.

CO-90. Compare one component systems and two component systems.

CO-91. Describe the concept of Thermodynamics and its applications

CO-92. Explain the different State of solid, Laws of crystallography, Weiss indices and Miller indices.

CO-93. Solve the Numerical problems based on Derivation of Bragg's equation.

CO-94.Predict the Simultaneous reactions such as Opposing reaction, Side reaction, Consecutive reactions, Chain reaction, Explosive reaction.

Paper No. XVI (Industrial Chemistry)

CO-95. Discuss Manufacture of cane sugar in India: Extraction of juice, Clarification, Concentration, crystallization, centrifugation and other details of industrial process.

CO-96. Explain the Manufacture of Industrial Heavy Chemicals.

CO-97. Describe the use, Classification and applications of Synthetic Polymers.

CO-98. Categorized the different term involved in nanotechnology.

CO-99. Impart the role of Petroleum industry and eco-friendly fuels.

CO-100. Identify the concept of Nanotechnology.

DEPARTMENT OF MATHEMATICS:

After successful completion of three years degree program in B.Sc. students will be able to:

Programme Outcomes

PO-1: Find higher order derivatives, partial order derivatives of various functions.

PO2-Evaluate limits of various functions and use indeterminate forms to find it.

PO-3: Identify whether the given function is continuous or discontinuous. If discontinuous, tell type of discontinuity.

PO-4: Solve all the types of ordinary differential equations by choosing proper method.

PO-5: Determine solution of partial differential equations by choosing proper method.

PO-6: Develop an understanding of the underlying unifying structures of mathematics (sets, relations and functions, logical structure) and the relationships among them.

PO-7: Explain all the properties of real numbers.

PO-8: Describe structure of group, rings and vector spaces and inner product spaces. Also discuss theorems and applications of it.

PO-9: Apply various results to discuss convergence of sequences and series.

PO-10: Define notions of logic and discuss graphs and trees.

PO-11: Assess the Riemann Integrability of a given function.

PO-12: Analyse the convergence of improper integrals.

PO-13: Memorize all about the metric space.

PO-14: Identify analyticity of a function of complex variable.

PO-15: Evaluate complex integration.

PO-16: Acquire knowledge of Scilab and Python programming.

Programme Specific Outcomes

PSO-1: Think in a critical manner.

PSO-2: Analyze a problem, identify and define the computing requirements, which may be appropriate to its solution.

PSO-3: Enhancing students' overall development and to equip them with mathematical modeling abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment.

PSO-4: Formulate and develop mathematical arguments in a logical manner.

PSO-5: Recall basic facts about mathematics and display knowledge of conventions such as notations, terminology.

PSO-6: Develop a positive attitude towards mathematics as an interesting and valuable subject of study.

Course Outcomes

B.Sc. –I (Sem –I)

DSC-5A-Differential Calculus

CO-1: Define complex number and find conjugate of a complex number also find polar form of a complex number in varies quadrants.

CO-2: Use De-Moivre's theorem for calculating powers of complex numbers in the form of $cos\theta \; and \; sin\theta$.

CO-3: Tell definition of Hyperbolic functions and relation between Hyperbolic and circular functions.

CO-4: Explain how to write expansion of $sinn\theta$ & $cosn\theta$ in terms of powers of $sin\theta$ & $cos\theta$.

CO-5: Evaluate n^{th} order derivative of standard functions.

CO-6: Apply Leibnitz's theorem for finding n^{th} order derivative of product of two functions.

CO-7: Find partial derivatives of first order and higher order.

CO-8: Use Lagrange's method of undetermined multipliers for evaluating maxima and minima for functions of two variables.

CO-9: Explain verification of Euler's theorem on homogeneous function.

DSC-6A-Calculus

CO-10: Restate Rolle's Theorem, Lagrange's mean value theorem, Cauchy's mean value theorem.

CO-11: Justify verification of mean value theorems for various functions.

CO-12: Find Taylor's and Maclaurin's series expansion of various functions.

CO-13: Use various indeterminate forms for evaluating limit of a given function.

CO-14: Tell $\in -\delta$ definition of a limit of function of one variable and Restate theorems on limits.

CO-15: Find limits of various functions.

CO-16: Explain continuous functions and their properties.

CO-17: Examine the continuity or discontinuity for various functions.

CO-18: Inspect the differentiability of various functions.

B.Sc.-I (Sem-II)

DSC-5B-Differential Equations

CO-19: Define exact differential equation, Linear differential equations and Bernoulli's equation.

CO-20: Restate necessary and sufficient condition for exactness.

CO-21: Discuss the method of solutions of exact differential equation, Linear differential equations and Bernoulli's equation.

CO-22: Solve the differential equation by choosing proper method of solution.

CO-23: Tell definition of Linear differential equations with constant coefficients, complementary functions and particular integrals.

CO-24: Find the complementary functions of various differential equations of second order.

CO-25: Explain various methods to find particular integral.

CO-26: Apply proper method to find the solution of homogeneous linear differential equation.

DSC-6B-Higher order ordinary differential equations and partial differential equations

CO-27: Define second order linear differential equations, total differential equations and partial differential equations.

CO-28: Solve the second order linear differential equations by choosing proper method.

CO-29: Discuss the method of variation of parameters and solve examples by using it.

CO-30: Restate necessary condition for Integrability of total differential equations and solve total differential equations by choosing proper method.

CO-31: Explain the method of formation of partial differential equations by the elimination of arbitrary constants and elimination of arbitrary functions.

CO-32: Apply proper method to find the solution of first order partial differential equations.

CO-33: Use Charpit's methods to solve first order partial differential equation.

CCPM-I

CO-34: Use De-Moivre's theorem for finding roots of a complex numbers and Leibnitz's theorem for finding n^{th} order derivative.

CO-35: Identify the problem and use proper technique to find radius of curvature.

CO-36: Use Lagrange's method of undetermined multipliers for evaluating maxima and minima for functions of two variables.

CO-37: Evaluate limit of various functions using indeterminate forms.

CO-38: Solve differential equations by choosing proper method.

CO-39: Use self-orthogonal method to find orthogonal trajectory for a curve of family.

B.Sc.-II (Sem-III)

DSC-5C- Real Analysis-I

CO-40: Tell basic definitions in sets and functions.

CO-41: Describe properties of functions.

CO-42: Apply mathematical induction to establish the validity of statements p (n) for every natural number n.

CO-43: Justify the countability of sets.

CO-44: Define real numbers, least upper bounds, and greatest lower bounds.

CO-45: Explain order properties of real numbers, completeness property and Archimedean property.

CO-47: Illustrate Arithmetic-Geometric mean inequality, Triangle inequality and Bernoulli's inequality.

DSC-6C-Algebra-I

CO-48: Tell definitions of Hermitian and skew-Hermitian matrices and restate properties of matrices.

CO-49: Define Rank of matrix, row echelon form and normal form of a matrix.

CO-50: Use row echelon form and normal (canonical) form to find rank of a matrix and solve the system of linear homogeneous equations and linear non-homogeneous equations by finding rank of matrix.

CO-51: Solve system of simultaneous linear homogeneous and non-homogeneous equations by using proper method.

CO-52: Find Eigen values and Eigen vectors by using Caley Hamilton theorem.

CO-53: Develop relations and illustrates Equivalence class theorem, Warshall's Algorithm.

CO-54: Memorize definitions of group, subgroup, abelian group, order of group and discuss theorems on it.

CO-55: Restate necessary and sufficient conditions for a group to be a subgroup of G.

CO-56: Explain cyclic group and its properties.

CO-57: Give examples of group, subgroup, abelian group, cyclic group.

B.Sc.-II (Sem-IV)

DSC-5D-Real Analysis-II

CO-58: Define sequence, subsequence, limit of a sequence and convergent sequence.

CO-59: Discuss properties of convergent sequences.

CO-60: Explain monotone sequence and its properties.

CO-61: Evaluate limit superior and limit inferior of different sequences.

CO-62: Tell definitions of infinite series, convergent and divergent series, and sequence partial sum of series.

CO-63: Use comparison test for positive term series, D'Alembert's ratio test, Cauchy's root test, Rabbi's test for convergent and absolute convergent of an infinite series of real numbers.

CO-64: Apply Leibnitz's test for convergence of an infinite series.

CO-65: Describe Cauchy sequences and justify its properties.

DSC-6D-Algebra-II

CO-66: Discuss Lagrange's theorem and its consequences.

CO-67: Define normal subgroup and explain its properties.

CO-68: Justify the results related to normal subgroup.

CO-69: Explain factor group and its properties.

CO-70: Identify Homomorphism, Isomorphism, Automorphism and endomorphism of group and discuss results related to homomorphism.

CO-71: Define Kernel of Homomorphism and discuss theorems on it.

CO-72: Discuss fundamental theorem of homomorphism and its consequences.

Co-73: Tell definitions of permutation give examples on it.

CO-74: Explain Cayley's theorem.

CCPM-II

CO-75: Find Eigen values and Eigen vectors of a given matrix.

CO-76: Verify Caley Hamilton theorem and apply it for finding inverse of a matrix.

CO-77: Use the underlying unifying structures of mathematics. (i.e. sets, relations and functions, logical structure) and the relationship among them.

CO-78: Identify convergence of series by using proper test.

CO-79: Explain Homomorphism and Kernel

CO-80: Solve examples on group and find order of an element.

CCPM-III

CO-81: Tell features and Scilab environment workspaces.

CO-82: Create matrix of real values in Scilab and find addition, subtraction, product of matrix and also find size and length of matrix.

CO-83: Plot a graph of simple functions using Scilab**.**

CO-84: Describe the procedure for creating polynomial using roots and using coefficients**.**

CO-85: Explain method for creating Scilab function and its execution.

CO-86: Write the program of numerical methods and predict the output

B.Sc.-III (Sem-V)

DSE-E9-Mathematical Analysis

CO-87: Find the upper and lower Darboux's sums, Riemann integration and find the integration of a bounded function on closed and bounded intervals.

CO-88: Discuss the idea about Riemann inegrability and Riemann integration.

CO-89: Restate the necessary and sufficient condition for Riemann Integrability and explain it.

CO-90: Illustrates theorems on algebra and properties of Riemann integrable functions.

CO-91: Identify Improper integral of first kind and improper integral of second kind.

CO-92: Select proper convergence test to check convergence of given improper integrals.

CO-93: Examine convergence of an improper integral by choosing proper test.

CO-94: Find Fourier series of periodic functions.

DSE-E10-Abstract Algebra

CO-95: Tell definitions of basic concept of ring and identify examples of ring.

CO-96: Define an integral domain, field and illustrates the theorems on it.

CO-97: Restate necessary and sufficient condition of a ring to be a subring.

CO-98: Develop Quotient ring and discuss theorems on it.

CO-99: Illustrate theorems on Homomorphism of ring and Isomorphism theorems.

CO-100: Explain ideals of a ring, prime ideals and maximal ideals and related results.

CO-101: Discuss imbedding of rings.

CO-102: Describe polynomial rings, Euclidean domain, PID and UFD.

CO-103: Construct permutation group s_3 and dihedral groupD_4.

DSE-E11-Optimization Techniques

CO-104: Construct real word problems as linear programming models and describe the theoretical working of graphical methods.

CO-105: Define optimal solution and feasible solution.

CO-106: Analyze whether the given problem has optimal solution or feasible solution.

CO-107: Use suitable methods to solve optimization problems.

CO-108: Discuss solution methods including graphs and linear programming to analyze and solve the two-person, zero-sum game.

CO-109: Identify and select procedure for solving various sequencing, assignment, transportation problem.

DSE-E12-Integral Transform

CO-110: Define Laplace transform and inverse Laplace transforms.

CO-111: Find the Laplace and inverse Laplace transform of standard functions.

CO-112: Illustrates standard results for finding Laplace and inverse Laplace transforms.

CO-113: Discuss various methods to find Laplace and inverse Laplace transforms.

CO-114: Evaluate the Laplace transforms and inverse Laplace transform of various functions by using proper method.

CO-115: Tell definitions of finite Fourier transform and infinite Fourier transform.

CO-116: Recall the relation between Laplace transform and Fourier transform.

CO-117: Explain various theorems and solve examples on it.

CO-118: Find finite Fourier transform and infinite Fourier transform of various functions.

B.Sc.-III (Sem-VI)

DSE-F9-Metric Space

CO-119: Acquire the knowledge of notion of metric spaces and use the definition of metric space to show given function is exactly metric for the given set.

CO-120: Define Cauchy sequence and discuss the convergence of Cauchy sequence.

CO-121: Explain Limits in Metric space.

CO-122: Describe continuity of a function in metric space and Algebra of continuous functions.

CO-123: Tell definitions of open ball, open sets and closed sets and identify open sets and closed sets.

CO-124: Discuss proof of the theorems on open sets, closed sets.

CO-125: Illustrate theorems on connectedness and compactness by using basic concept of closed and bounded set.

CO-126: Apply the basic concepts of metric space to continuous function on compact metric space.

DSE-F10-Linear Algebra

CO-127: Define concepts as Vector Spaces, subspace, span, kernel, linearly dependent etc.

CO-128: Tell definitions of Quotient space, Homomorphism, Kernel and Range of homomorphism, Linear span and illustrates theorems on it.

CO-129: Evaluate basis and dimension of a vector space and subspace.

CO-130: Explain linear transformation and find Rank and Nullity of linear transformation.

CO-131: Solve examples to find inverse of a linear transformation and check whether linear transformation is bijective or not.

CO-132: Discuss theorems on spanning of vector space, inner product of vectors, linear transformation for set of vectors

CO-133: Illustrate Cauchy-Schwarz inequality, Generalized Pythagoras theorem and Bessel's inequality.

CO-134: Apply Gram-Schmidt orthogonalization process to find orthogonal basis.

CO-135: Find characteristic polynomial, Eigen values and Eigen vectors of a given matrix.

DSE-F11-Complex Analysis

CO-136: Define basic concept of function of complex variable.

CO-137: Explain Analytic function and Cauchy Riemann equations.

CO-138: Discuss necessary and sufficient conditions for a function to be analytic.

CO-139: Use Cauchy integral formula to evaluate complex integration.

CO-140: Illustrate Liouville's theorem and the fundamental theorem of Algebra.

CO-141: Describe convergence of sequence and series of complex variables.

CO-142: Apply concept of residue to evaluate certain real integrals.

CO-143: Find Taylor and Laurent series expansion for various functions.

DSE-F12-Discreate Mathematics

CO-144: Use classical notation of logic: implications, equivalence, negation, proof by contradiction, proof by induction and quantifiers.

CO-145: Examine valid and invalid arguments.

CO-146: Explain addition and subtraction of binary, decimal, quintal, octal, hexadecimal number system and their conversions.

CO-147: Define Graphs, types of Graphs and identify it.

CO-148: Compute degree of vertex of given graph.

CO-149: Explain Trails, Paths and Circuits.

CO-150: Find matrix representation of Graph.

CO-151: Analyse isomorphism of Graph.

CCPM-IV

CO-152: Solve LPP by graphical, simplex and Big M method.

CO-153: Solve transportation problem by NWCR, VAM, MODI methods.

CO-154: Determine the solution of assignment problems by using Hungarian method.

CO-155: Use game theory and Simulation for Solving Business Problems.

CO-156: Choose appropriate method for solving examples of Sequencing Problems by using Johnson's algorithm.

CCPM-V

CO-157: Find the Laplace transform of various functions by choosing proper method**.**

CO-158: Determine Inverse Laplace transform of various functions by choosing proper method.

CO-159: Use proper method to find infinite Fourier sine, infinite Fourier cosine transform and its inverse.

CO-160: Explain the methods to find Fourier sine, Fourier cosine transform and its inverse.

CCPM-VI

CO-161: Discuss Python, Anaconda, Spyder IDE, Python Identifiers and keywords, data types, First Python program.

CO-162: Use conditional statements, Looping statements and control statements in Python programming.

CO-163: Tell modules and packages in Python.

CO-164: Write the programs of Numerical methods using Python and predict the output.

CO-165: Explain Collatz conjecture, Monte Hall Problem and data visualization in Python.

DEPARTMENT OF PHYSICS:

After successfully completing this program students will be able to

Program Outcome

(For Undergraduate level- After graduating from science faculty, a student should,)

PO 1. Describe the basic concepts, fundamental principles and scientific theories related to various scientific phenomena.

PO 2. Acquire skills in handling scientific instruments, planning and performing laboratory experiments noting down the observations and drawing logical inferences from them.

PO 3. Analyze the given scientific data critically and systematically and drawing objective conclusions.

PO 4. Illustrate various scientific laws with suitable examples.

PO 5. Explain various phenomena of physics in easy language

PO 6. Construct devices on the concepts studied during the course.

PO 7. Illustrate the use of fundamental principles studies in day to day life.

PO 8. Categorize physical phenomenon into respective sections depending on their properties and observations made.

PO 9. Built advanced concepts in physics with reference to the concepts studied during program.

PO 10. Relate theory to observations as well as produce its applications.

Program Specific outcome

PSO 1. Discuss the fundamentals laws of Physics and describe the motion of bodies, under influence of system of forces.

PSO 2. Describe the fundamental theory of nature of small scale and energy levels of atom and sub atomic particles.

PSO 3. Analyze the applications of mathematics to problems in physics and development of mathematical methods.

PSO 4. Use mathematics to problem in physics and development of mathematical method suitable for such applications and for formulation of physical theories.

PSO.5 Design small projects as per requirement.

PSO 6. Chose appropriate materials for experiments with reference to required results.

Course outcomes

After successfully completing this course students will be able to,

Physics Paper I: Mechanics – I (DSC 1A)

CO 1. Describe the scalar product and vector product and state properties of it.

CO 2. Examine various vector related problems using vector algebra.

CO 3. Find the degree and order of any differential equation.

CO 4. Examine given second order differential equation and recommend suitable solution for it.

CO 5. Restate the Newton's laws of motion and distinction between inertial and non-inertial frame of references and illustrate it with routine life experiences.

CO 6. Analyze the situation on basis of Newton's laws of motion and suggest solution for it.

CO 7. Restate and explain the conservation theorems of linear momentum, angular momentum and energy for a single particle and system of particles.

CO 8. Explain the rocket motion and solve related problems.

CO 9. Discuss the motion of spherical Shell and solid cylinder rolling down an inclined plane.

Physics Paper II: Mechanics II (DSC 2A)

CO 10. Restate Newton's law of gravitation, Conservation laws for a particle in central force field, Kepler's Law, Applications of Satellite in circular motion, Idea of GPS, Concept of weightlessness.

CO 11. Determine speed and period of satellite, acceleration due to gravity at height 'h'.

CO 12. Assess Kinetic energy, Potential energy, Total energy and their time averages.

CO 13. Construct and solve second order differential equations to determine solutions for Simple harmonic motion, damped oscillations and forced oscillations.

CO 14. Define Stress, Strain, Young's modulus, modulus of rigidity, Bulk modulus, poisons ratio and state Hooke's law.

CO 15. Calculate bending moment of a rod, depression in a cantilever, twisting couple on a cylinder, work done in twisting a wire.

CO 16. Determine rigidity modulus for a torsional pendulum, Determine Moment of Inertia of torsional pendulum

CO 17. Use searls method to determine Y, η and σ.

CO 18. Revise Surface tension, Surface energy, Angle of contact, wettability, Applications of Surface tension.

CO 19. Inspect relation between surface tension, excess of pressure and radius of curvature.

CO 20. Construct experiment to determine surface tension by Jaegers method.

Physics Laboratory DSC-A Lab: **Mechanics**

CO 20. Use of vernier caliper,screw gauge and travelling microscope to measure length of given objects.

CO 21. Determine the Moment of Inertia of of disc using auxillary annular ring a flywheel.

CO 22. Determine 'g' by Bar pendulum and Kater's pendulum.

CO 23. To determine Y of bar by vibration., Y/η of wire by Searls method, modulus of rigidity of wire by torsional oscillations and poisons ratio for rubber using rubber tube.

CO 24. Study motion of spring and calculate spring constant and value of g.

Physics Laboratory DSC-B Lab: **Electricity and Magnetism.**

CO 25. Use of multimeter to measure resistance,AC and DC voltages,DC current and checking electrical fuses.

CO 26. Compare the capacities of given condensers by De Sauty's method.

CO 27. Study the impedance , resonant frequency, quality factor of series LCR circuit.

CO 28. Measurement of constants of B. G.

CO 29. Determine high resistance by leakage method.

CO 28. Verify Thevenin's and Norton's theorem.

CO 29. To study Parallel LCR circuit to determine its anti-resonant frequency and quality factor.

CO 30. To determine frequency of AC mains by sonometer.

Physics Paper III Electricity and Magnetism I. (DSC B1)

CO 31. Apply surface, line, volume integral to vector fields

CO 32. State gauss divergence and stokes theorem.

CO 33. Derive potential due to point charge.

CO 34. Assess electric field from potential

CO 35. Derive expression for energy per unit volume in electrostatics

CO 36. Illustrate gauss's theorem in electrostatics

CO 37. Explain working of parallel plate capacitor completely filled with dielectric.

Physics Paper IV: Electricity And Magnetism-II (DSC B2)

CO 38. Relate the concepts of Reactance, Impedance, Admittance, and Susceptance.

CO 39. Inspect the LCR series circuit and solve problems related to resonant frequency.

CO 40. Analyze the Owen's Bridge and design it as per requirement.

CO 41. State the Biot-Savart's law and discuss its applications to straight conductor, circular coil, solenoid carrying current.

CO 42. State the Ampere's circuital law and describe the various Magnetic properties of materials.

CO 43. Compare the properties of dia-, para- and ferro-magnetic materials and classify them.

CO 44. Restate Faraday's laws of electromagnetic induction, Lenz's law.

CO 45. Explain the concept of self inductance and mutual inductance and solve problems related to it.

CO 46. Discuss the Equation of continuity of current and write the Maxwell's equations.

CO 47. Explain the electromagnetic wave propagation through vacuum and isotropic dielectric medium.

CO 48. Discuss the transverse nature of Electromagnetic waves.

Physics Paper V: Thermal Physics and Statistical Mechanics – I (DSC C1)

CO 49. Write the four laws of thermodynamics.

CO 50. Classify various thermodynamic processes with suitable examples.

CO 51. Explain the concept of thermodynamic equilibrium.

CO 52. Solve the problems related to work done during thermal and adiabatic processes

CO 53. Inspect the Carnot's cycle and solve problems related to efficiency of it.

CO 54. Discuss the concept of entropy with its physical significance and solve the examples of Entropy changes in reversible & irreversible processes.

CO 55. Recall mean free path, molecular diameter, Maxwell's law of distribution of velocities, law of equipartition of energy.

CO 56. Solve differential equations and derive expression of coefficient of viscosity, thermal conductivity of gas, Diffusion of gas.

CO 57. State working principle of various types of thermometers and Recommend them as per requirement.

CO 58. Compare working and temperature measurement techniques used in mercury thermometer, Platinum resistance thermometer, thermistor as thermometer and Thermocouple as thermometer.

Physics Paper VI : Waves and Optics (DSC C2)

CO 59. Explain the simple harmonic motion, nature of wave motion, behavior of light in various medium.

CO 60. Acquire skills to identify and apply formulas of optics and wave physics

CO 61. Classify normal modes and normal Co-ordinates, study modes of oscillation of two coupled pendulums and to measure the normal mode frequencies.

CO 62. Explain the use of Lissajous figures and compose Lissajous figures of different shapes.

CO 63. Discuss the motion of fluids by developing understanding of viscosity, Poiseuille's Method and lubrication.

CO 64. Describe ultrasonic waves and piezoelectric effect and there use in daily life.

CO 65. Describe how sound is generated and propagates as a principle for architectural acoustic design.

CO 66. Explore how humans perceive sound as a basic principle in acoustic design.

CO 67. Explain various vacuum pumps and Recommend them as per requirement.

Physics Paper VII: Thermal Physics and Statistical Mechanics – II (DSC D1)

CO 68. Discuss the concepts of thermodynamics potentials, Enthalpy, Gibbs, Helmholtz, Internal Energy functions. Derive the Maxwell's thermodynamical relations and TdS equations.

CO 69. Explain the Clausius- Clapeyron equation and Justify the use for various phase changes.

CO 70. Illustrate the Joule-Thomson effect and Solve the problems related to ($C_P - C_V$) and C_P/C_V.

CO 71. Discuss the Blackbody radiation and its importance, Experimental study of black body radiation spectrum. Describe the Concept of energy density, Planck's law and Wien's distribution law.

CO 72. Explain the Rayleigh-Jeans Law, Stefan Boltzmann Law and Wien's displacement law from Planck's law.

CO 73. Describe phase space, micro and macrostates, accessible microstates.

CO 74. State MB distribution laws.

CO 75. Determine alpha and beta in MB distribution

CO 76. Illustrate B. E and F. D statistics to gases

CO 77. Compare and contrast M. B, B. E and F. D statistics.

Physics Paper VIII: Waves and Optics (DSC D2)

CO 78. Explain the cardinal points of an optical system.

CO 79. Construct the graphical construction of image using cardinal points.

CO 80. Find the resolution, resolving power of optical instruments.

CO 81. Compare and contrast between resolution and magnification also explain resolving power of plane diffraction grating and prism.

CO 82. Describe the idea of polarization, double refraction.

CO 83. Discuss construction, working of Nicol prism and analyze the production and detection of circularly and elliptically polarized light.

CO 84. Inspect the situation and justify which phenomena concern to it out of Polarisation, Interference and Diffraction of light.

CO 85. Solve the Problems related to wavelength of light using diffraction grating.

CO 86. Examine the theory of plane diffraction grating, Fresnel's half period zone Zone plate and Fresnel's diffraction at a straight edge.

Physics Laboratory Thermal Physics and Statistical Mechanics I(DSC C1)

CO 87. Determine the value of Stefan's constant.

CO 88. Study the variation of thermo e.m.f across two junctions of a thermocouple, to record and analyse cooling temperatures of hot objects as function of time using thermocouples

CO 89. Determine coefficient of thermal conductivity of Copper by Searls method, Cu by Armstrong method and a bad conductor by Lee's method

CO 90. To determine temperature coefficient of resistance by Platinum resistance thermometer.

CO 91. Callibrate resistance temperature device using null method / off balance bridge.

Physics Laboratory Thermal Physics and Statistical Mechanics II (DSC C2)

CO 92. determine Temperature coefficient of resistance using thermometer,specific heat of graphite, ratio of specific heat of air by Kundt's tube,

CO 93. Examine Temperature of flame, Coefficient of thermal conductivity of glass in form of tube, thermal conductivity of metal bar by forbe's method

CO 94. Calculate Mechanical equivalent of Heat by Callender and Barnes constant flow method.

CO 95. Verify stefans fourth power law.

Physics Laboratory Wave and optics I (DSC D1)

CO 96. Investigate the motion of coupled oscillators.

CO 97. Determine frequency of electrically maintained tuning forks by Melde's experiment to verify λ^2- T law,

CO 98. Study the Lissajous figures by using CRO.

CO 99. Examine coefficient of viscosity of water by capillary flow method and viscosity of liquid by Searls viscometer

CO 100. Calculate Velocity of sound using Kundts tube and audio oscillator phase shift method and by resonating bottle.

CO 101. determine frequency of crystal oscillator.

Physics Laboratory Wave and optics II (DSC D2)

CO 102. Determine the resolving power of prism and plane diffraction grating

CO 103. Examine the wavelength of sodium light using Newton's ring and diffraction due to straight edge.

CO 104. Find thickness of thin film using interference in wedge shaped thin film.

CO 105. Using Goniometer to study cardinal points and equivalent focal length of a optical system and Study angle of specific rotation of sugar using polarimeter.

Physics Paper IX: Mathematical Physics (DSE E1)

CO 106. Identify order and degree of partial differential equation.

CO 107. Determine linear and nonlinear form of partial differential equation.

CO 108. Solving Two dimensional Laplace's and Wave equation and Three dimensional Laplace's equation in Cartesian coordinate system by method of separation of variables

CO 109. Inspect second order linear differential equation to determine its singular point.

CO 110. Illustrate Frobenious method to second order linear differential equation to determine its solution.

CO 111. List standard form of Gamma, Beta and Error functions.

CO 112. outline properties of Gamma, Beta and Error functions

CO 113. Explain the types of Complex numbers

CO 114. Perform algebraic operations on Complex numbers.

CO 115. Use Cauchy-Riemann conditions to complex functions.

Physics Paper X: Quantum Mechanics (DSE E2)

CO 116. Use the Schrödinger equation, Heisenberg's uncertainty principle, and the Pauli principle to calculate and analyse systems that illustrate quantum mechanical phenomena.

CO 117. Solve examples to explain the quantization of energy, superposition, wave-particle duality, and tunnelling effect.

CO 118 Discuss the basic principles of quantum mechanics.

CO 119. Explain the operator formulation of quantum mechanics.

CO 120. Discuss the concept of wave function.

CO 121. Solve Schrodinger equation for simple potentials.

CO 122. Acquire mathematical skills require developing theory of quantum mechanics

CO 123. Compare and contrast the differences between classical and quantum mechanics.

CO 124. Discuss the postulates of quantum mechanics and apply them to solve some quantum mechanical problems.

Physics Paper XI: Classical Mechanics and Classical Electrodynamics (DSE E3)

CO 125. Derive the Poisson and Laplace equation and give its physical significance.

CO 126. Describe the Motion of charged particle - in uniform electric field E, magnetic field B, Crossed uniform electric field E and magnetic field B.

CO 127. Solve problem related to Motion of charged particle - in uniform electric field E, magnetic field B, Crossed uniform electric field E and magnetic field B.

CO 128. Define and understand basic mechanical concepts related to advanced problems involving the dynamic motion of classical mechanical systems.

CO 129. Explain about the forces, angular momentum and knowledge about the constraint.

CO 130. Compare and contrast the differential equations and other advanced mathematics in the solution of the problems of mechanical systems.

CO 131. Describe and understand the motion of a mechanical system using Lagrange-Hamilton formalism.

CO 132. Describe and understand the motion of the forces in non inertial systems.

CO 133. Recall inertial frame of reference, non-inertial frame of reference.

CO 134. Apply Galilean and Lorentz transformations to frames of references.

CO 135. Construct expressions for time dilation, length contraction, variation of mass with velocity, mass energy equivalence using Special Theory of relativity.

CO 136. Discuss Michelson Morley Experiment.

Physics Paper XII: Digital and Analog Circuits and Instrumentation (DSE E4)

CO 137. List basic logic gates and Derived logic gate.

CO 138. Explain De Morgan's theorem and use of NAND and NOR gate as universal building blocks.

CO 139. Discuss single stage common emitter amplifier with ac and dc load line.

CO 140. Solve the problems related to oscillators (frequency calculation) and amplifiers (related to open loop and closed loop gain).

CO 141. Design different types of oscillator circuits of desired frequency.

CO 142. Compare types of feedback on basis of it's advantages and disadvantages.

CO 143. Explain construction and working of CRO.

CO 144. Discuss various applications of CRO and illustrate with suitable examples.

CO 145. Describe various applications of operational amplifier.

CO 146. Solve problems related to calculation of frequency, time period, pulse width, duty cycle of IC-555 monostable and astable multivibrator.

CO 147. List different characteristics and parameters of operational amplifier.

Physics Paper XIII: Nuclear and Particle Physics (DSE F1)

CO 148. List Constituents of nucleus and their intrinsic properties , Quantitative facts about size, mass, charge density (matter energy), binding energy, average binding energy and its variation with mass number

CO 149. Explain Liquid drop model approach, Semi empirical mass formula, Magic numbers

CO 150. Discuss Need of accelerators, Cyclotron- construction, working, theory and its limitations, Principle of phase stable orbit, Synchrocyclotron - construction and working, Synchrotrons- electron synchrotron and proton synchrotron, Betatron - principle, construction and working condition

CO 151. Compare working of Synchrocyclotron and Betatron

CO 152. Construct expression of energy gain.

CO 153. Outline - construction, working and theory of Geiger Muller counter, Scintillation detector and photo-multiplier tube (PMT)

CO 154. Explain Semiconductor detector, Cerenkov radiations, Cerenkov detector

CO 155. Classify elementary particles

CO 156. Inspect, Symmetries and conservation laws energy, momentum, angular momentum and parity, Baryon number, Lepton number of a elementary particle

CO 157. Discuss concept of quark model.

Physics Paper XIV: Solid State Physics (DSE F2)

CO 158. Classify amorphous polycrystalline and crystalline materials

CO 159. Justify SC, BCC, FCC and HCP crystal structure on basis of Co-ordination number, atomic radius, atoms per unit cell and packing fraction

CO 160. Outline X-Ray Diffraction technique including Reciprocal lattice and its properties, , Brillouin zone, Diffraction of X-rays by crystals, Ewald construction, Bragg's law in reciprocal lattice

CO 161. Explain Experimental methods in X-ray diffraction.

CO 162. Use Classical Langevin theory to discuss diamagnetic and paramagnetic materials

CO 163. Analysis of cubic crystal by powder method

CO 164. Illustrate Weiss theory of ferromagnetism and ferromagnetic domains

CO 165. Explain B-H curve, Hysteresis and energy loss

CO 166. State density of states, Bloch theorem

CO 167. Differentiate between metals, semiconductors and insulators.

CO 168. State hall effect Hall voltage and Hall Coefficient.

Physics Paper XV: atomic and molecular physics and astrophysics. (DSE F3)

CO 169. Explain normal and anomalous Zeeman Effect.

CO 170. Explain anomalous Zeeman effect by vector atom model point of view.

CO 171. Compose rotational, vibrational, electronic spectra for molecules.

CO 172. Differentiate between Raman and infrared spectra

CO 173. Illustrate big bang theory, oscillating theory, hubble law, milky way galaxy.

CO 174. Inspect for and against of theories.

CO 175. Plot H-R diagram

CO 176. Distinguish between sequences of stars.

CO 177. Explain sunspot cycle

Physics Paper XVI: Energy studies and material science (DSE F4)

CO 178. Compare and contrast the types of energy storage systems.

CO 179. Explain forms of energies and their applications.

CO 180. Analyze solar radiations and its measurements.

CO 181. Explain physics and materials at a deeper level.

CO 182. Appreciate that there are relationships and connections between physics and materials to other science disciplines and understand such relationships and connections in physics.

CO 183. Explain wind and bio energy.

CO 184. Describe the superconductivity and list type –I and type –II superconductors.

CO 185. Discuss the nanoscience and nanotechnology and their application in day to day life.

Physics Laboratory (DSE- E1, E2, E3, E4 and DSF- F1, F2, F3, F4)

Group I

CO. 186 Use resonance pendulum to determine damping coefficient of air

CO 187. Examine Surface tension of Soap solution and Mercury.

CO 188. Determine Y by Koenig's method and Cornu's method.

CO 189. Calculate Y and η of given material of Flat spiral Spring.

CO 190. Arrange Given set of numbers in Ascending/ Descending order and Find largest and smallest number from given set of numbers using C programming.

CO 191. Use SCILAB to determine eigen values and eigen vectors and to determine Inverse of a matrix.

Group II

CO 192. Trace cardinal points by Turn table and Newton's method.

CO 193. Illustrate Brewster's law to find refractive index of a glass.

CO 194. Examine Diffraction at single slit and at cylindrical obstacle.

CO 195. Determine wavelength of monochromatic source using LLloyd's single mirror.

CO 196. Study refractive indices for extra ordinary and ordinary rays for given prism.

CO 197. Investigate diameter of Lycopodium powder.

CO 198. Plot Caustic curve for a given thick plano convex lens to determine ratio of transverse aberration of extreme rays to radius of least confusion.

CO 199. Study absorption spectrum of given liquid Solution.

Group III

CO 200. Assess self-inductance by Owen's bridge and mutual inductance by Ballastic galvanometer.

CO 201. Measure B_H, B_V, and θ by magnetometer method.

CO 202. Determine resistance of Ballastic Galvanometer by half deflection method.

CO 203. Determine e/m by Thomson's method.

CO 204. Callibrate wire by Griffiths method.

CO 205. Calculate absolute capacity of condenser.

CO 206. Plot I-V characteristics of Solar Cell.

CO 207. Use p-n junction Diode to calculate Band gap energy of semiconductor.

CO 208. Use LED to determine Planck's constant.

Group IV

CO 209. Verify truth tables of gates and De- Morgan's theorems with IC- 74 series.

CO 210. Design single stage CE using voltage divider bias, astable multivibrator and momostable multivibrator using IC -555 Timer.

CO 211. To build and Test Colpitts oscillator and phase shift oscillator using BJT.

Co 212. Measure unknown frequency and Determine AC and DC sensitivity of CRO

CO 213. Study OP-AMP as an inverting amplifier and as Schmitt trigger.

Group V A Skill Testing Experiments

CO 214. Observe and calculate divergence of LASER beam.

CO 215. Use schusters method for optical leveling of spectrometer.

CO 216. Obtain biprism fringes without lateral shift.

CO 217. Measure Wavelength of LASER using plane diffraction grating and distance between two coherent sources using biprism experiment.

CO 218. Plot polar graph using photo cell.

CO 219. Use Tunnel diode to study quantum tunneling effect.

CO 220. Test electronic components.

CO 221. Edit Save and Execute given C programmes.

Group V B

CO 222. Measure Radius of capillary bore using mercury thread, Phase shift of RC network using CRO and resistance of Galvanometer using Kelvin's method.

CO 223. Estimate errors.

CO 224. Determine Lattice constants using XRD powder pattern.

CO 225. Use of half and full adder.

CO 226. Simplify digital circuit using Boolean laws.

CO 227. Wiring of electric bulb, switch and plug.

CO 228. Trace given electronic circuit.

CO 229. Assemble electronic circuit using soldering method.

Group IV Assessment of Annual work of a student.

CO 230. Complete and certify laboratory journal

CO 231. Prepare study tour report.

CO 232. Prepare 2 seminar reports.

DEPARTMENT OF STATISTICS:

After successful completion of three years degree program in B. Sc. Students will able to-

Programme Outcomes

- **PO 1**- Compute various measures of central tendencies, dispersion, moments, skewness, kurtosis and interpret them.
- **PO 2**- Analyze data pertaining to attributes and to interpret the results.
- **PO 3**- Distinguish between random and non-random experiments.
- **PO 4**- Compute the probabilities, conditional probabilities considering independence of various events.
- **PO 5**- Calculate correlation coefficient, regression coefficients, interpret its value and use in regression equations for estimation.
- **PO 6**- Evaluate various index numbers.
- **PO 7**-Recognise some standard discrete and continuous probability distributions with real life situations.
- **PO 8**-Explain the relations among the different distributions.
- **PO 9**- Apply the small sample tests and large sample tests in various situations.
- **PO 10**-Use Statistical Quality Control, construction and working of control charts for variables and attributes.
- **PO 11**- Use time series analysis

Programme Specific Outcomes

- **PSO 1**- The ability to use skills in Statistics and different practicing areas for formulating and tackling Statistics related problems and identifying and applying appropriate principles and methodologies to solve a wide range of problems associated with statistics.
- **PSO 2**-Fundamental/systematic knowledge of the academic field of Statistics and its different learning areas and applications**.**
- **PSO 3**-Skills in areas related to one's specialization area within the disciplinary/subject area of Statistics and emerging developments in the field of Statistics.
- **PSO 4**- Procedural knowledge that creates different types of professionals related to subject area of Statistics, including professionals engaged in government/public service and private sectors.
- **PSO 5**- Recognize the importance of statistical modeling and computing, and the role of approximation and mathematical approaches to analyze the real problems using various statistical tools.

- **PSO 6**- Plan and execute Statistical experiments or investigations, analyze and interpret data/information collected using appropriate methods, including the use of appropriate statistical software including programming languages, and report accurately the findings.

Course Outcomes

DSC-7A

Descriptive Statistics – I

- **CO 1**-Explain various phases in statistics
- **CO 2**- Illustrate of various types of data.
- **CO 3**-Describe and interpret various summary measures of central tendencies.
- **CO 4**-List all partition values, Quartiles, Deciles and Percentiles.
- **CO 5**-Categorize the measures of dispersion.
- **CO 6**-Apply moments to estimate the measures of skewness and kurtosis.
- **CO 7**-Describe various measures relating attributes.
- **CO 8**- Analyze data relating to attributes and to interpret the results.

DSC-8A

Elementary Probability Theory

- **CO 9**- Distinguish between random and non-random experiments.
- **CO 10**- Summarize various type of events.
- **CO 11**- Compute the probabilities of various events using mathematical definition of probability.
- **CO 12** – Develop various concept of axiomatic approach of probability of events.
- **CO 13**- Justify concept of independence of probability.
- **CO 14**-. Explain and compute conditional probability.
- **CO 15**-Demonstrate the concept of Bayes' Theorem.

DSC – 7B

Descriptive Statistics – II

- **CO 16** –Identify the bivariate data.
- **CO 17**- Use the concept of covariance.
- **CO 18**- Compute Karl Pearson correlation coefficient.
- **CO 19**-Interpret the results of Karl Pearson's coefficient of correlation.
- **CO 20**-Use Spearman's Rank correlation coefficient.
- **CO 21**- Explain concept of regression and use it for estimation purpose.
- **CO 22**-Classify various index numbers and its tests.

DSC -8B

Discrete Probability Distributions

- **CO 23**-Distinguish the discrete variable with finite and countably infinite sample space.
- **CO 24-** Illustrate discrete variable with different examples.
- **CO 25**-Define probability mass function, cumulative distribution function and their properties.
- **CO 26**-Calculate median, mode for discrete distribution.
- **CO 27**-Summarize Expectation and its properties.
- **CO 28**-Explain One point, two point and Bernoulli distributions.
- **CO 29-** Apply Binomial and Hyper geometric distribution in computation of probabilities.
- **CO 30**-Use concept of bivariate distributions and computation of related probabilities.

Practical **Paper-I**

- **CO 31** - Represent the statistical data diagrammatically and graphically.
- **CO 32** - Compute various measures of central tendency.
- **CO 33**- Solve the measures of dispersion.
- **CO 34**- Calculate coefficient of skewness and kurtosis using raw moments and central moments.
- **CO 35**- Calculate correlation coefficients and regression coefficients.
- **CO 36**- Interpret Consistency, Association and Independence of Attributes.
- **CO 37**- Use MS-EXCEL for computation of measures of central tendency, dispersion and measures of skewness, kurtosis.
- **CO 38-** Illustrate applications of some standard discrete probability distributions.
- **CO 39 -** Compute the index numbers.

DSC-7C

Probability Distributions–I

- **CO 40**- Categorize Poisson, Geometric and Negative binomial distributions.
- **CO 41**-Illustrate continuous random variable.
- **CO 42**- Summarize probability density function and cumulative distribution function and its properties.
- **CO 43**-Distinguish of r. v. and probabilities using its probability distribution.
- **CO 44**- Define moment generating function, cumulant generating function and its properties.
- **CO 45**-Find various measures of central tendency, Dispersion and skewness, kurtosis using probability density function.
- **CO 46**-Analyse bivariate continuous.

- **CO 47**- Use the concept of transformation of univariate and bivariate continuous random variable.

DSC-8C:

Statistical Methods-I

- **CO 48**- Define the concept of Multiple Linear Correlation.
- **CO 49**- Describe the concept of Partial Correlation.
- **CO 50**- Apply Multiple regression plane for estimation.
- **CO 51**- Categorize properties of multiple and partial correlation coefficient.
- **CO 52** - Describe census method, sampling method and advantages of sampling method.
- **CO 53** -Construct samples using SRSWR and SRSWOR methods.
- **CO 54** - Explain basic concepts of vital statistics.
- **CO 55**- Calculate measures mortality and fertility.

DSC-7D:

Probability Distributions-II

- **CO 56** - Define Uniform and Exponential probability distributions.
- **CO 57**- Calculate the mean, Variance, Moment generating function, moments, measures of skewness and kurtosis for Uniform and Exponential distributions.
- **CO 58**- Recognize Gamma and Beta distributions.
- **CO 59**- Compute various measures for Gamma and Beta distributions.
- **CO 60**-Describe Normal distribution with standard normal case.
- **CO 61**-State the Chi-Square, t and F distributions.
- **CO 62**- Calculate measures based on chi square, t and F distributions.
- **CO 63**- State the interrelations between chi square, t and F distributions.

DSC-8D:

Statistical Methods-II

- **CO 64**- Explain time series, components and utility of time series.
- **CO 65**- Fit the various methods for measuring trend and seasonal variations
- **CO 66**- Understand the meaning, purpose and use of Statistical Quality Control.
- **CO 67**- Describe construction and working of control charts for variables and attributes.
- **CO 68**- Explain Testing of hypothesis and its fundamental terms.
- **CO 69**- Recognize various large sample tests for population mean, population proportion and correlation coefficient.
- **CO 70**-Summerize small sample tests based on chi-square, t and F distributions.

Practical

- **CO 71**-Compute probabilities of standard probability distributions.

- **CO 72-** Calculate the expected frequencies and test the goodness of fit.
- **CO 73-** Obtain random sample from standard probability distribution and sketch of the p.m.f./ p.d.f. for given parameters.
- **CO 74-**Fit plane of multiple regression and compute multiple and partial correlation Coefficients.
- **CO 75**-Draw random samples by various sampling methods
- **CO 76**-Construct various control charts.
- **CO 77**- Use the applications of Poisson, Geometric and Negative Binomial Distributions.

DEPARTMENT OF ZOOLOGY:

Learning Outcomes:

A graduate of B.Sc. Zoology programme after three years will be able to:

- Develop critical understanding how a single-celled fertilized egg becomes an embryo and then a fully formed adult by going through three important processes of cell division, cell differentiation and morphogenesis.
- Understand how developmental processes and gene functions within a particular tissue or organism can provide insight into functions of other tissues and organisms.
- Realize that very similar mechanisms are used in very diverse organisms; and development is controlled through molecular changes resulting in variation in the expression and function of gene networks.
- Understand how the field of developmental biology has changed since the beginning of the 19th century with different phases of developmental research predominating at different times.
- Examine the evolutionary history of the taxa based on developmental affinities.
- Understand the relevance of developmental biology in medicine or its role in development of diseases.
- Develop an understanding of the characters used to classify besides being able to differentiate the organisms belonging to different taxa.
- Acquire knowledge of the coordinated functioning of complex human body machine.
- Have hands on experience of materials demonstrating the diversity of protists and non-chordates.
- Understand the relative position of individual organs and associated structures through dissection of the invertebrate representatives.
- Realize that very similar physiological mechanisms are used in very diverse organisms.
- Get a flavour of research by working on project besides improving their writing skills. It will further enable the students to think and interpret individually.
- Undertake research in any aspect of animal physiology in future.

Programme Outcomes:

PO1 - Students gain knowledge and skill in the fundamentals of animal sciences, understands the complex interactions among various living organisms

PO2 – Analyse complex interactions among the various animals of different phyla, their distribution and their relationship with the environment

PO3 – Apply the knowledge of internal structure of cell, its functions in control of various metabolic functions of organisms.

PO4 – Understands the complex evolutionary processes and behaviour of animals

PO5 – Correlates the physiological processes of animals and relationship of organ systems

PO6 – Understanding of environmental conservation processes and its importance, pollution control and biodiversity and protection of endangered species

PO7 – Gain knowledge of Agro based Small Scale industries like sericulture, fish farming, butterfly farming and vermicompost preparation.

PO8 – Understands about various concepts of genetics and its importance in human health

PO9 - Apply ethical principles and commit to professional ethics and responsibilities in delivering his duties

PO10 – Apply the knowledge and understanding of Zoology to one's own life and work

PO11 – Develops empathy and love towards the animals

Programme Specific Outcome:

PSO1. Understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology

PSO2. Analyse the relationships among animals, plants and microbes

PSO3. Perform procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, Cell biology, Genetics, Applied Zoology, Clinical science, tools and techniques of Zoology, Toxicology, Entomology, Nematology Sericulture, Biochemistry, Fish biology, Animal biotechnology, Immunology and research methodology

PSO4. Understand the applications of biological sciences in Apiculture, Aquaculture, Agriculture and Medicine

PSO5. Gains knowledge about research methodologies, effective communication and skills of problem solving methods

PSO6. Contributes the knowledge for Nation building.

Course Outcome:

CO1. Describe general taxonomic rules on animal classification

CO2. Classify Protista up to phylum using examples from parasitic adaptation

CO3. Classify Phylum Porifera to Echinodermata with taxonomic keys

CO4. Describe Phylum Nematoda and give examples of pathogenic Nematodes

CO5. Distribution of fauna in different realms interaction

CO6. Understand Animal behaviour and response of animals to different instincts

CO7. Interaction of biota a biota

CO8. Various kinds of Animal adaptations

CO9. Imparts conceptual knowledge of vertebrates, their adaptations and associations in relation to their environment

CO10. Classify phylum Protochordates to Mammalia

CO11 Complex Vertebrate interactions

CO12. Basic concepts of developmental biology

CO13. Structural and functional aspects of basic unit of life i.e. cell concepts

CO14 Mendelian and non mendielian inheritance

CO15. Concept behind genetic disorder, gene mutations- various causes associated with inborn errors of metabolism

CO16. Theories of Evolution

CO17. Knowledge of eras and evolution of species

CO18. Seeks to understand the mechanisms that work to keep the human body alive and functioning

CO19. Physiological and biochemical understanding through scientific enquiry into the nature of mechanical, physical, and biochemical functions of humans, their organs, and the cells of which they are composed

CO20 Interactions and interdependence of physiological and biochemical processes

CO21 Students are taught the detailed concepts of digestion respiration excretion the functioning of nerves and muscles

CO22 Students gain fundamental knowledge of animal physiology

CO23 Students will gain skill to execute the roles of a biology teacher or medical lab technicians with training as they have basic fundamentals

CO24 Students learn the concepts of endocrine systems and homeostasis a brief account of genetics and organic evolution.

CO25 This course helps students to gain fundamental knowledge in these topics

CO26 Students gain fundamental knowledge of physiology and endocrine systems

CO27 Students gain fundamental knowledge of physiology of homeostasis

CO28 Understanding of basic concepts of genetics, laws of inheritance and central dogma of biology

CO29 Understanding of genetic basis of evolution, human karyotyping and speciation

CO30 Understands concepts of fisheries, fishing tools and site selection

CO31 Aqua culture systems, induced breeding techniques, post harvesting tecniques

CO32 Understands about composition of blood, blood born diseases, autopsy and biopsy

CO33 Types of immunity, antigens-antibodies and their properties

CO34 Imparts knowledge of beneficial and non-beneficial insects

CO35 Knowledge of how they interact with their environment, other species and humans

CO36 Classification of Insects

CO37 Role of insects in spread of diseases

CO38 Gives knowledge of silk worm rearing

CO39 Mulberry cultivation

CO40 Pests and diseases associated with silk worm and mulberry

CO41 Various process involved in silk production

CO42 Imparts in depth knowledge of tissues, cells and molecules involved in host defense mechanisms

CO43 Understanding of types of immunity

CO44 Interactions of antigens, antibodies, complements and other immune components

CO45 Understanding of immune mechanisms in disease control, vaccination, process of immune interactions

CO46 Imparts the Knowledge to culture animal cells in artificial media.

CO47 Knowledge of animal cells in culture, growth of cell lines

CO48 Use in recombinant DNA technology, genetic manipulations and in a variety of industrial processes.

CO49 Understands about composition of blood, blood born diseases, autopsy and biopsy

CO50 Techniques of microscopy, microtomy, biopsy, autopsy and immunological techniques

CO51 Types of immunity, antigens-antibodies and their properties

CO52 Understanding of pathology of diseases caused by various microorganisms such as bacteria, virus, parasites and fungus

CO53 Allows the students to gain basic knowledge about various bio molecules and their role in metabolism

CO54 Classification of enzymes, enzyme kinetics

CO55 Metabolism of carbohydrates, nucleic acids and metabolic disorders

CO56 Gains understanding of cellular organization and functional biology nucleic acids

CO57 Imparts knowledge to the student regarding environment and conservation biology.

CO58 Gains knowledge in the areas of responses to Laws of limiting factor, Laws of minimum, Laws of Tolerance and Tragedy of commons

CO59 Types of ecosystem – freshwater, marine and terrestrial,

CO60 Population characteristics and dynamics – conceptual approach

CO61 Growth curves and pyramids; sigmoid curve, J curve and hyperbola; logistic equation and concepts relating to growth

CO62 The students will be well equipped to become very competent in research or teaching fields after completion of this course

CO63 Provides basics knowledge about immune system and allows the student to create insight

as how to improve their immune system and good health.

CO64 Types of immunity, antigens-antibodies and their properties

CO65 Complement system, MHC's and immune responses

CO66 Understanding of types of hypersensitivity reactions and auto immune diseases

CO67 Ability to understand concepts of tumor immunology and transplantation immunology

CO68 Medical Entomology is an integral part of applied ecology involving the study of diverse ecto and endoparasites

CO69 Understanding of fundamental complement of numerous diseases which have significant impact on human health

CO70 Understanding of Insect vector host interactions of many important diseases like Malaria, Filaria, Dengue etc.

CO71 Understanding of denudation of forests its results in increased human vector contact which have become almost irreversible.

CO72 Course gives insight into physiology, biochemistry and reproduction of insect vectors and their control measures.

CO73 Students gain knowledge about the concepts of overview of Entomology

CO74 Source reduction and environmental methods for vector control, biological control and other Insect bites

CO75 Knowledge of hormones and Insects

CO76 Students gets good insight into how Medical Entomology is acting as a promising factor for entomologist vacancies in both public and private sectors

CO77 Student gains knowledge regarding vector born diseases their pathology, control measures, thus aiming at 'Swach and Swasth Bharat'

CO78 Students feel confident in teaching Medical Entomology as well as executing research project

CO79 Gives knowledge of silk worm rearing, mulberry cultivation, pests and diseases associated with silk worm, mulberry and various process involved in silk production.

CO80 It is an agro based cottage industry in India that enables them to get self-employment

CO81 Sericulture is a comprehensive subject that gives in depth knowledge of the study of Silk worms both physiological as well as commercial purposes including the various processes involved in the formation of silk .

CO82 Students gain knowledge about various systems study of silkworms and cocoons, other defective cocoons

CO83 Reeling and significant diseases seen in the silkworms

CO84 Students feel confident in teaching Sericulture as well as executing research projects

CO85 It gives insight into various cell/tissues culture techniques

CO86 Understanding of in vitro culturing of organisms and production of transgenic animals.

CO87 Understanding of cloning of mammals, large scale culture and production from recombinant microorganisms

CO88 Gains skills in medical, environmental biotechnology, biopesticides, Biotechnology of aquaculture and use of animals as bioreactors

CO89 This insight allows students to take into consideration about ethical issues involved in production transgenic animals and BT products.

CO90 Understanding of basic concepts of instrumentation such as cell fractactionation, homogenation and centrifugation.

CO91 Students gain skills in techniques of chromatography, electrophoresis, spectroscopy

CO92 Students gain skills in histological, immunological and electrophysiological techniques

CO93 Students gain skills in basics of computers, operating systems, overview of programming languages

CO94 Application of internet and statistical bioinformatics in research

CO95 Biodiversity and conservation explore natural landscapes, species and ecosystems and acquires theories and practical methods in preserving environments and organisms.

CO96 Biodiversity refers not only to endangered species but also to every organism, including microbes and fungi.

CO97 Biodiversity and Conservation increase awareness and understanding of how human life depends on preserving animal species and natural ecosystems.

CO98 Biodiversity and conservation is connected to similar disciplines like environmental science, natural resources management and animal sciences.

CO99 Conserving biodiversity in the face of pressures such as land clearing, pest plants and animals and climate change is a challenge facing land managers and policy-makers globally.

Suggested List of Supplementary Web Resources for Laboratory Exercises

1. Anatomy of Frog: Pro Dissector (CD) - www.prodissector.com
2. Physiology of Frog: Physiology Ex 4.0 (CD) - www.physioex.com
3. Anatomy of Chordates: The Vertebrate Dissection Guide Series (CD)–Learning Development Centre, University of Portsmouth
4. Anatomy of earthworm: The dissection works (CD); Source – www.scienclass.com; www.neosci.com
5. Anatomy of shark: Shark dissection and anatomy (video)- www.neosci.com
6. Cockroach dissection- www.ento.vt.edu

7. Mammalian Physiology– www.biopac.com

BACHELOR OF COMPUTER APPLICATION:

Learning Outcomes

After successfully completing this course, the students will be able to:

- Acquired knowledge for understanding data and select suitable methods for data analysis.
- Explain the basic concepts and principles of strategic management analyze the internal and external environment of business.
- Outline a defensive programming concept. Ability to handle possible errors during program execution.
- Improve the ability to use standard input/output and file input/output operations.
- State the importance of Human Resource function in planning and staffing organizational manpower requirements.
- Specify how the managerial tasks of planning, organizing, and controlling can be executed in a variety of circumstances.
- Use accounting and business terminology, explain the objective of financial reporting and related key accounting assumptions and principles.
- Explain the basic principles of creating Java applications with graphical user interface (GUI).
- Describe the options for employee separation/termination.

Programme Outcomes

PO1: Students will able to understand problem solving competence while using C language.

PO2: Students will gain the knowledge of awareness about automation.

PO3: Students will have an exposure towards complex commerce problems and their solution.

PO4: Students will apply appropriate techniques, resources, modern IT tools in understanding, analyzing, developing computer programs in the areas related to algorithm, web design and networking for efficient design of computer based system.

PO5: Enhance communication skills so that they can effectively present technical information in oral and written reports.

PO6: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PO7: Demonstrate knowledge and understanding of the computer and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO8 Students will be able to demonstrate, understand leadership and management principles.

PO9: Capable to become an entrepreneur who can provide solution and develop software products for enterprise needs.

PO10: Write complex SQL queries to retrieve information for business decision making from databases with many tables.

PO12: Evaluate the performance of memory allocation and replacement techniques.

PO13: Design data warehouse with dimensional modeling and apply OLAP operations.

PO14: Students will integrate and synthesize the various approaches to organizational and HR problems.

PO15: Analyze theories and practices of organizational behavior and culture to examine change, foster diversity, and evaluate methods that influence change.

PO16: An ability to Design, implements, and evaluates a computer-based system, process, component, or program to meet desired needs.

Programme Specific Outcome

PSO1- Explain the basic concepts of Human resources management and its applications in the individual, team and organizational levels.

PSO2- Demonstrating ability to evolve strategies for organizational benefits.

PSO3- Imparted knowledge required for planning, designing and building Complex Application Software Systems.

PSO4- Deliver professional service with updated technologies in computer application based career.

PSO5- Produced entrepreneurs who developed customized solutions for small and medium enterprises.

PSO6- Our graduates will apply basic principles and practices of computing, grounded in mathematics and science to successfully complete hardware, software related engineering projects to meet customer business objectives, productively engage in research.

PSO7- Solve problems in areas like Software Design and Development, Computer Architectures and Operating System, web systems, Computer Networks and Database Management Systems to address critical challenges in the field of IT.

PSO8- Write SQL DDL, DML commands to create, modify and drop objects within a relational database. Retrieve and store information in a relational database using SQL in a multi-user, web based environment.

PSO9- The ability to understanding, analyzing and applying management concepts in the areas related to strategy, human resources and finance for efficient running of the business organization of varying complexity in competitive era.

PSO10- Students will learn relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

PSO11- Write the statement using logical operation.

PSO12- Find the inverse of matrix.

PSO13-Use the underlying unifying structures of mathematics. (i.e. sets, relations and functions, logical structure) the relationship among them.

PSO14- Demonstrate practical applications of these statistical and optimization methods in the field of Computer Sciences and Applications.

PSO15- Ability to understand and write effective project reports in multidisciplinary environment in the context of changing technologies.

Course Outcome of BCA-I (Sem-I)

Fundamentals of Computer (CC-101)

CO1- Identify and analyze computer hardware, software, and network components.

CO2- An ability to understand computer buses and input/output peripherals.

CO3- Demonstrate a basic understanding of computer hardware and software. Apply logical skills to programming in a variety of languages.

CO4- Familiarize operating systems, programming languages, peripheral devices, networking, multimedia and internet.

CO5- Apply the knowledge and understanding the functions of various hardware components and their building blocks.

CO6- Outline Computer Number System and solve Numerical Problems based on it.

Introduction to Programming Using C (CC-102)

CO7- Implements the algorithms and draw flowcharts for solving Mathematical problem.

CO8- Designing and developing Computer programs, analyzes, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage.

CO9- Explain different stages of an instruction execution.

CO10- Identify user defined functions, categories of function and recursion, structures and unions.

CO11-Develop confidence for self-education and ability for life-long learning needed for computer language.

CO12- Write small programs using arrays, strings, structures, unions, functions and pointers.

Principles of Management (AEC-103)

CO13- Familiarizes the basics and levels of principles of management.

CO14- Describe work of major contributors to the field of Management.

CO15- Knowledge gain by what a manager does, and how they are integral to planning, organizing, leading, and controlling a modern organization.

CO16- Explain basic principles, functions and different management theories.

CO17- Recognize the importance of employee motivation and how to promote it.

CO18- Compare the processes of developing and implementing information systems.

Business Communication (AEC-104)

CO19- Explain the concept of communication and types.

CO21- Discuss the importance of effective communication in business.

CO22- Demonstrate his verbal and non-verbal communication ability through presentations.

CO23- Draft effective business correspondence with brevity and clarity.

CO24- Display effective oral and written communication skills in the professional context.

CO25- Creates effective business correspondence with clarity.

Office Automation (AEC-105)

CO26- Use of office automation, internet and internet tools.

CO27- Documents, spreadsheets, make small presentations and would be acquainted with internet.

CO28- Discuss the theory of Computer Organization to provide an insight of how basic computer components are specified.

Lab Course (CCL 106) –I Based on CC102

CO29- Describe and trace the execution of programs written in C language.

CO30- Write the C code for a given algorithm.

CO31- Usage of Arithmetic operator, Conditional operator, logical operator and relational operators and other C constructs.

CO32- Solve programs using functions.

Lab Course (CCL 107) -II Based on AEC 105

CO33- Use internet and internet tools.

CO34- To perform presentation skills.

CO35- MS Word Documents.

CO36- Present conclusions effectively, orally, and in writing.

BCA-I (SEM-II)

Database Management System (CC-201)

CO37- To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.

CO38- Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.

CO39- Familiar with basic database storage structures and access techniques: file and page organizations, indexing methods including B tree, and hashing.

CO40- Sketch ER-models to represent simple database application scenarios.

CO41- Outline the concepts of database architecture, client server architecture and distributed database concepts.

CO42- Improve the database design by normalization.

Operating System (CC-202)

CO43- Outline the basics of operating systems like kernel, shell, types and views of operating systems.

CO44- Explain the various features of distributed OS like UNIX, Linux, windows etc.

CO45- Describe the function of various internal computer components.

CO46- Learn different types of operating systems along with concept of file systems used in operating system.

CO47- Clarify various memory management techniques and concept of thrashing.

CO48- Recognize files system interface, protection and security mechanisms.

Object Oriented Programming Using With C++ (CC-203)

CO49- Analyze, write, debug, and test basic C++ codes using the approaches introduced in the course.

CO50- Classify inheritance with the understanding of early and late binding, generic programming.

CO51- Examine object-oriented programming and advanced C++ concept.

CO52- Use virtual and pure virtual function and complex programming language.

CO53- Explain dynamic memory management techniques using pointers, constructors, destructors, etc.

CO54- Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.

Financial Accounting with Tally (AEC-204)

CO55- Develop computer skills of recording financial transactions, preparation of annual accounts and reports using Tally.

CO56- Employ basic accounting terminology, procedures and systems of maintaining accounting records.

CO57-Gain the Knowledge in the practical applications of accounting, learn principles and concepts of Accountancy, company accounts etc.

CO58- Explain the basics of tally and computerized accounting.

CO60- Analyses interpret and communicate the information contained in basic financial statements and explain the limitations of such statements.

Mathematical Foundations for Computer Applications (AEC-205)

CO61- Define various types of sets and find complement of various sets.

CO62- Explain union, intersection and difference of sets.

CO63- Define sets, different types of sets and apply De-Morgan's laws for solve examples on sets.

CO64- Relate elementary transformations to find inverse of a matrix.

CO65- Find degree of vertex, isolated vertex and Pendant vertex.

CO66- Write the matrix for given graph or Draw graph for given adjacency matrix and incidence matrix.

Lab Course (CCL 206)-III Based on CC201 and AEC 204

CO67- Classify MS-Access DBMS and design database.

CO68- Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.

CO69- Creates Company using Tally ERP.

CO70- Use basic accounting, ledger, banking and other business roles using Tally.

CO71- Work with MS-Office and Tally, in MS-PowerPoint, MS-Access and Tally.

Lab Course (CCL 207)-IV Based on CC 203

CO72- Prepare students in programming using object oriented concepts with C++.

CO73- Solve the concepts of object-oriented programming.

CO74- Developing applications using Friend functions, Inheritance and polymorphism.

CO75- Design and implement programs using classes, objects and operator overloading.

CO76- Relate virtual and pure virtual function & complex programming situations.

BCA-II (SEM-III)

Cost Accounting (301)

CO77- Exposes the students to the basic concepts and the tools used in cost accounting.

CO78- Classify the tools and techniques used in transport and contract costing.

CO79- Describe the various incentive scheme, overhead apportionment and reapportionment techniques that are applied to manufacturing and service business.

CO80- Identify the reasons for different result of accounts and Ascertainment of Material and Labor Cost.

CO81- Explain Basic Cost concepts, Elements of cost and cost sheet.

CO82- Differentiate methods of pricing of material issues FIFO, LIFO, Simple Average, weighted Average.

Human Resource Management (302)

CO83- Recognize the basic concepts of human resource management.

CO84- Discuss the applicability of HRP.

CO85- Classify various steps- recruitment, selection, training, development, maintenance and appraisal of human factor at work and their legal provisions.

CO86- Facilitate the knowledge about performance appraisal and different method.

CO87- Ability to implement practices related employee separation.

System Analysis & Design (303)

CO88- Identify and describe the phases of the systems development life cycle.

CO89- Explain the need for and value of a formalized step-by-step approach to the analysis, design, and implementation of computer information systems.

CO90- Analyze business problems and develop a requirements document, written in clear and concise business language.

CO91- Various test processes and continuous quality improvement.

CO92- Developing and presenting a Requirements Definition Proposal for a new system in a well-structured business proposal.

Object Oriented Programming with C++ (304)

CO93- Solve the concepts of class, method, constructor, instance, data abstraction, function abstraction, inheritance, overriding, overloading, and polymorphism.

CO94- Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming.

CO95- Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.

CO96- Know the principles of oops concept and control structure.

CO97-Capable to work with files, file pointers and its manipulations.

CO98- Analyze the strengths and applications of standard template library in C++ language.

Computer Oriented Statistical Methods (305)

CO99- Distinguish between elements and variable in statistics.

CO100- Summarize qualitative and quantitative data.

CO101- Compute the measures of central tendency.

CO102- Work out the different measures of dispersion.

CO103- Interpret to correlation coefficient and regression coefficients.

Lab Course Based on (306) paper No. 304

CO104- Discuss the difference between the top-down and bottom-up approach.

CO105- Write **the object-oriented programming approach in connection with C++.**

CO106- Illustrate the process of data file manipulations using C++.

CO107- Relate virtual and pure virtual function & complex programming situations.

Lab Course based on (307) Paper No. 305

CO108- Compute various measures of central tendency, dispersion, moments, skewness and kurtosis.

CO109- Interpret summary Statistics of computer output.

BCA-II (SEM-IV)

Entrepreneurship Development (401)

CO110- Discuss the concept of entrepreneurship.

CO111- Explain Theories of Entrepreneurship.

CO112- Identify the causes for industrial sickness.

CO113- Classify the creative process of opportunity identification and screening.

CO114- Preparing them to set up and manage their own small units.

Organizational Behavior (402)

CO115 - Analyze and compare different models used to explain individual behavior related to motivation and rewards.

CO116- Explain group dynamics and demonstrate skills required for working in groups.

CO117- Identify the various leadership styles and the role of leaders in a decision making process.

CO118- Discuss the implementation of organizational change.

CO119- Categorizes the processes used in developing communication and resolving conflicts.

CO120- Justify the role of leadership qualities, Motivation Group dynamics and Team Building.

Database Management using MS-Access (403)

CO121- Explain database concepts and explore the Microsoft Office Access environment.

CO122- Constructs a new database with related tables.

CO123- Attach transactional records to a lookup database and work with the records in a database table.

CO124- Create simple and effective queries and create meaningful reports from tables.

CO125- Query a database using different methods.

CO126- Outline the concepts of database architecture, client server architecture and distributed database concepts.

Web Technology (404)

CO127- Gains the skills and project based experience needed for entry into web application and development careers.

CO128- Capable to connect a java program to a DBMS and perform insert, update and delete operations on DBMS table.

CO129- Familiar with client server architecture and able to develop web applications.

CO130- Analyze given assignment to select sustainable web development and design methodology.

CO131- Develop solution to complex problems using appropriate method, technologies, frameworks, web services and content management.

CO132-Create and communicate between client and server, to create good and effective dynamic websites.

Computer Mathematics (405)

CO133- Define sets, different types of sets and apply De-Morgan's laws for solve examples on sets.

CO134- Relate elementary transformations to find inverse of a matrix.

CO135- Find degree of vertex, isolated vertex and Pendant vertex.

CO136- Write the matrix for given graph or Draw graph for given adjacency matrix and incidence matrix.

Lab Course Based (406) on Paper No. 403 and 404

CO137- Demonstrate an understanding of the relational data model.

CO138- Formulate, using SQL, solutions to a broad range of query and data update problems.

CO139- Develop web based application using suitable client side and server side web technologies.

CO140- Develop solution to complex problems using appropriate method, technologies, frameworks, web services and content management.

Mini Project (407)

CO141- Design and develop dynamic web pages with good aesthetic sense of designing and latest technical know-how's.

CO142- Have a good understanding of Web Application Terminologies, Internet Tools other web services.

CO143- Learn how to link and publish websites.

.BCA-III (SEM-V)

Management Accounting (501)

CO144- Determine the techniques of Management Accounting.

CO145- Use ratio analysis in decision making process of the management.

CO146- Analyze cost-volume-profit techniques to determine optimal managerial decisions.

CO147- Use cost-volume-profit analysis in decision taking.

CO148- Describe the budget and budgetary control.

CO149- Describe about the nature, scope, objectives and functions of management accounting.

E-Commerce (502)

CO150- Basic concepts and technologies used in the field of management information systems.

CO151- Recognize and discuss global E-commerce issues.

CO152- Analyze the impact of E-commerce on business models and strategy.

CO153- Comprise rich knowledge of types of E-commerce exist in market i.e. B2B, B2C, C2C, C2B.

CO154- Analysis the difference between Governance and E governance.

CO155- Discuss various E-business Strategies.

CO156-Discuss the way to explore various sectors i.e. Tourism, Share market, E – Banking, and etc.

Computer Network (503)

CO157- Independently understands basic computer network technology.

CO158- Familiarize the student with the basic taxonomy and terminology of the computer networking area.

CO159- Familiarize with the Transmission Media, Flow Control and Error Detection & Correction.

CO160-Discuss the working principle of various communication protocols.

CO161- Describe, analyze and evaluate a number of data link, network, and transport layer protocols.

RDBMS with Oracle (504)

CO162- Describe the fundamental elements of relational database management systems.

CO163- Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.

CO164- Gain knowledge of the concepts of Join & sub queries.

CO165- Enhance Programming and Software Engineering skills and techniques using SQL and PL/SQL.

CO166-Formulate SQL queries on data using basic DDL, DML and DCL commands.

CO167-Recognize and identify the use of normalization and functional dependency.

Visual Programming (505)

CO168- Discovers the C# language of the .net technology of Microsoft Corporation.

CO169- Explain the Visual Basic Integrated Development Environment.

CO170- Implement an efficient scalable software solution in the form of web or windows application.

CO171-Connect a web application to a Database and perform select, insert, update and delete operations on database table.

CO172- Files manipulation and data access with ADO.Net.

CO173-Discuss additional Visual Basic controls.

Lab exercise based (504 and 505) on paper 504- RDBMS with Oracle

Lab Course based on Paper 505: Visual Programming

CO174- Explain the features of database management systems and Relational Database.

CO175- Design conceptual models of a database.

CO176- Retrieve any type of information from a data base by formulating complex Queries in SQL.

CO177- Build indexing mechanisms for efficient retrieval of information from a database.

CO178-Apply skills in Design and Development of Software systems, Operating System, Database Management, Computer networks and Web Technologies.

Mini Project (507)

CO179- Students will be able to practice acquired knowledge within the chosen area of technology for project development.

CO180- Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach.

BCA-III (SEM-VI)

Strategic Management (601)

CO181- Explain the basic concepts, principles and practices associated with strategy formulation and implementation.

CO182- Assess the contribution of strategic leadership to managing the process of strategic change.

CO183- Discuss the crucially important role that the HRM function plays in the setting and implementation of an organization's strategy.

CO184- Demonstrate a clear understanding of the concepts, tools & techniques used by executives in developing and executing strategies and will appreciate its integrative and interdisciplinary nature.

CO185-Recognize the different stages of industry evolution and recommend strategies appropriate to each stage.

CO186- Develop their capacity to think and execute strategically.

Data Mining and Data Warehousing (602)

CO187- Design data warehouse with dimensional modeling and apply OLAP operations.

CO188- Identify appropriate data mining algorithms to solve real world problems.

CO189- Benefit the user experiences towards research, innovation and Integration.

CO190- Describe the designing of Data Warehousing so that it can be able to solve the root problems.

CO191- Explain the various tools and techniques of Data Mining to solve the real time problems.

CO192-Characterize the kinds of patterns that can be discovered by association rule mining, classification and clustering.

Linux Operating System (603)

CO193- Explain basic concepts of Linux Operating System.

CO194- Familiar with Linux commands.

CO195- Discuss shell programming.

CO196- Recognizable with system administration.

CO197- Outline various types of servers.

CO198-Describe and apply various command line utilities.

Java Programming (604)

CO199- Enhance the knowledge of object-oriented programming using the Java programming language.

CO200- Implement, compile, test and run Java programs comprising more than one class, to address a particular software problem.

CO201- Demonstrate simple data structures like arrays in a Java program.

CO202- Discuss the concept of package, interface, multithreading and File handling in java.

CO203- Use of members of classes found in the Java API.

CO204- Explain the applets and exception handling mechanisms.

Lab Course based (605) on Paper no- 603

CO205- Discovers UNIX structure, commands, and utilities.

CO206- Describe and understand the UNIX file system.

CO207- Write shell scripts in order to perform shell programming.

CO208- Gain knowledge about text processing utilities, process management and system operation of UNIX.

Lab Course based (606) on Paper no. 604

CO209- Student should know the model of object oriented programming and fundamental features of an object oriented language.

CO210- Student should know how to test, document and prepare a professional looking package for each business project.

CO211- Student have the ability to write a computer program to solve specified problems and to use the Java SDK environment to create, debug and run simple Java programs.

CO212- Student will be able to explain and develop programs for inheritance, multithreading, applets, exception handling and file handling.

Major Project (607)

CO213- Implement their ideas/real time industrial problem/ current applications from their domain.

CO214 - Develop plans with help of team members to achieve the project's goals.

CO215- Estimate and cost the human and physical resources required, and make plans to obtain the necessary resources.

CO216- Allocate roles with clear lines of responsibility and accountability and learn team work ethics.

CO217- Communication skills to effectively promote ideas, goals or products.

CO218- Design the software using concepts of SDLC and SE.

DEPARTMENT OF ENGLISH: (P.G)

Programme Outcomes: M.A. (English)

After completion of this Programme students will be able to:

PO1: Read, appreciate wide range of texts related to language, literature and theory

PO2: Comment on major literary works of the periods with the help of representative texts and literary movements, genres and critical theories.

PO3: Apply basic concepts of linguistic theory to given texts.

PO4: Comment on global developments in Literature, Language and Theory.

PO5: Demonstrate competence in English, Soft Skills, Computer and Research Skills.

PO6: Prepare for language proficiency tests like GRE-TOEFL, IELTS etc.

PO7: Comment on developments in other branches of knowledge like Political Science, Philosophy, Psychology, Theatre and Film Studies, Culture Studies, Subaltern Studies, Gender Studies, etc.

PO8: Demonstrate presentation skills.

PO9: Try to compose literary genres.

PO10: Demonstrate enhancement of human value and human nature.

Programme Specific Outcomes (MA)

PSO1: Demonstrate increased literary competence

PSO2: Use communication skills effectively in personal, social and professional life.

Course Outcomes:

MA1 (Sem1)

C1: Poetry in English up to 19th century

CO1: Explain development of the poetry in Greek Poetry, Russian Poetry, French Poetry and American Romanticism

CO2: Read, recite, appreciate and analyze the poems properly.

CO3: Demonstrate enhancement in vocabulary

CO4: Identify the difference between Indian English poetry and European poetry

CO5: Categorize the poetic devices

CO6: Identify the symbols in the French Symbolist poetry

MA1 (Sem1)

C2: Fiction in English up to the end of 19th century

CO7: Comment ideological or socio-political contexts of novels.

CO8: Demonstrate improvement in creative and imaginative faculties through the reading of novels.

CO9: Explain various aspects of the novel

CO10: Comment on rise and development of British Novel

CO11: Illustrate the major trends in the 19th century's fiction

CO12: Discuss features of 19th century American short fiction

MA1 (Sem1)

C3: Introduction to Modern Linguistics

CO13: Explain the major concepts in linguistics

CO14: Apply seven types of meaning to the text

CO15: Illustrate principles in pragmatics.

CO16: Comment on speech act theory

CO17: Discuss branches of linguistics

CO18: Find out the basic concepts of linguistics in task

MA1 (Sem1)

Gr1E1 – British Renaissance Literature

CO19: Explain intellectual background of British Renaissance

CO20: Comment on epic tradition with reference to epics prescribed

CO21: Explain Shakespearean tragedy, Elizabethan lyricism

CO22: Demonstrate the enhancement of LSRW

CO23: Explain human nature and values

CO24: Discuss Spenserian sonnet

MA1 (Sem2)

C4: Modern and Postmodern Poetry

CO25: Explain development of the poetry in Modern Australian poetry Modern British Poetry Harlem Renaissance Modern Indian Poetry

CO26: Read, recite, appreciate and analyze the poems properly.

CO27: Demonstrate enhancement in vocabulary

CO28: Compose Short poems

CO29: Discuss Modern Indian Poetry

CO30: Find out poetic devices in prescribed poems

MA1 (Sem2)

C5: Modern and Postmodern Fiction

CO31: Comment ideological or socio-political contexts of novels.

CO32: Explain various aspects of the novel

CO33: Compose short narratives

CO34: Illustrate feminist perspective in postmodern Indian fiction

CO35: Discuss postmodernism in fiction

CO36: Identify nationhood in Modern fiction

MA1 (Sem2)

C6: Sociolinguistics and Stylistics

CO37: Explain the concept of sociolinguistics.

CO38: Discuss relationship between language and society

CO39: Apply types of meaning for interpretation of texts

CO40: Do stylistic analysis of poem

CO41: Identify stylistic devices

CO42: State the differences between ordinary language and language of literature

MA1 (Sem2)

Gr1E 2 – British Neoclassical and Romantic Literature

CO43: Explain development of English literature in neo classical and romantic age

CO44: Comment on features of romantic literature

CO45: Comment on features of neoclassical literature

CO46: Recite and do presentation of poems

CO47: Demonstrate the enhancement of LSRW

CO48: Explain human values

MA – II (Sem3)
C7: Drama in English up to 19th century

CO49: Explain features and aesthetic of Sanskrit Drama, Greek Drama, Elizabeth Drama

CO50: Comment on realism in Drama

CO51: Do presentations of dramatic pieces and dialogues

CO52: Analyze prescribed drama with reference to contemporary movements of Drama

CO53: Demonstrate enhancement of knowledge and human life values and nature

CO54: Demonstrate enhancement of language skills (LSRW

MA II (Sem3)

C8: Critical Theory- I

CO55: Analyse texts with reference to psycho analytical criticism, Marxist criticism, structuralism criticism, post structuralism criticism, post-colonialism

CO56: Do presentation on critical theory

CO57: Demonstrate enhancement of language skills (LSRW)

CO58: Comment on Critical theory

CO59: Find out the co-relationship of psychology and literature

CO60: Discuss detective fiction with the theory of Vladimir Propp

MAII (Sem3)

G1 E 3 – Victorian and Early Modern Period:

CO61: Explain the feature of major genres in Victorian and Early Modern Period.

CO62: Interpret the vocabulary used in Victorian period

CO63: Demonstrate enhancement of language skills (LSRW)

CO64: Comment on literary movements in the period

CO65: Discuss aspects of Victorian novel

CO66: Find out characteristics of 19th century British Drama

MAII (Sem3)

G1E 4 – Modern and Postmodern British Literature

CO67: Comment on Modern and Post modern British Literature

CO68: Comment on contemporary social life depicted in various genres of literature

CO69: Demonstrate enhancement of language skills (LSRW)

CO70: Explain human values.

CO71: compose short stories, poems or essays

CO72: Do presentations on British literature

MAII (Sem4)

C9: Drama in English: Modern & Postmodern

CO73: Explain features and aesthetic of Sanskrit Drama, Greek Drama, Elizabeth Drama

CO74: Comment on realism in Drama

CO75: Do presentations of dramatic pieces and dialogues

CO76: Analyze prescribed drama with reference to contemporary movements of Drama

CO77: Explain human life values and nature

CO78: Explain characteristics of Epic Theatre

MA II (Sem4)

C10: Critical Theory- II

CO79: Analyse texts with reference to psycho analytical criticism, Marxist criticism, structuralism criticism, post structuralism criticism, post-colonialism

CO80: Do presentation on critical theory

CO81: Demonstrate enhancement of language skills (LSRW)

CO82: Comment on Critical theory

CO83: Find out the co-relationship of psychology and literature

CO84: Discuss detective fiction with the theory of Vladimir Propp

MAII (Sem4)

G1E 5 – Special Author: Kingsley Amis (For PG Centers and Distance Mode Students only) General

After completion of this course students will be able to:

CO85: Explain the key features of Kigsley Amis

CO86: Comment on style and diction of Kingsley Amis

CO87: Interpret kingsley Amis novels with reference to contemporary society and history

CO88: Do Presentation on novels of Kingsley Amis

CO89: Narrate themes of fictions of Kingsley Amis

CO90: Demonstrate enhancement of language skills (LSRW)

MAII (Sem4)

G1E6 – British Women Writers

CO91: Explain concept of patriarchy

CO92: Interpret text with reference to feminist view

CO93: Narrate themes in the works of British women writers

CO94: Explain status of women in contemporary society

CO95: Discuss major trends in the 20th century feminine genre

CO96: Illustrate features of the 20th century women poetry

ABBRIVATIONS:

1. IT : Information Technology
2. GNP : Gross National Product
3. NNP : Net National Product
4. GDP : Gross Domestic Product
5. KYC : Know Your Customer
6. NPA : Non-Performing Assets
7. SEBI : Securities and Exchange Board of India
8. EXIM Bank : Export-Import Bank of United States
9. FDI : Foreign Direct Investment
10. PPP theory : Purchasing Power Parity Theory
11. RBI : Reserve Bank of India
12. NBFCs : Non-Banking Financial Companies
13. AIFI : All India Financial Institutions
14. NABARD : National Bank for Agriculture and Rural Development
15. SIDBI : Small Industries Development Bank of India
16. NHB : National Housing Bank
17. MSME's : Micro, Small & Medium Enterprises
18. IMF : International Monetary Fund
19. IBRD : International Bank for Reconstruction and Development
20. WTO : World Trade Organization
21. SAARC : South Asian Association for Regional Cooperation
22. IRDA : Insurance Regulatory & Development Authority.LIC: Life Insurance Corporation of India.
23. ERP : Enterprise Recourse Planning.GST: Goods and Service Tax.
24. CRM : Customer Relationship Management.SCM: Supply Chain Management.
25. TQM : Total Quality Management.
26. SEBI : Securities Exchange Board of India. MSME: Micro, Small and Medium Enterprises.
27. GUI : graphical user interface.
28. SQL : Structured Query Language.
29. OLAP : Online analytical processing.
30. IT : Information technology.
31. DDL : Data Definition Language.
32. DML : Data Manipulation Language.

33. DBMS : Database Management System.
34. OS : Operating System.
35. Linux : Lovable Intellect Not Using XP.
36. FIFO : First In, First Out.
37. LIFO : Last in Last Out.
38. HRP : Human Resource Planning.
39. B2B : Business to Business.
40. B2C : Business to Customer.
41. C2C : Customer to Customer.
42. C2B : Customer to Business.
43. DCL : Data Control Language.
44. APL : Above Poverty Line.
45. SDLC : Software Development Life Cycle.
46. SE : Software engineering.

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