



ST. ALOYSIUS' COLLEGE

AUTONOMOUS
JABALPUR- 482001
MADHYA PRADESH, INDIA

CRITERION-1

CURRICULAR ASPECTS



Key Indicator – 1.1



Curriculum Design and Development

Metric No.: 1.1.1

Curricula have relevance to the Local, Regional, National and Global developmental needs which is reflected in Programme outcomes (POs), Programme Specific outcomes (PSOs) and Course Outcomes (COs) of the Programmes offered by the Institution

Document Name

Topics Addressing Local, Regional, National and Global Needs in Program Curriculum



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**TOPICS
ADDRESSING
LOCAL, REGIONAL, NATIONAL AND GLOBAL
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IN
PROGRAM CURRICULUM**



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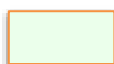
The College strongly believes in staying relevant and has always been responsive to developing and delivering curricula that address local, regional, national, and global developmental needs. To achieve this, various topics are included in the curricula which are duly approved by BOS, the Academic Council, and the Governing Body.

These topics are implemented through practical, assignments, training sessions, field internships and research projects, etc.

Local



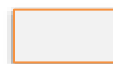
Regional



National



Global



Departments	Local	Regional	National	Global
ARTS FACULTY				
History	Study of Madan Mahal Fort and Chousath Yogini Temple in Jabalpur. Rani Durgavati's Dynasty and Mughals	Gouri Dynasty of Malwa: Dilawar Khan, Hoshangshah and their achievements	Gandhi Era And Indian Independence. Bhakti movement in India	Industrial Revolution in Europe and the USA
Political Science	Role of Collector in Governance of Jabalpur District. DRDO	Civil Services Recruitment Procedure regarding Madhya Pradesh	National Commission for SCs and STs. National Commission for Women	United Nations. The World Bank
	73 & 74 Constitutional Amendment	High Court, State Legislature, State PSC, Control and Supervision over Local Bodies,	Supreme Court, Union Legislature, National Commission for SCs, STs, Women,	Concept of Democracy



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		Districts, and State	UPSC, Community Development Program	
	Role of Panchayati Raj Institution	Lokayukt	Lokpal	
Economics	Local livelihood strategies, Agricultural Marketing, Organic Farming and Polyhouse	Madhya Pradesh's Economy, Trends, and Regional Disparities in the Agricultural Sector of Madhya Pradesh	New Technologies in Agriculture, Make in India and Aatmanirbhar Bharat, National Population Policy	Foreign Direct Investment, Multi-National Corporations, International Bodies
	Industries Localization, Rural Development	Development of Tourism in Madhya Pradesh, Employment Oriented Schemes in Madhya Pradesh, Panchayati Raj, Regional Rural Bank, Mukhya Mantri Kaushalya Yojna	Inflation in India, Latest Budget of Central, Industrial Policy, Migrant Labour in India	Online IEC, Custom Procedures, Export Incentives
Hindi	इंद्र बहादुर खरे, सेठ गोविंद दास की रचनाएं Subhadra Kumari Chauhan's contribution to Poetry	बुंदेली भाषा साहित्य, पूरनचंद श्रीवास्तव की रचनाएं, ऊषाकिरण तारामः (गोंडवाना दर्शन)	हिंदी साहित्य का इतिहास. भारतेंदु हरिश्चंद्र, सूर्यकांत त्रिपाठी निराला, महादेवी वर्मा, अज्ञेय, मुक्तिबोध	कबीर दास, सूरदास, गोस्वामी तुलसीदास की रचनाएं





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English	Subhadra Kumari Chauhan- Contribution to Indian Poetry	<i>Sundarkand- The Hymns of Himalaya</i> by Dr. Akhilesh Gumasta	<i>Sadhana: The Realisation</i> (Rabindranath Tagore) M R Anand – <i>Untouchable</i>	Jhumpa Lahiri- <i>Interpreter of Maladies</i>
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SCIENCE FACULTY

Departments	Local	Regional	National	Global
Computer Science	Developing a Predictive Model on “Identification of Diabetic and Non-Diabetic Patients using Classification Technique” in Jabalpur Hospital. Creating PowerPoint presentations on college assembly	Awareness of E-Governance Services in M.P. Practical on creating worksheets and visualization of data for crop production for Indian states (for MP region)	Cyber law and IT Act 2000 and its amendments, Finance and account information system, Practical on creating worksheet and visualization of data for crop production for Indian states, Cyberlaw and Indian it act	Emerging technological trends: Artificial Intelligence, Machine Learning, Block Chain. International information system, Swings, awt classes, Satellite image processing, cloud analytics
Chemistry	Water Testing Study: Acidity, Alkalinity, and Hardness in water, samples of cantonment Jabalpur, Colloidal solution, classification, properties, and applications. Electrochemical Series and its significance, Saponification value,	Comparative analysis of Adulterants in Milk samples (Sanchi, Amul & local vendors), Factors influencing the rate of reaction – concentration, temperature,	Medical Drug Analysis: A Comparison of Generic & Branded Allopathic medicine, Contribution of ancient Indian Scientist in chemistry. Application of coordination	Contribution of Woodward Hoffman (Noble laminate in pencyclic chemistry, Drug analysis –A comparison of Generic and branded medicine. Nuclear reaction and application of radiochemistry.



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	iodine value & acid value, Synthetic detergent and dyes,	light, and catalyst. Green synthesis of organic compound. Water analysis: DO, BOD, COD	compounds & chelates, Application of Raman, UV, and electronic Spectra	Separation of Np, Pu & Am from uranium. Ultraviolet (UV) absorption spectroscopy:
Physics	Study of hydroelectric power plants in Bargi Dam Jabalpur, Conveyor belt –hopper, Heat engine, Antireflection coating; Dielectric Mirrors; Interference filter, Musical notes; Musical scale, Acoustic aspects of halls and auditoria, Plane diffraction grating, Telescope, Application of polarization: Sunglasses; An overview of thermal and hydroelectric power plants in Bargi, Jabalpur, Madhya Pradesh, Continuous and characteristic X-rays, Light Emitting Diode, Amplifiers	Thermal power generation in Satpura Power Plant, Conveyor belt –hopper, Heat engine, Interference filter, Michelson's Interferometer, Three-dimensional movies; Photography. An overview of thermal and hydroelectric power plants in Madhya Pradesh, Application of X-ray to structure determination, Light Emitting diode and Solar cell, Transistors (PNP and	National Mission on Quantum Technologies and its Applications (NM-QTA), Solar Cell, Single stage and multistage rocket, Otto engine, Diesel engine, Entropy and heat death of universe, Principle of refrigeration, cooling by adiabatic demagnetization , Antireflection coating; Dielectric Mirrors; Interference filter, Cyclotron and Betatron	Universal Theory of Bose-Einstein's Statistics, Single stage and multistage rocket, Otto engine, Diesel engine, Entropy and heat death of universe, Principle of refrigeration, cooling by adiabatic demagnetization, Antireflection coating; Dielectric Mirrors; Interference filter, Electromagnetic wave equations, Continuous and characteristic X-rays, Free particle in one-dimensional bo, Raman, Spectroscopy, Modulation and Demodulation



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		NPN), JFET and Amplifiers		
Maths	<p>Matrix, Vector Calculus, Cone cylinder, Gradient, divergence and curl, Application to geometry, Introduction to Double and Triple Integral, Concavity and Convexity, Sequence of real numbers</p> <p>Limit of a sequence</p> <p>Bounded and monotonic sequences, Interpolation, Graphs, Boolean algebra, Mathematical formulation of a real-world problem as a linear programming, transportation model, individual-group replacement and discount, Transportation, Job Sequencing, Inventory, Mathematical Modelling. algebra, partial order, lattice, graph,</p>	<p>Brahamagupt a- {Ujjain} algebra, geometry, value of pi. Sridhar Acharya – quadratic equation formula. Linear Independence of row and column matrix, tracing of conics, Brahmagupta, Matrix, Cone, Cylinder, Vector Calculus, matrix, Curvature, tracing of curves, Linear differential equation, Ring homomorphi</p>	<p>Ramanujan's contributions to Mathematical Analysis Ramanujan-trigonometry, mathematical analysis. Pingala-Binary numeral system, Rank of Matrix, Indian Mathematical Legacy and Indian Mathematicians - Indian and Classical Period, Indian Logic, Successive differentiation, Quadrature, Indian Mathematical Legacy and Indian Mathematicians - Indian and Classical Period, Indian Logic, Tracing of Conics, Differentiation, Integration Homomorphism and</p>	<p>George Boole- Boolean Algebra Joseph Louis LaGrange- interpolation, Eigen values, Eigen vectors, application of matrices to system of linear equation, Change of variables Euler's theorem on homogeneous functions Taylor's theorem for functions of two variables Jacobians Maxima and Minima of function soft wovariables Ordinary Differential Equations Single-step methods: Picard Taylor's series Metric Space Dijkstra's Algorithm for shortest paths Schreir Refinement theorem, Jordon Holder theorem</p>



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	digraph and weighted graph.	sm, Subring, Ideals, Alternating series and Leibnitz's test Absolute and Conditional Convergence of Series of real terms, ODE, Solution of Equations: Bisection, Secant, Methods.	Isomorphism of groups, Fundamental theorem of homomorphism, Indian Mathematical Legacy	Sylow's first and second theorem Power series, uniqueness theorem for power series. The Zadeh Extension Principle Linguistic variables and Hedges Mathematical modelling through ordinary differential equations, graphs, linear programming and difference equations Transportation, assignment, growth-decay, finance, and population models.
Zoology	Study of local birds: Myna, Koel, Assignment algorithm. Study of Ecosystems WSR Pond ecosystem at Local Level. Estimation of protein, carbohydrates, and fat of locally available samples. Multiple factors and	Common genetic disorders and Syndrome. Prawn Culture and Aquatic Insects. Carp culture, Freshwater Fishes. Wild life Protection Act, National Parks and	Comparative analysis of short DNA sequences using PCR thermocycler. History and Indian Traditional Knowledge of Aquaculture. Aquaculture resources in India. Pearl	Biomolecules, Buffer system, Enzymes, Vitamins Mendel's laws Oyster culture and pearl culture, Marine Fishes, Carp Culture technique Chines and European System International organizations –



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	<p>blood groups. Population, Estimation, Pug Marks, Ecotourism, Local Communities. Taxonomic identification of pests of vegetables and stored grains of Jabalpur district. Detection of Human Blood groups, Total differential count, Haemin crystal, clotting time of human blood. Study of common weeds of fish ponds. Age determination of teleost fish with the help of scales. Survey of local fish market</p>	<p>Sanctuaries of Madhya Pradesh. Historical background of sericulture. Life cycle of Bombyx mori. Preparation of Map showing extension of sericulture in India. Semen analysis – sperm count and sperm motility. National Parks, Sanctuaries and Biosphere Reserves of MP. Problem based on demography Study of human fingerprints</p>	<p>Industry in India. Rare, Endangered & Threatened (RET) species of India. Important wild animals of India. Estimation of DNA / RNA. Riverine fisheries of India. Cold water fisheries in India. Coastal fisheries in India. General ecological characteristics of reservoirs of India. Marketing of Fish in India and Basic verities of fish weed</p>	<p>IUCN and WWF Tooles and Techniques in Biology General characteristics and outline classification of Phylum Chordata up to orders according to Parker and Haswell, Seventh Edition and Comparative Study. Gamete Biology, Development and Differentiation</p>
Botany	<p>Study of millets: Kodo, Kutki, microflora, varieties grown in Jabalpur region. Study of local weeds of Jabalpur {Parthenium: Gajar Ghass}, Red Amaranth/ Lal Bhaji, Blue Green Algae</p>	<p>Raw material for Fermentation (Mahua) in the Mahakaushal Region. Plants {Mulberry, Arjun} used to rear silkworms in Madhya Pradesh</p>	<p>National Research Laboratories like CDRI, {Central Drug Research Institute} CIMAP, NBRI, Timber yielding trees {Teakwood} of India</p>	<p>Global environmental problems – ozone depletion, UV-Greenhouse effect</p>



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Biotechnology	Treatment and disposal of medical effluent (waste) in Medical College Jabalpur. Industrial Production of Ethyl Alcohol. Penicillin. Environment: Basic concept, Significance, Public awareness, Environmental pollution. Isolation of DNA from Tissue/Blood/Micro organism from local sources	Prevalence Rate of Malaria, AIDS, Tuberculosis, Filariasis and Kala-azar in M.P. Centrifugation, Colorimeter and spectrophotometer. To identify human blood groups. Effect of UV on microbial/plant cells. Demonstration of southern blotting. Isolation of RNA from Yeast. Introduction to plant tissue culture, Fermentation Technology	Study of Genetically modified organisms in India: BT – Cotton, BT-Branjal. Water: Structure of water, properties of water, interaction of water, role of water in biomolecular structure. Microbiology in Human Welfare. Cancer, Demonstration of Polymerase Chain Reaction Transformation in E-coli cell. Bioreactors for large-scale production of animal cells.	Vaccinology: Covid Vaccines around the Global, Cancer Immunotherapy. Cell as a Basic Unit, Cell cycle and its Regulation and Extracellular Matrix Fundamental, History and evolution of Microbiology, Development of Microbiology, Basics of Immunology, Microbial, Immunological Techniques and Vaccination Genome organization, Cell signaling, DNA replication, recombination, and repair Introduction, History, The advent and importance of gene cloning and the polymerase chain reaction, Enzymes useful in molecular cloning Experimental Proof of DNA as genetic
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				material, Evolution of biological macromolecules, Evolution of early forms. Immunity- Innate and Acquired, History, Equipment and materials for animal cell culture technology
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COMMERCE AND MANAGEMENT

Departments	Local	Regional	National	Global
Commerce	Voucher Entry and Creating Stock Items	Partnership Accounts. Partnership Deed. Simple interest. Evaluation of Goodwill	Indian Accounting Standard, Depreciation Accounting Standard 6. Profit Loss Account and Balance Sheet of the Company, Indian Accounting Standard 14	Computerized Accounting. Commission, Brokerage, profit and loss
	Case Study on Cooperative Organization in Jabalpur, Steps to Start an Enterprise	Choice of Suitable Form of Organization, Steps to Start an Enterprise	MNCs Challenges in India, Steps to Start an Enterprise	Steps to Start an Enterprise
	Basic Problems of Economics	Market Concepts and their classification.	Contribution of Kautilya, Amartya Sen and Abhijeet Banerjee	Nobel laureates in Economics



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	Introduction to Micro Finance	Private Banks	Central banking: RBI and its functions, Modern Banking Practices in India. IRDA: Functions and role to regulate insurance in India, LIC in India	Mobile Banking
	Negotiable Instrument Act 1881	Interpersonal Barriers Consumer Protection Act, 1986	Historical Background of Mercantile Law in India, Indian Partnership Act 1932.	. International Communication for Global Business. Ricardian and modern theories of Rent
	Sales promotion campaigns by local business	Sales Promotion Budget	Historical Background of Sales Promotion in India, Outsourcing sales promotion, National and International promotion strategies	Outsourcing sales promotion, National and International promotion strategies
		Indian Knowledge tradition	Brief history of Vedic mathematics in	Vedic mathematics
	Data collection, primary and secondary data	Data collection, primary and secondary data	Analysis of Time Series.	Analysis of Time Series
			Historical background and Introduction of	Taylor and Scientific Management, Fayol's



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			the financial system in India	Administrative Management
	Assessment of Hindu Undivided Family	SGST State Input Tax Credit	GST in India. Structure and Classification of GST, Levy and Collection of Tax	Custom Duty Assessment of non-resident India
	Factors influencing consumer buying decisions	Channels of distribution	Recent Trends in Marketing in India, Trends in Marketing	Trends in Global Marketing
	Budgetary Control	Budgetary Control	Cash Flow Statement (As per Indian AS 3),	Budgetary Control
	Local bodies and their financial responsibilities Sources of local Finance, division of financial resources between Central and States	Division of financial resources between Central and States	Tax reforms in India, Characteristics of Indian Tax structure, Fiscal Policy	Role of Public Expenditure in Developing Economy
	E-way billing: Provisions regarding generation, cancellation, and Verification of E-way billing	Integrated Goods and Services Tax	Main Provisions and rules regarding Payment of Tax, Maintenance of Electronic Cash Ledger, Payment of Tax	Valuation for customs duty, items to be included in the customs value
	Internal Factors of Business Environment	Social & Cultural Environment	Economic Policies	Social Groups, IMF, Foreign Investment in India