GOVT. DR. INDRAJEET SINGH COLLEGE, AKALTARA DISTT. JANJGIR-CHAMPA (C.G.)

Web site- www.gdiscakaltara.in//Email ID- gdiscakaltara@gmail.com//Phone- 07817-252540

College Code- 3003

PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

DEPARTMENT OF ECONOMICS

PROGRAM- BA, ECONOMICS

PROGRAM OUTCOMES

1. To provide students a well-founded education in economics.
2. To provide structured curricula which support the academic development of students.
3. To provide and adapt curricula that prepares our graduates for employment and further study as economists.
4. To provides the students with the opportunity to pursue courses that emphasize quantitative and theoretical aspects of economics.
5. To provide students with the opportunity to focus on applied and policy issues in economics.

PROGRAM SPECIFIC OUTCOMES

1. To provide programs that allow the students to choose from a wide range of economic specialization.
2. To provide a well-resourced learning environment for economics.
3. Understand the qualitative and quantitative models within the social sciences, especially economics.
4. Learn to apply the methods and theories of social science to contemporary issues.
5. Critically read popular and periodical literature from a social science perspective.

PROGRAM- MA, ECONOMICS

PROGRAMME OUTCOMES

PO1- To impart knowledge about Economics, Particulary the basic concepts principles and to apply such knowledge to political economic and social context.
PO2- To enable the students exhibiting their ability to developed economy of central and state govt.
PO3- To develop in students to analyse Economic Problem.
PO4- To enable the students to have an opportunity to serving as a Economist, Account Officer statistical officer, Bank officer Professor.
PO5- To inculcate in student a sense of ethics and responsibilities.

PROGRAMME SPECIFIC OUTCOMES

The M.A. Economics Program is a four semester (2 Yrs) Integrated Program where students are taught both
Economics courses as well as Environmental Courses after completion the student would be able to -
PSO-1. Critically examine the Economical knowledge in relation to social, political, historical, environmental and scientific context and present critical approach using a wide ranges of sources.
PSO-2. Critically assess the proposal for Economic reforms and compare it with present alternatives.
PSO-3. Serve as a professor, bank officer, statistical officer, economist.
PSO-4. Apply the Economical bases towards finding a economical solution to complex social and economical issues.
PSO-5. Have a basis for advance study.
PSO-6. Have a basis for competition exam.

COURSE OUTCOMES
(Economics)

S. No.	Name of Course	Year/ Semester	Name of Subject/Paper	Course Outcome
1	B.A.I	Paper I	Micro Economics	It enable the students to have knowledge of Nature of Economics Utility, Indifference Curve, Law of Demand, Elasticity of Demand, Isoquants curve, cost, Market, Structure, factor price determination, welfare economics.
2	B.A.I	Paper II	Indian Economy	This Enable to know the Market Economy, Indian Economy, Natural Resources, Planning, Agriculture, Industry, Industrialization, Foreign trade, Balance of payment, Poverty and equality, Unemployment Price- Rise.
3	B.A.II	Paper I	Macro Economics	It helps to understand the National Income, Keynesian theory of Income and Employment consumption function, Investment function, Trade cycle, International trade,

				International Monetary fund, foreign trade.
4	B.A.II	Paper II	Money Banking and Public Finance	It enable the students to have knowledge of – Money, Inflation, Deflation, Commercial Bank, Central Bank, Monetary Policy, Public Finance, Public Expenditure, public Revenue, Taxable capacity, Taxation, Classification of taxes, financial Administration Budget.
5	B.A.III	Paper I	Development and Environmental Economics	It helps to understand the Economic development, population theories of development kart Marx model, The Schumpeterian Model, Mahalanobis four sector Model, Harrods - Domar, Solow, Mead, Smt. John Robinson. Population Environment linkage. Pollution control. Sustainable Development, Intellectual capital food security Globalization and Agricultural Development.
6	B.A.III	Paper II	Statistical Methods	It helps to understand theStatistics, Mean, Median, Mode Quartile Deviation, Mean Deviation, Standard, Deviation, Lorenz curve, Skewness, Karl Pearson's coefficient of correlation, spearmen's coefficient of correlation fishers Ideal Index Number, Time-Series Analysis, Trends.
7	M.A.Sem-I	Paper I	Micro Economic Analysis	It enable the students to know the elasticity of demand, Elasticity of Supply, Utility, Indifference Curve, Revealed Preference Theory, Production Function – Short Period and long period. Euler's theorem, production function cob- Douglass, cast and revenue.
8	M.A. Sem- I	Paper II	Quantitative Methods	It helps the student to have the knowledge of basis of – Linear Programming, concept of game. Coefficient of Skewness – Karl Pearson's and Bowley. Karl Pearson's coefficient of correlation. Spearman's coefficient of correlation. Regression Analysis, Inter Polation and Extrapolation, robability, Fisher's Ideal Index Number.
9	M.A. Sem- I	Paper III	Indian Economic Policy	It helps to understand the National Income, Economic development, Human Development Index, Planning, Demographic Features, Agriculture Sector.
10	M.A. Sem- I	Paper IV	International Trade & Finance	It helps to understand the International Trade, Heckscherohlin theory of International Trade. The terms of trade, tariff, quotas, dumping, balance of payment devaluation.
11	M.A. Sem- II	Paper V (Optional GR-B)	Labour Economics	It gives the knowledge about labour market, rationalization, methods of recruitment, employment service organization in India. Employment and development relationship. Poverty and unemplyment wage determination.
12	M.A. Sem- II	Paper I	Micro Economic Analysis	It provide the knowledge about price and output determination perfect competition, monopoly,

				monopolistic competition,
13	M.A. Sem- II	Paper II	Research Methodology and Computer Application	It extends the knowledge of Association of Attributes, Research methodology, sampling, classification, tabulation, hypothesis, computer.
14	M.A. Sem- II	Paper III	Indian Economic Policy	It gives the knowledge about Industrial sector, fiscal federalism, monetary policy of RBI, export import policy, balanced regional development, WTO and its Impact on different sector of economy. How to prepare a budget of central and state govt.
15	M.A. Sem- II	Paper IV	International Trade & Finance	It enable students to know the concept of Exchange rate, WTO, UNCTAD, IMF, SAARC, Port Folio investment and international trade. Export promotion international debt.
16	M.A. Sem- III	Paper V (Optional GR-B)	Labour Economics	It enables the student to have basic knowledge of Wage Determination, Industrial Relation, Industrial Disputes, social security social insurance, child labour, female labour.
17	M.A. Sem- III	Paper I	Macro Economic Analysis	It enhance the knowledge of National Income, consumption, investment employment theory, demand for money funda mental equation of Keynes bamaul & the money equilibrium charges in the general equalizer.
18	M.A. Sem- III	Paper II	Public Economics	This enable students to know the Taxation, Indian Tax System. Taxable capacity public expenditure, Public Debt budget process in India.
19	M.A. Sem- III	Paper III	Economics of Growth	It makes understand about the economic growth. Capital output ratio, Input-Output analysis, cost benefit analysis, theories of development-Marx, Schumpeter, Keynesian, Mahalanobis, Harroddomar, Arlher Lewis, John Robinson, mead hicks and Hayek Solow model.
20	M.A. Sem- III	Paper IV	Environmental and Welfare Economics	It gives the knowledge of basic principles of Welfare Economics, Social Welfare function, Environmental Economics Theories of Externalities, Marginal social cost. Environmental value. International carbon tax. Environment and WTO.
21	M.A. Sem- IV	Paper V (OPT) (GR-C)	Demography	This enable students of know the demography, population pyramid. Theories of population - malthus theory of optimum population, theory of demographic transition fertility, fertility rate, mortality and morbidity, mortality data.
22	M.A. Sem- IV	Paper I	Macro Economic Analysis	It gives the knowledge of basic principles of quantity theory of money. Determinates of money supply. Concept of Inflation, Business Cycle, Monetary Policy Fiscal Policy.
23	M.A. Sem- IV	Paper II	Public Economics	It enables the student to know the fiscal federalism finance

				commission, fiscal policy and full employment fiscal policy and economic development federal finance, center state financial relation, analysis of central and Chhattisgarh Govt. budget, structure and growth of public expenditure in Chhattisgarh, budget management Act. performance of Chhattisgarh Govt. budget plan and non plan expenditure in Chhattisgarh.
24	M.A. Sem- IV	Paper III	Economic Development and Planning	It enable the students to have knowledge of Economic planning. Achievements of Indian plans. Approaches to evelopment-vicious circle of poverty. Big push theory. Theory of critical minimum efforts, balanced and unbalanced growth. Investment criteria, fiscal and monetary policy. Human capital formation, poverty Income Inequalities, Unemployment. The choice of techniques, sustainable development problem of price rise.
25	M.A. Sem- IV	Paper IV	Economics of Social Sector	It give the knowledge about concept of pollution, Air Pollution control, water pollution control environmental protection. Environment and sustainable development, global warming climate change, green house effect optimum use of resource. Social forestry economics of education. Right to education act health economics HDI, GDI, GEM, HPI.
26	M.A. Sem- IV	Paper V (OPT) (GR-C)	Demography	It provide the knowledge about Mortality, crude death rate, maternal mortality rate, life table, migration and urbanization growth of population in India. Population explosion in India. Population policy in India. Demographic characteristics of developing countries, women empowerment. Family planning strategies. The New population policy. National Population Commission.

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PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

DEPARTMENT OF ENGLISH

PROGRAMME OUTCOMES **(B.A. with English Literature as an Optional Subject)**
PO-1. To impart knowledge of English Language and English Literature among students. PO-2. To enable the students to transform the knowledge of English in their day-to-day life. PO-3. To develop in students the basic skills of LSRW. PO-4. To inculcate in students that English is easy to learn like other languages so there is no need to afraid of learning it. PO-5. To create rational approach among the student to face the challenges in life. PO-6. To make them able to get success in various competition exams.
PROGRAMME SPECIFIC OUTCOMES **(B.A. with English Literature as an Optional Subject)**
On completion of the Programme the students will be able to- PSO-1. Use correct English in oral as well as written form. PSO-2. Use English effectively in formal and informal situations. PSO-3.Understand the unique importance of English that has played a crucial role in building the modern India. PSO-4. Develop language learning skills like Listening, Speaking, Reading and Writing. PSO-5. Develop vocabulary and communicative skills. PSO-6. Understand the real meaning and value of intellectual discipline. PSO-7. Understand major and minor forms of literature. PSO-8. Understand the values of literature in life. PSO-9. Enjoy reading Poems, Plays, Novels and Short Stories. PSO-10. Interpret the literary works by critical analysis. PSO-11. Understand different cultures of the times. PSO-12. Know various genres in English literature like Indian English literature, British literature and American literature. PSO-13. Compare literary works of the great writers and philosophers by using their logic and literary competency. PSO-14. Appear for Competitive Examinations. PSO-15. Get jobs in Public and Private Sectors.

PSO-16. Undertake Teaching career in School level.
PSO-17. Inculcate the human values for one's transformation of behaviour.
PSO-18. Nurture themselves in Soft Skills.
PSO-19. Continue for their further education.

COURSE OUTCOMES
(B.A. with English Literature as an Optional Subject)

SN	Name of Course	Year/ Semester	Name of Subject/Paper	Course Outcome
1	B.A./ B.Sc. / B. Com.	**1**	Foundation Course, English Language	1. To give the Students a first-hand knowledge of Historical and Cultural Heritage of India. 2. To enrich the vocabulary of students by various exercises. 3. To develop in students the basic skills of LSRW. 4. To make them able to write a Paragraph on given topics. 5. To make them able to write Formal and Informal Letters. 6. To make them able to solve the Grammatical questions.
2	B.A./ B.Sc. / B. Com.	**2**	Foundation Course, English Language	1. To give the Students a first-hand knowledge of Major Scientists of India and their contribution in Scientific Research. 2. To enrich the vocabulary of students by various exercises. 3. To develop in students the basic skills of LSRW. 4. To make them able to write Report on given topics. 5. To make them able to write Precis of given passage. 6. To make them able to solve the Grammatical questions.
3	B.A./ B.Sc. / B. Com.	**3**	Foundation Course, English Language	1. To give the Students a first-hand knowledge of Aspects of Developments in India. 2. To enrich the vocabulary of students by various exercises. 3. To develop in students the basic skills of LSRW. 4. To make them able to write Essay on given topics. 5. To make them able to write a Precis of given passage. 6. To make them able to solve the Grammatical questions.
4	B.A.	**1**	English Literature (Paper-I) Literature in English from 1550-1750	1. To give the Students a first-hand knowledge of Major Writers and their Works of the Period. 2. To introduce the Students about the Various Historical and Literary Topics of the period. 3. To provide them with knowledge of the Political, Economic, Social, Intellectual and Literary background so as to enable them to study the works of representative writers of the period. 4. To examine the works of Selected Writers of the period.
5	B.A.	**1**	English Literature (Paper-II)	1. To give the Students a first-hand knowledge of Major Writers and their Works of the Period. 2. To introduce the Students about the Various Historical and Literary Topics of the period.

			Literature in English from 1750-1900	3. To provide them with knowledge of the Political, Economic, Social, Intellectual and Literary background so as to enable them to study the works of representative writers of the period. 4. To examine the works of Selected Writers of the period.
6	B.A.	**2**	English Literature (Paper-I) Modern English Literatures	1. To give the Students a first-hand knowledge of Major Writers and their Works of the Period. 2. To introduce the Students about the Various Literary Terms. 3. To provide them with knowledge of the Political, Economic, Social, Intellectual and Literary background so as to enable them to study the works of representative writers of the period. 4. To examine the works of Selected Writers of the period.
7	B.A.	**2**	English Literature (Paper-II) Modern English Literatures	1. To give the Students a first-hand knowledge of Major Writers and their Works of the Period. 2. To introduce the Students about the Various Literary Terms. 3. To provide them with knowledge of the Political, Economic, Social, Intellectual and Literary background so as to enable them to study the works of representative writers of the period. 4. To examine the works of Selected Writers of the period.
8	BA	**3**	English Literature (Paper-I) Indian Writing in English	1. To give the students a first-hand knowledge of Major Indian English Writers and their Works. 2. To provide them with knowledge of the Political, Economic, Social and Intellectual background so as to enable them to study the works of Major Indian Writers in English. 3. To examine the works of Major Indian Writers in English.
9	BA	**3**	English Literature (Paper-II Optional-A) American Literature	1. To give the students a first-hand knowledge of Major American Writers and their Works. 2. To provide them with knowledge of the Political, Economic, Social and Intellectual background so as to enable them to study the works of Major American Writers. 3. To examine the works of Selected American Writers.
10	BA	**3**	English Literature (Paper-II Optional-B) 20th Century Literature in English	1. To give the students a first-hand knowledge of Major Writers of 20th Century. 2. To examine and analyse the works of Selected Writers of 20thCentury.

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PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

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PROGRAM OUTCOMES

1. Realization of human values.
2. Sense of social service.
3. Responsible and dutiful citizen.
4. Critical temper.
5. Creative ability.

PROGRAM SPECIFIC OUTCOMES

1. To understand the basic concept and subject of Hindi and its origin.
2. To make or not the importance of subject Hindi and its branches.
3. To understand various aspects of Hindi literature with a process to reach method and giving new mode and direction.
4. To make a attempt in different area and theory such as vocabularies and vice versa.
5. To understand in the literature more in a border areas then Mary confined to subject.
6. To know about Hindi literature its root cause perspective and methods.

COURSE OUTCOMES

PROGRAM	COURSE	OUTCOME
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	f}rh; iz"u i= vk/kqfud dkO; ikB~; fo'k;& 1-EkSFkyh "kj.k xqIr& lkdsr uoe lxZ 2-t;"kadj izlkn&dkek;uh& fpark] J)k] yTTkk lxZ 3-ia- lw;Zdkar f=ikBh fujkyk& jke dh "kfDRk iwtk] ljkst Le`fr dqdqjeqŸkk 4-lkekU; v/;;u& v;ks/;k flag mik/;k;]gfjvkS/k] txUukFk nkl jRukdj] egknsoh oekZ] gfjoa"k jk;] cPpu]f=ykspu "kkL=h	vk/kqfudrk] fo"otuhurk ,oa oSKkfud n`f'Vdks.k vk/kqfud dkO; ds v/;;u ls tkx`r gksrk gSA vk/kqfud dkO; eas laosnuk,a] Hkkouk,a ,oa uwru fopkj fofo/k /kkjkvks a esa izogeku gksus l s fo|kfFkZ;ks a es a izsj.kk vkSjÅtkZ rFkk Kku f{kfrt dk foLrkj gksrk gSA
	r`rh; iz"u i= iz;kstu ewyd fgUnh ikB~;Øe& 1- fgUnh ds fofHkUu :i&ltZukRed Hkk'kk lapkj Hkk'kk] jktHkk'kk] ek/;e Hkk'kk]	iz;kstu ewyd fgUnh ds v/;;u ls lkekftd vko";drkvks a vkSj thou&O;ogkj dk Kku izkIr gksrk gSA blds fofo/k vk;keks a ls jkstxkj ,oa thfodk dh leL;k dk lek/kku

	ekr`Hkk’kk] dk;kZy;h fgUnh] i= ys[ku la{ksi.k]iYyou] fVIi.kA ikfjHkkf’kr “kCnkoyh]foKkiu ys[ku 2-dEI;wVj& ifjp; mi;ksx rFkk {ks= 3-vuqokn& ifjHkk’kk] {ks= vkSj lhek,a 4- tulapkj&izkS|ksfxdh ,oa pqukSfr;ka	gksrk gSA fofHkUu O;ogkj {ks=ksa esa mi;ksx dh tkus okyh iz;kstu ewyd fgUnh thou ds fy, mi;ksxh gSA
	prqFkZ iz”u i= Hkkjrh; lkfgR; ikB~;Øe& 1-Hkkjrh; lkfgR; dk Lo:i] Hkkjrh; lkfgR; ds v/;;u dh leL;k,a] Hkkjrh; lkfgR; esa vkt ds Hkkjr dk fcac] Hkkjrh;rk dk lekt”kkL=] fgUnh lkfgR; esa Hkkjrh; ewY;ksa dh vfHkO;fDRk 2-caxyk] mfM+;k Hkk’kk ds lkfgR; dk bfrgkl izeq[k —frdkjks a dk ifjp; rFkk egRoiw.kZ —fr;ka 3-rqyukRed v/;;u& caxyk lkfgR;] mfM+;k lkfgR; vkSj fgUnh lkfgR; 4- ukVd&g`;onu fxjh”k dukZM	Hkkjrh; Hkk’kkvks a ds lkfgR; dk Kku LukrdksŸkj fo|kfFkZ;ksa ds fy, visf{kr gSA Hkkjrh; lkfgR; ds :i jpuk dk Kku gksrk gSA Hkkjrh; ewY;ksa dh vfHkO;fDRk lkfgR; ds ek/;e ls gksrh gSA fgUnh lkfgR; ds fo|kfFkZ;ks a dks vU; Hkk’kk& lkfgR; ls rqyukRed v/;;u dk KkuktZu gksrk gSA
,e-,- fgUnh prqFkZ lsesLVj	iz”u i= & izFke ik”pkR; dkO; “kkL= ikB~;Øe& 1-IysVks& dkO; fl)kar	ik”pkR; fo}kuks a ds dkO; fl)kar fo’k;d fparu dk cks/k fo|kfFkZ;kas es a gksrk gSA ltZukRed ,oa jpuk/kfeZrk esa

	vjLrw& vuqdj.k fl)kar =klnh foospu 2-ykatkbUkl& mnkŸk dh vo/kkj.kk& oMZ loFkZ& dkO; Hkk'kk dk fl)kar dkyfjt& dYiuk fl)kar vkSj yfyr dYiuk 3- eSF;w vkukZYM& vkykspuk dk Lo:I vkSj izdk;Z Vh-,l- bfy;V& ijEijk dh ifjdYiuk vkSj oS;fDRko izKk fuosZ;fDRkdrk dk fl)kar oLrq fu'B lehdj.k] laosnu"khyrk dk vlkgp;Z 4-vkbZ-,- fjpZMl& jkxkRed vFkZ laosxksa dk larqyu] O;kogkfjd vkykspuk] fl)kar ,oa okn& vfHktkR;okn] LoPNanrkokn] vfHkR;atukokn]ekDlZokn] euksfo"ys'k.kokn rFkk vfLrRookn 5- y?kq mŸkjh;&,oa vfry?kqŸkjh; oLrqfu'B iz"u lEiw.kZ ikB~;Øe ls fd;k tk;sxkA	vfHko`f) ds fy, ik"pkR; dkO; "kkL= dk Kku visf{kr gSA jpuk dks lexzrk esa le>kus vkSj ij[kus ds fy, ik"pkR; dkO;"kkL= dk v/;;u lehphu gSA fofHkUu fl)kar ,oa okn ls lacaf/kr tkudkjh gkfly dj fo|kFkhZ oSf"od lkfgR; txr ls :c: gks ldrs gSA
	iz"u i= & f}rh; Nk;koknksŸkj dkO; ikB~; fo'k;& 1-lfPPknkuan ghjkuan okRL;k;u vKs; unh ds nhi] vlk/;oh.kk] ckojkvgsjh ;g	lkfgR; ds fo|kfFkZ;ks a dks Nk;koknksŸkj dkO; ds v/;;uls Lora=rk ds ckn dh fLFkfr dk Kku gksrk gSA u;s&u;s fcEc] izrhd ;kstuk dks tkuus le>us dk volj feyrk gSA

	nhi vdsyk] dyxhcktjs dh]gjh/kkl ij {k.kHkj] vUr% lfyyk] fgjksf”kek 2- xtkuu ek/ko eqfDRkcks/k& va/ksjs esa 3- ukxktqZu&ckny dks f?kjrs ns[kk gS] flUnqj fryfdr Hkky] clar dh vaxokuh dksbZ vk, rqels lh[ks] rks fQj D;k gqvk ;g rqe Fkh] dks;y vkt cksyh gS vdky vkSj mlds ckn] “kklu dh canwd izsr dk c;ku laf{kIr v/;;u&Jhdkar oekZ] nq’;ar dqekj] /kwfey] j?kqohj lgk;] /keZohj Hkkjrh	vkØks”k vkSj fonzksg dh izo`fŸk O;kid iSekus ij ifjyf{kr Nk;koknksŸkj dkO;ksa esa gqbZ gS] ftlls fo|kFkhZ ifjfpr gksdj lkfgfR;d :>ku esa vfHko`f) djrs gSA oSf”od lanHkZ dh tkudkjh vkSj le>nkjh ds fy, Nk;koknksŸkj dkO; dk v/;;u vko”;d gSA
	iz”u i= & r`rh; i=dkfjrk ikB~; fo’k;& 1-fo”o i=dkfjrk dk mn;] Hkkjr es a i=dkfjrk dk vkjaHk i=dkfjrk Lo:i ,oa fofHkUu izdkj fgUnh i=dkfjrk dk mn~Hko fodkl 2-lEiknu dyk ds lkekU; fl)kar lekpkj ds fofHkUu L=ksr]laoknnkrk dh vgZrk] Js.kh ,oa dk;Z i)fr]lEikndh; ys[ku] Qhpj] fjiksrkZt lk{kkRdkj] [kksth lekpkj vuqorZu ¼Qkyksvi½ vkfn	lkfgfR;d Kku ds lkFk&lkFk jkstxkjijdrk dh vkdka{kk dh iwfrZ dh tk ldrh gSA nSfud lekpkj i= ls ysdj lkIrkfgd ikf{kd] ekfld] =Sekfld] v)Zokf’kZd] okf’kZd if=dkvksa] fizaV ehfM;k] baVjusVbvkfn esa i=dkfjrk dk fodaflr Lo:i ns[kk tk ldrk gSA i=dkfjrk dk v/;;u vkt dh vfuok;Zrk cu xbZ gSA i=dkfjrk laca/kh dkuwu rFkk i=dkfjrk ds nkfR;o cks/k dh tkudkjh izkIr dh tkrh gSA i=dkfjrk fo’k;d Kku] dk;Z i)fr ls fo|kFkhZ ifjpr gks ldrs gSA

	dh izfof/k 3- bysDVªkfud ehfM;k dh i=dkfjrk fizaV i=dkfjrk eYVh ehfM;k] i=dkfjrk dk izca/k] eqDRk izsl dh vo/kkj.kk 4- yksd lEidZ rFkk foKkiu] izlkj Hkkjrh rFkk lwpuk izkS|ksfxdh] izsl laca/kh izeq[k dkuwu rFkk vkpkj lafgrk] iztkrkaf=d O;oLFkk es a prqFkZ LraHk ds :i es a i=dkfjrk dk nkf;Ro	
	iz”u i=& prqFkZ yksd lkfgR; ,oa NŸkhlx<+h lkfgR; ikB~; fo’k;& 1- yksd lkfgR;] y{k.k] ifjHkk’kk] {ks= yksd vkSj yksdokrkZ] yksd foKku] yksd laL—fr vo/kkj.kk 2- yksd lkfgR; ds izeq[k :iks a dk lfa {kIr v/;;u 3-NŸkhlx<+h lkfgR; dk bfrgkl] izo`fŸk;ka NŸkhlx<+h x| lkfgR; dk mn~Hkofodkl fo/kk,a&viU;kl] ukVd] ,dkadh] fuca/k dgkuh] egkdkO; 4- nkuyhyk&lqUnjyky “kekZ	yksd lkfgR; lEink ds ek/;e ls yksd O;ogkj] uhfr] laL—fr dk Kku fo|kfFkZ;ks a dks djk;k tkrk gSA buds ladyu] lEiknu] izdk”ku }kjk ewy jk’Vªh; laL—fr dks lajf{kr fd;k tk ldrk gSA yksd xhr] yksd ukV~;] yksd dFkk] yksd xkFkk] yksd u`R;nrFkk yksd laxhr dk thou esa viuk vyx egRo gSA bldk Kku izkIr dj fo|kFkhZ yksd lkfgR; vo/kkj.kk ls ifjfpr gks ldrs gSA
ch- ,-	vk/kkj ikB~;Øe fgUnh	iYyou] i=kpkj ,oa O;kdj.k dh

izFke o'kZ	Hkk'kk& iqLrd dk uke& Hkkjrh;rk ds vej Loj izks- /kuat; oekZ iYyou] i=kpkj] vuqokn ,oa ikfjHkkf'kd "kCnkoyh] eqgkojs ,oa yksdks] "kCn "kqf)] "kCn Kku] i;k;Zokph] foykse "kCn] vusdkFkhZ "kCn] nsouxjh fyfi dh fo"ks'krk,a] orZuh ekud :i dEI;wVj esa fgUnh dk vuqiz;ksx] fgUnh esa inuke fgUnh vif'r] la{ksi.k] fgUnh esa laf{kIrhdj.kA bZnxkg dgkuh &izsepan Hkkysjke dk tho& gfj"kadj ijlkbZ] f"kdkaxks ls Lokeh foosdkuan dk i= ekud fgUnh Hkk'kk dk vFkZ] Lo:i& fo"ks'krk,a] ekud vekud Hkk'kk] lkekftd xfr"khyrk] izkphudky] e/;dky] vk/kqfud dkyA	tkudkjh Nk=& Nk=kvks a dh nh xbZA ftlls vusd "kCn Kku dh o`f) gqbZ vkSj ekud&vekud ds }kjk Hkk'kk dh "kq)rk dk ifjHkftu fd;k x;kA vifBr x|ka"k]laf{kIrhdj.k ,oa la{ks'B ds }kjk Nk=&Nk=kvksa esa *xkxj esa lkxj Hkjus dh* izo`fr dk fodkl gqvkA bZnxkg dgkuh ls Nk=&Nk=kvksa dks lEeku] izse ,oa drZO; fu'Brk ds xq.kks a dks fodflr fd;k x;kA lkekftd xfr"khyrk ds ek/;e ls izkphu] e/; ,oa vk/kqfud dky dk ifjp; fn;k x;k ftlls Nk=ks a esa ,fs rgkfldrk] ekuoh;r] vkfn xq.kks a dks fodflr fd;k x;kA
ch- ,- izFke o'kZ	fgUnh lkfgR; izFke iz"u i=& izkphu fgUnh dkO;& isij dksM MkW- dkafr dqekj tSu ikB~;Øe& 1- dchj dh lkf[k;ka & lk[kh 2-laf{kIr in~ekor& ukxefr dk fo;ksx o.kZu&30	dchj ds thouo`r] muds uhfrxr mins"kks dh tkudkjh Nk=&Nk=kvks a dks miyC/k djkbZ xbZA dchj dh lkf[k;ks ds ek/;e ls lekt esa QSyh dqfjfr;k] NwvkNqr] va/kfo"okl vkfn dks nwj djus dh f"k{kk nh xbZA

	Hkzed xhr lkj] lwjnkl izkjafHkd&5 in 4-jkepfjr ekul ds v;ks/;k dksM izkjafHkd 25 in nksgs pkSikbZ&Nan 5-?kukuan izkjafHkd 25 Nan&nzqr ikB gsrq rhu dfo;ksa dk v/;;u&fo|kifr jghe&jl[kku f}rh; iz”u i= xcu miU;kl izsepan& dFkk lkfgR;& fgUnh dFkk dk fodkl vkdk”knhi] dQu] inkZ] Bsl] eyos dk ekfyd] phQ dh n[kr] fcjknjh ckgj xny	tk;lh ds laf{kIr in~ekor ds }kjk Nk=&Nk=kvksa dks ,sfrgkfldrk ,oa vk/;kfRedrk dh ykSfdd ,oa vykSfdd izse dh ijkdk’Bk izse esa lei.kZ dh Hkkouk tSls xq.kks a dks crk;k x;kA rqylh nkl ds dkO; ls /keZ]deZ] uhfr] R;kx ,oa leiZ.k dh Hkkouk dk lapkj fd;k x;kA ?kukuan ds dkO; ds }kjk izse] R;kx ,oa leiZ.k dh Hkkouk dk lapkj fd;k x;kA xcu miU;kl ds ek/;s ls fj”or [kksjh ,oa Hk’Vkpkj dh leL;kvksa ls voxr djk;k x;kA dFkk lkfgR; dh dgkfu;ksa ds }kjk dtZ dh leL;k] ckg~; vksToj ,oa lkekftd cqjkbZ;ks a l s nwj jgus dh f”k{kk iznku dh xbZA
ch- ,- f}rh;	fgUnh lkfgR; izFke iz”u i=& vokZphu fgUnh dkO; ¼isij dksM& 0173½ ikB~;Øe& 1- eSFkyh”kj.k xqIr& Hkkjr Hkkjrh dh dfork,a 2-lw;Zdkar f=ikBh fujkyk&	vokZphu fgUnh dkO; dk v/;;u vk/kqfudrk dh leLr fo”ks’krkvksa dks lesVs gq, gSA lkfgR; dh fodkl ;k=k] vk/kqfud Hkko cks/k dk Kku Nk=&Nk=kvksa dks gksrk gSA Lora=rk izkfIr ds iwoZ dh

	lf[k clar vk;k] oj ns oh.kk okfnuh] fgUnh ds lqeuksa ds izfr i= rksM+rh iRFkj] jkts us viuh j[kokyh dhA 3- lqfe=kuanu iar& ckny] ifjorZu&2 in] rkt >a>k esa uhe] Hkkjr Hkkjrh 4- ek[kuyky prqosZnh& fu”kL= lsukuh] cfy iaFkh ls mykguk] lka> vkSj <ksyd dh Fkkisa] eSa csp jgh gwW nghA 5- vKs;& lcsjs mBk rks /kwi f[kyh Fkh] lkezkKh dk uSos|nku] ?kj] pkanuh th yks] nwokZpyA nzqrikB& 1- v/;ks/;k flag mik/;k; gfjvkS/k 2- lqHknzk dqekjh pkSgku 3- Jhdkar oekZ	Hkko] Hkk’kk f”kYi dh tkudkjh izkIr gksrh gSA jk’Vªh;rk ,oa jk’Vªizse dh Hkkouk] R;kx] cfynku dh Hkkouk tkx`r djus esa jk’Vªh; dkO; /kkjk dh dfork,a l{ke gSA Nk;koknh]izxfroknh ,oa iz;ksxoknh vuqfparu fo|kfFkZ;ksa ds fy, mi;ksxh gSA
	fgUnh lkfgR; f}rh; iz”u i= fgUnh fuca/k rFkk vU; x| fo/kk,a isij dksM 0174 ikB~;Øe& ukVd& va/ksj uxjh&HkkjrsUnq gfj”panz fuca/k& Øks/k& vkpk;Z jkepanz “kqDYk clar& MkW- gtkjh izlkn f}osnh ml vejkbZ us jke&jke dgh gSA MkW- fo|kfuokl feJ	va/ksj uxjh ds ek/;e ls HkkjrsUnq gfj”pUnz th us fczfV”k “kklu dh vO;oLFkk vR;kpkj] fj”or[kksjh vkSj “kks’k.k dks izrhdkRed :i es a izLrqr fd;k gSA oSpkfjd fuca/k yfyr fuca/k rFkk O;aX; fo/kk dh tkudkjh izkIr gksrh gSA Hkkjrh; xzkE; ifjos”k esa vejkbZ dh egŸkk vkSj mldh /khjs&/khjs u’V gksrh laL—fr dh vksj /;ku

	dkO;s’kq ukV~;e jE;e& ckcw xqykcjk; csbZekuh dh ijr& ijlkbZ ,dkadh& vkSjaxtscdh vkf[kjh jkr MkW- jkedqekj oekZ LVªkbZd& Hkqous”oj ,d fnu& y{ehukjk;.k feJ nl gtkj& mn;”kadj HkV~B eEeh BdqjkbZu&MkW- y{ehukjk;.k yky nzqrikB& jkgqy lka— R;k;u] egknsoh oekZ] gchc ruohj	vk—‘V fd;k x;k gSA ikB~; ,dkadh ds ek/;e ls thou u”ojrk] fof{kIr ekufld fLFkfr] vk/kqfud ekuo thou dh i)fr] —i.krk] LokfHkeku laL—fr vKkurk vkfn dsyk{kf.kdrk ,oa O;aX; ls le>kus dk iz;kl fd;k x;k gS tks fd fo|kfFkZ;ks a ds Kkuo/kZu esa lgk;d gSA
ch-,-] ch-,l- lh- @ch- dkWe] f}rh;&	vkik fgUnh Hkk’kk isij dksM&0171 bdkbZ 1- pksjh vkSj izk;f”pr& egkRek xka/kh dk;kYk;hu Hkk’kk] ehfM;k dh Hkk’kk bdkbZ 2- ;qodks a dk lekt es a LFkku& vkpk;ZujsUnz nso& foŸk ,oa okf.kT; dh Hkk’kke”khuh Hkk’kk bdkbZ 3- ekr`Hkwfe&oklqnso”kj.k vxzoky laKk] loZuke] fo”ks’k.k] fØ;k fo”ks’k.k bdkbZ 4- MkW- [kwcpan c?ksy gfjBkdqj@lekl& laf/k bdkbZ 5- laHkk’k.k	lqizfl) ys[k ds ek/;e ls lekt ,oa jk’VªfgR ds lkFk&lkFk O;fDRkRo fodkl gksrk gSA O;kdjf.kd ,oa Hkk’kk fo’k;d ikB~;Øe ds ek/;e ls fgUnh Hkk’kk lacaf/kr Kku esa vfHko`f) gksrh gSA izfr;ksxh ijh{kkvksa dh n`f’B ls KkuktZu gksrk gSA Hkk’kk dh lajpuk dk Kku gksrk gSA

	dq”kyrk& ia- ek/ko jke lizs vuqokn vaxzsth ls fgUnh es a vuqokn laf{kfIr;ka	
ch- ,- r`rh; o’kZ	fgUnh lkfgR;& izFke iz”u i=& tuinh; Hkk’kk& lkfgR; ¼NŸkhlx<+h½ ikB~; fo’k; 1- Hkwfedk ¼v½ NŸkhlx<+h lkfgR; dh fodkl ;k=k ¼c½ NŸkhlx<+h Hkk’kk ,d ifjp; 2- lar /keZnkl ds in 3- lksuiku fuca/k 4- lh[k&lh[k ds xksB 5- fou; ikBd ¼NŸkhlx<+h dfork½ 6- eqdqUn dkS”ky ¼NŸkhlx<+h xty½ nqzrikB 1-lqUnjyky “kekZ 2- jkepUnz ns”keq[k 3- dfiyukFk d”;i	tuinh; Hkk’kk NŸkhlx<+h fujUrj fodkl dh vksj vxzlj gks jgh gS] vLrq bl Hkk’kk dk vkSj bles a jfpr lkfgy dk bfrgkl fodkl Li’V djrs] buls lacaf/kr izeq[k jpukdkjksa dk vkykspukRed vuq”khyu djuk fgUnh ds o`gUr fgr esa gksxkA NŸkhlx<+] vapy ds fofo/k Lo:i] ,sfrgkfld i`’BHkwfe] lkaL—frd fLFkfr ,oa] yksd&thou dh fof”k’Vrkvks a dk js[kkadu] tuinh; Hkk’kk NŸkhlx<h+ ds v/;;udrkZ ds Hkhrj ,d jl dk lapkj djrh gSA yksd laL—fr ,oa yksd thou] dh orZeku esa izklafxdrk rks gS gh ;g Hkfo’; ds fy, ekxZn”kZd dh Hkwfedk dk Hkh fuokZg djrk gSA
ch- ,- r`rh; o’kZ	fgUnh lkfgR;& ¼f}rh; iz”u&i=½ fgUnh Hkk’kk&lkfgR; dk bfrgkl rFkk dkO;kax foospu ikB~; fo’k;& ¼d½ fgUnh Hkk’kk dk Lo:i fodkl& 1- cksypky dh Hkk’kk 2- jpukRed Hkk’kk	fgUnh Hkk’kk dk bfrgkl ftruk izkphu gS] mruk gh xw<+ xgu HkhA blesa jfpr lkfgR; us yxHkx Ms<+ gtkj o’kksZ dk bfrgkl iwjk dj fy;k gSA blfy, fgUnh Hkk’kk vkSj lkfgR; ds ,sfrgkfld foospu dh cM+h vko”;drk gSA blh ds lkFk&lkFk fgUnh us viuk tks Lora= lkfgR; “kkL=

	3- jk’VªHkk’kk 4- jkt Hkk’kk 5- lEidZ Hkk’kk 6 lapkj Hkk’kk fgUnh dk “kCn Hk.Mkj& rRLe] rn~e ns”k vkxr “kCnkoyhA ¼k½ fgUnh& lkfgR; dk bfrgkl ¼x½ dkO;kax& dkO; dk Lo:i ,oa iz;kstuA jl] Nan] vyadkj	fufeZr fd;k gS] mls Hkh :ikf;r djus dh vko”;drk gSA blds laKku }kjk fo|kFkhZ dh eeZxzkfg.kh izfrHkk dk fodkl gksxk vkSj ,sfrgkfld izfjizs{; esa “kq) lkfgfR;d foosd dk lfUuos”k gksxkA
ch- ,-] ch- dkWe] ch- ,l-lh- r`rh; o’kZ	vk/kkj ikB~;Øe& fgUnh Hkk’kk ikB~; fo’k;& Hkkjrekrk& iar] ij”kqjke dh izrh{kk& fnudj] cgqr cM+k loky& eksgu jkds”k] laL—fr vkSj jk’Vªh; ,dhdj.k&;ksxs”k vVy &dFku dh “kSfy;k &fodkl”khy ns”kksa dh leL;k;sa &fofHkUu lajpkuk;sa &vk/kqfud rduhdh lE;k;sa &dk;kZy;hu i= vkSj vkys[k &tula[;k &vuqokn &ÅtkZ vkSj “kfDRkekurk dk vFkZ”kkL= &?kVukvks]a lekjksgks vkfn dk izfrosnu vkSj fofHkUu izdkj ds fuea=.k&i=	jk’Vªh; Hkko cks/k] dks tkx`r djus esa l{ke] laL—fr] ijEijk ds lkFk&lkFk le&lkef;d leL;kvksa dks lkeus ykdj] lek/kku ij[k cqf) ds fodkl esa ikB~;& fo’k; lgk;d gSA blds vfrfjDRk O;kdj.k i{k ij Hkh /;kukd`’V djds fgUnh ds “kqf)& ys[ku dks izksRlkfgr fd;k x;k gSA

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College Code- 3003

PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

DEPARTMENT OF HISTORY

PROGRAMME OUTCOME [P.O]

I. History is a true teacher of man which shows proper path to the future.

II. History makes us aware of various aspects of human nature and provides gradual development of civilization.

III. The study of history is important to every nation and its citizen to remain alive, prosperous and dynamic.

IV. Through the study of history,one gets to know the circumstances of the rise and fall of a nation.
V. Study of history makes us understand past mistakes of our ancestor and gives a stern warning not to repeat them.
VI. Study of history is considered to be a region of human civilization.
VII. History provides a clear picture of all known things of ethics, religious life, economic life, cultural life, political system, governance etc. of any erstwhile society.
VIII. Study of history as a provident fund is necessary otherwise a nation has no future.
IX. The necessity , concept, purpose, importance and usefulness of history is very broad and far reaching.

PROGRAMME SPECIFIC OUTCOME [P.S.O]

1. Analyze relationship between past and present.
2. To develop practical skills helpful in the study and activities related to historical events.
3. Understand present existing social ,political ,religious and economic conditions of the people.
4. To develop interest in the study of history and activities related to history
5. Understand background of our religion, administration.
6. Critical analysis – student will produce their own historical analysis of documents and develop the ability to think critically and historically when discussing the past.
7. Student will demonstrate in written work and class discussions and the ability to recognize and articulate the diversity of human experience, including ethnicity, race language as well as political, economic, social and cultural structures are time and space.
8. Application - Student will employ full range of techniques and methods used to gainhistorical method to make comparision across time space and culture.
9. Student will understand and evaluate historical ideas, arguments and point of view.
10. Knowledge – An understanding of the major trends of historical knowledge.
11. Construct and communicate historical arguments in both oral and written form.

BA PART ONE

HISTORY OF INDIA (UPTO 1206 A.D.) PAPER 1

Course Outcomes

1. Political History of ancient India. The life-Story of the Indian people in their formative stage, struggling to find happiness both here & hereafter.
2. Reconstruction of that past history through a selection of significant facts.

OUTCOME

I- Understand the salient features of Indus valley civilization

II- Evaluate the features of Buddhism and Jainism

III- Visualize the administration of Mauryas and the art and architecture of Mauryas

IV- Identify the administration of Guptas and their contribution to Nalanda University

V- Examine the Arab conquest of Sindu and the battle of Tarain.

PAPER 2 WORLD HISTORY 1453 -1890 AD

OUTCOME

I- Describe the Geographical discoveries and the Renaissance movement in Europe.

II- Assess the causes and effects of Reformation and Counter-Reformation movements.

III- Narrate the enlightened despotism in Europe, especially in France ,Prussia and Austria.

IV- Learn the causes and results of Thirty years war. V- Discuss the reforms of Peter the Great and Catherine II of Russia.

BA PART TWO

PAPER 1 INDIAN HISTORY [MEDIEVAL HISTORY] 1206 -1761 AD

1. Study Indian society that subjected to a variety of impacts under which the Indian people had to learn to adopt themselves to an ever changing environment.
2. Study of Social organization in India which is often remarked as the caste system.

Ancient Indian Polity: - 1. All forms of Human organization that of the state.

I. Understand the foundation of the Delhi sultanate and the Sultanate administration.
II. Recognise the Socio, economic and religious conditions under Vijayanagar Empire.
III. Identify the condition of India under the Mughal Empire.
IV. Explain the Administration and art and architecture of Mughal.
V. Analyse the rise of the Marathas and the contribution of Shivaji.

PAPER TWO [WORLD HISTORY] 1890 -1964

• Identify what is meant by the French Revolution.
• Trace short-term and long-term repercussions of revolutionary regimes and Empire-building by France.
• Explain features of revolutionary actions and reactionary politics of threatened monarchical regimes.
• Delineate diverse patterns of industrialization in Europe and assess the social impact of capitalist industrialisation.
• Analyse patterns of resistance to industrial capital and the emerging political assertions by new social classes.

BA PART 3

PAPER 1 HISTORY OF INDIA (MODERN INDIA) 1761 – 1950

B.A.-III
1. Study the Indian art tradition which one of the oldest living art traditions in the world.
2. The art of country with its history social & economical perspective.
3. Excavation of the sites of the old towns like Harappa Mohenjo-Daro & Taxila information of the other ancient monuments.

OUTCOME

• Outline key developments of the 18th century in the Indian subcontinent
. • Explain the establishment of Company rule and important features of the early colonial regime
. • Explain the peculiarities of evolving colonial institutions and their impact.
• Discuss the social churning on questions of tradition, reform etc, and during first century of British Colonial rule.

• Assess the issues of landed elite, and those of struggling peasants, tribals and artisans during the Company Raj.

PAPER 2 WORLD HISTORY 1871-1945

OUTCOME

: • Identify how different regional, religious and linguistic identities developed in the late 19th and early 20th centuries.
• Outline the social and economic facets of colonial India and their influence on different trends of politics.
• Explain the various forms of anti-colonial struggles in colonial India.
• Analyse the complex developments leading to communal violence and Partition.
• Discuss the negotiations for independence, the key debates on the Constitution and need for socio-economic restructuring soon after Independence.
Course Outcome of History The main focus in the History Course at UNDERGRADUATE LEVEL is on the stages the growth of human civilizations and the evolution of social systems and on cultural and scientific development. The main aims outlined for history teaching are:
CO1. To promote an understanding of the processes of change and development through which human societies have evolved to their present stage of development.
CO2. To promote an understanding of the common routes of human civilizations and an appreciation of the basic unity of mankind.
The outcomes of this Course are as follows: Students who complete the History POST GRADUATE LEVEL might come up the following knowledge and skills:
CO 1 Learn a basic narrative of historical events in a specific region of the world in a specific time frame
CO 2 Distinguish between primary and secondary sources
CO3. Understand and evaluate different historical ideas, various arguments, and points of view.
CO4 . Evaluate competing interpretations and multiple narratives of the past.
CO 5. Gather and assess primary historical evidence.
CO 6. Compile a composite bibliography.
CO7. Present clear and compelling arguments, based on critical analysis of diverse historical sources.
CO 8. Articulate factual and contextual knowledge of specific places and times, to make careful comparisons (across time, space, and culture) and to discern how each generation (including theirs) uses the past for present purposes.

CO 9. Students should understand academic honesty, a concept presented to them in all history classes.
CO10. Students should understand the basic skills that historians use in research.
CO11. Students should understand the basic skills that historians use in writing.
CO12. Students should understand the basic tools of historical analysis.
CO13. Students should understand the value of diversity.
CO14. Students should develop a secular outlook towards society.
CO15. Students should believe in the equality of man irrespective of caste, creed, religion and colour.
CO.16 . Students should learn to believe in the ideas of religious toleration

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College Code- 3003

PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES
DEPARTMENT OF POLITICAL SCIENCE

PROGRAM- BA, POLITICAL SCIENCE

PROGRAM OUTCOMES

PROGRAMME OUTCOMES:

1 - Developing competency with modern social scionco ern social science recearch. The innovations in social science mathods and research all over the world are taught to the students so that research skills and methodological tools become easy of dhem to master.
2 - To enable the students exhibiting their ability to developed economy of central and state govt.

3 - Understanding issues of Domestic and International politics - The course is aimed at preparing students to have knowledge of the major issues and incidents that affect governments and policy making. The dynamics of decision making by the political leadership are studied and analysed in detail.
4 - Comprehending basic structures and processes of Government Systems - Vaneties of government systems are studied and case studies of leadership styles are discussed who learnnig about constitutions of different countries.
5 - Critical analysis of theories and concepts of Political Science - The students are given a worldview of the different theories and paradigms that are associated with the discipline. They are expected to test the application of those theories to real world events as and when they occupy centre stage in International affairs.

PROGRAMME SPECIFIC OUTCOMES:

1. Understanding and interpreting political behaviour and facts.
2. Assessing actions and decisions of political actors.
3. Serve as a professor, bank officer, statistical officer, economist.
4. Apply the Economical bases towards finding a economical solution to complex social and economical issues.
5. Have a basis for advance study.
6. Have a basis for competition exam.

PROGRAM- MA, POLITICAL SCIENCE

PROGRAMME OUTCOMES
PO1 - Developing competency with modern social scionco ern social science recearch. The innovations in social science mathods and research all over the world are taught to the students so that research skills and methodological tools become easy of dhem to master. PO2 - To enable the students exhibiting their ability to developed economy of central and state govt. PO3 - Understanding issues of Domestic and International politics - The course is aimed at preparing students to have knowledge of the major issues and incidents that affect governments and policy making. The dynamics of decision making by the political leadership are studied and analysed in detail. PO4 - Comprehending basic structures and processes of Government Systems - Vaneties of government systems are studied and case studies of leadership styles are discussed who learnnig about constitutions of different countries. PO5 - Critical analysis of theories and concepts of Political Science - The students are given a worldview of the different theories and paradigms that are associated with the discipline. They are expected to test the application of those theories to real world events as and when they occupy centre stage in International affairs.
PROGRAMME SPECIFIC OUTCOMES

The M.A. Program is a four semester (2 Yrs) Integrated Program where students are taught both Political
Science courses as well as Environmental Courses after completion the student would be able to -

PSO-1. Understanding and interpreting political behaviour and facts.
PSO-2. Assessing actions and decisions of political actors.
PSO-3. Serve as a professor, bank officer, statistical officer, economist.
PSO-4. Apply the Economical bases towards finding a economical solution to complex social and economical issues.
PSO-5. Have a basis for advance study.
PSO-6. Have a basis for competition exam.

COURSE OUTCOMES
(Political Science)

SN	Name of Course	Year/ Semester	Name of Subject/Paper	Course Outcome
1	B.A. I	Paper I	Political Theory	It enable the students to have knowledge of Nature of Political Science Utility, Indifference Curve, Law of Demand, Elasticity of Demand, Isoquants curve, cost, Market, Structure, factor price determination, welfare Political Science.
2	B.A. I	Paper II	Political Science	This Enable to know the Market Economy, Indian Economy, Natural Resources, Planning, Agriculture, Industry, Industrialization, Foreign trade, Balance of payment, Poverty and equality, Unemployment Price-Rise.
3	B.A. II	Paper I	Political Thought	It helps to understand the National Income, Keynesian theory of Income and Employment consumption function, Investment function, Trade cycle, International trade, International Monetary fund, foreign trade.
4	B.A. II	Paper II	Comparative Government & Politics	It enable the students to have knowledge of – Money, Inflation, Deflation, Commercial Bank, Central Bank, Monetary Policy, Public Finance, Public Expenditure, public Revenue, Taxable capacity, Taxation, Classification of taxes, financial Administration Budget.
5	B.A. III	Paper I	International Politics	It helps to understand the Economic development, population theories of development kart Marx model, The Schumpeterian Model, Mahalanobis four sector Model, Harrods - Domar, Solow, Mead, Smt. John Robinson. Population Environment linkage. Pollution control. Sustainable Development, Intellectual capital food security Globalization and Agricultural Development.
6	B.A. III	Paper II	Public Administration	It helps to understand the Statistics, Mean, Median, Mode Quartile Deviation, Mean Deviation, Standard, Deviation, Lorenz curve, Skewness, Karl Pearson's coefficient of correlation, spearmen's coefficient of correlation fishers Ideal Index Number, Time-Series

				Analysis, Trends.
7	M.A. Sem-I	Paper I	Western politics	It enable the students to know the elasticity of demand, Elasticity of Supply, Utility, Indifference Curve, Revealed Preference Theory, Production Function – Short Period and long period. Euler's theorem, production function cob- Douglass, cast and revenue.
8	M.A. Sem- I	Paper II	comparative Politics	It helps the student to have the knowledge of basis of – Linear Programming, concept of game. Coefficient of Skewness – Karl Pearson's and Bowley. Karl Pearson's coefficient of correlation. Spearman's coefficient of correlation. Regression Analysis, Inter Polation and Extrapolation, Probability, Fisher's Ideal Index Number.
9	M.A. Sem- I	Paper III	Public Administration	It helps to understand the National Income, Economic development, Human Development Index, Planning, Demographic Features, Agriculture Sector.
10	M.A. Sem- I	Paper IV	International Politics	It helps to understand the International Trade, Heckscherohlin theory of International Trade. The terms of trade, tariff, quotas, dumping, balance of payment devaluation.
11	M.A. II Sem.	Paper I	Modern Indian Politics	It provide the knowledge about price and output determination perfect competition, monopoly, monopolistic competition, Oligopoly theory of distribution theory of wages, welfare Political Science.
12	M.A. Sem- II	Paper II	Contemporary Politics Issues	It extends the knowledge of Association of Attributes, Research methodology, sampling, classification, tabulation, hypothesis, computer.
13	M.A. Sem- II	Paper III	Understanding method	It gives the knowledge about Industrial sector, fiscal federalism, monetary policy of RBI, export import policy, balanced regional development, WTO and its Impact on different sector of economy. How to prepare a budget of central and state govt.
14	M.A. Sem- II	Paper IV	International Group	It enable students to know the concept of Exchange rate, WTO, UNCTAD, IMF, SAARC, Port Folio investment and international trade. Export promotion international debt.
15	M.A. Sem- III	Paper I	Indian Government & Politics	It enhance the knowledge of National Income, consumption, investment employment theory, demand for money funda mental equation of Keynes bamaul& the money equilibrium charges in the general equalizer.
16	M.A. Sem- III	Paper II	India's Foreign Policy Principles and Practices	This enable students to know the Taxation, Indian Tax System. Taxable capacity public expenditure, Public Debt budget process in India.
17	M.A. Sem- III	Paper III	International Law	It makes understand about the economic growth. Capitaloutput ratio, Input-Output analysis, cost benefit analysis, theories of development-Marx, Schumpeter, Keynesian, Mahalanobis, Harroddomar, Arlher Lewis,

				John Robinson, mead hicks and Hayek Solow model.
18	M.A. Sem- III	Paper IV	Federal system in india	It gives the knowledge of basic principles of Welfare Political Science, Social Welfare function, Environmental Political Science Theories of Externalities, Marginal social cost. Environmental value. International carbon tax. Environment and WTO.
19	M.A. Sem- IV	Paper I	State Politics in India	It gives the knowledge of basic principles of quantity theory of money. Determinates of money supply. Concept of Inflation, Business Cycle, Monetary Policy Fiscal Policy.
20	M.A. Sem- IV	Paper II	Principles and Practices of Diplomacy	It enables the student to know the fiscal federalism finance commission, fiscal policy and full employment fiscal policy and economic development federal finance, center state financial relation, analysis of central and Chhattisgarh Govt. budget, structure and growth of public expenditure in Chhattisgarh, budget management Act. performance of Chhattisgarh Govt. budget plan and non plan expenditure in Chhattisgarh.
21	M.A. Sem- IV	Paper III	Human Rights Problems and Prospects	It enable the students to have knowledge of Economic planning. Achievements of Indian plans. Approaches to development-vicious circle of poverty. Big push theory. Theory of critical minimum efforts, balanced and unbalanced growth. Investment criteria, fiscal and monetary policy. Human capital formation, poverty Income Inequalities, Unemployment. The choice of techniques, sustainable development problem of price rise.
22	M.A. Sem- IV	Paper IV	Local Self-Government in India	It give the knowledge about concept of pollution, Air Pollution control, water pollution control environmental protection. Environment and sustainable development, global warming climate change, green house effect optimum use of resource. Social forestry Political Science of education. Right to education act health Political Science.

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PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

DEPARTMENT OF SOCIOLOGY

PROGRAM- BA, SOCIOLOGY

PROGRAM OUTCOMES

1. The program seeks to develop in students the sociological knowledge and skill that will enable them to think critically and imaginatively about society and social issues.
2. The ability to demonstrate sociological understandings of phenomenon , for example how individual biographies are shaped by social structures,

social institutions, cultural practices and multiple axes of difference and inequality.

3. The ability to formulate effective and convincing written and oral arguments.
4. The ability to apply sociological concepts and theories to the real world and ultimately their everyday lives.
5. Field survey is an inseparable part of sociology. Students have to collect primary data for census and analyze the data to draw a conclusion. So quality and quantitative analytical skills are enhanced.

PROGRAM SPECIFIC OUTCOMES

1. A sensible observation power is necessary to identify research problem in field study. So a perception about human society slowly grows up.
2. Students of sociology stream have to work beyond the classroom boundary at the time of field study activities. As a result good communication skill develops while interacting with local people.
3. Students have to learn about institution, folkways, culture, social control, social inequality, population composition, population policy, society and culture of India. All these help to instill among the students of sociology a sense of ethical and social responsibility.
4. Students will have the opportunity to join professional careers in sociology and allied fields. Sociology provides an intellectual background for students considering careers in business, social services, public policy, government service, nongovernmental organization etc.

PROGRAM- MA, SOCIOLOGY

Program outcome

• This program could provide Industries, Banking Sectors, Insurance Companies, Financing companies, Transport Agencies, Warehousing etc., well trained professionals to meet the requirements.

- After completing graduation, students can get skills regarding various aspects like

Marketing Manager, Selling Manager, over all Administration abilities of the Company.

- Capability of the students to make decisions at personal & professional level will increase after completion of this course.
- Students can independently start up their own Business.
- Students can get thorough knowledge of finance and commerce.
- The knowledge of different specializations in Accounting, costing, banking and finance with the practical exposure helps the students to stand in organization.

PROGRAMME SPECIFIC OUTCOMES

- The students can get the knowledge, skills and attitudes during the end of the B.com degree course.
- By goodness of the preparation they can turn into a Manager, Accountant , Management Accountant, cost Accountant, Bank Manager, Auditor, Company Secretary, Teacher, Professor, Stock Agents, Government employments and so on.,
- Students will prove themselves in different professional exams like C.A. , C S, CMA, MPSC, UPSC. As well as other cources.
- The students will acquire the knowledge, skill in different areas of communication, decision making, innovations and problem solving in day to day business activities.
- Students will gain thorough systematic and subject skills within various disciplines of finance, auditing and taxation, accounting, management, communication.
- Students can also get the practical skills to work as accountant, audit assistant, tax consultant, and computer operator. As well as other financial supporting services.
- Students will learn relevant Advanced accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.
- Students will be able to do their higher education and can make research in the field of finance and commerce.

COURSE OUTCOMES

SN	NAME OF COURSE	NAME OF SUBJECT/PAPER	COURSE OUTCOMES

1	B.A. I	Indroducation To Sociology (I)	To Give the Student To Primary knowledge Of Sociology- Social Intitution, Social Stratification ,Social Change And Socal System.
2	B.A. I	Contermporary Indian Society (II)	Understand Of Classical View about Indian Soiety, Structure Of Village Town, Composition Tribles Dalits And Woman, Basic Institution -Cast Sytem- joint Family and Marrige ,Familial Problems and socal problems.
3	BA II	Sociology Of trible Study (I)	Basic knowledge Of tribles - Tribles People , Trible Culture, Trible mobility, Trible Development and triblr movments , problems of trible people.
4	BA II	Crime In Society (II)	Knowledge Of Crime, Strucure Of Crime, Socal Evils and Crime, punishment and correctinal Process of Crime.
5	BA III	Sociology Of trible Society (I)	Understand Of Tribles - Demograpy Profile, Socio Culture Profile Of Tribs- kinship Marrige and family. Knowledge about religious Belieps and Practices, Socal Mobility and Change. Knowledge about Schemes Of Trible Development Movment and problems.
6	BA III	Method Of Socal Reaserch (II)	To Give The Student A Knowledge Of Reasearch Formulation Of Hypothesis , Scientific Methods, Observation, case Study, Content analysis, Surve,Sampling, Formulation of Questionnaire, Schedule and Interview guide. Understand about Statistics ,Graphics and Diagramm.
7	M.A. I SEM.	Classical Sociological Theorys (I)	Undestand about Sociological Theory, view Of Agust Comte, Max Webar, Karl Max and Durkhim.
8	MA I Sem.	Methology Of Social Research (II)	Knowledge Of Socal Recearch, Surve, Samling,Scaling Sociometry, Observation,Inter View Schedule, Qestionnairi case Study, analysis Of Data.
9	MA I Sem.	Rural Sociology (III)	Knowledge Rural Social System, Community and Folk Culture, leadarship, Peasant Relationand process.
10	MA I Sem.	Urban Society in India (IV)	Knowledge Of Urban Society , Urban Classification Urbanization, Change and Problems.
11	MA II Sem.	Modern Sociological Theories (I)	Knowledge about Modern Sociological Theories- Structural functional theory, Conflict theory, phenomenological Theory and Indian sociological

			theory.
12	MA II Sem.	Socal Reseach And Statistics (II)	Understand The Concept Of Statisics -mean, median , mode. Urdestand Digrammiatic and graphics Presentation Of Facts. Knowledge About Computer In Socal Research.
13	MA II Sem.	Rural Development And Change (III)	Knowledge Rural Demography, Socal Institution, Change, Problems And Development in Rural Society.
14	MA II Sem.	Urban Social Structure And Problems (IV)	Understand about city dimension -Emile Durkhim, Kal Max And Max Weber, Urban Ecology And Theory, Sociologycal Thinkers-Georges Memmeal , Lues Bearth And Redfield theory of Urbanization Knowledge Of Urban Problems And Urban 39lanning In Chhattisgarh.
15	MA III Sem.	Perpestives Of Indian Society (I)	Knowledge Indian Society-Dharn, Varn, Aasram, karm, Class,Elites, Backward ,minorities and tribles. Knowledge about Indian social Structure. Knowledge about diversity In Indian Society. Knowledge Of groups and Communities Of Indian Society . Knowledge Of Rural Urban Continum in Indian Society.
16	MA III Sem.	Industrial Sociology (II)	Knowledgr About Indistrial Sociology-Indtrial Planing, Industrial revolution, Indurial Moral , Industrial Mangament, Indistrial Organization, Indutrial Disputes And Settlment.
17	MA III Sem.	Demographical Profile (III)	Understand - Demography, census, In India Undestand fertility and Birth rates In India, Malthusian And neo-Malthusian theory Of population. Understand The Problems Of Population In India.
18	MA III Sem.	Criminology (IV)	Knowledge Of Crime-Types Of Crime, Perspective On Crime Caussation. Understand Changing Profile Of Crime. Understand About Social Problems Alcoholism and Drug Addision, Prostitution, Sucide, terrorism. Knowedge theories Of Punishment.
19	MA IV Sem.	Theoretical Perspectives Of Indian Society (I)	Knowledge Sociological perspectives, ideological Perspective, Structure Functional Perspective, Marxian Perpestive. Uderstand synthesis Of textual and field views
20	MA IV Sem.	Industry and Society In India (II)	Understand About Industrial planing , man power Planing. Knowledge About Leadership In industry. Knowledge About trade Union. Knowledge About Indebtedness Of industrial Workers.

21	MA IV Sem.	Social Demography Of Indian (III)	Knowledge About Indian pupolation, Heath Services In Indian. Knowledge About Population Education, census and Economics Aspect of Indian population.
22	MA IV Sem	Criminology And Correctional Indtitutions (IV)	Knowledge About Correctional Programmes In prison. Knowledge About Probation Parole In Prisons. Knowledge About Role Of Police And judiciary in india. Knowledge About After Care services in India, M. P. and C.G.

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PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

DEPARTMENT OF COMMERCE

PROGRAM- B.Com.

Program Outcomes :

1. After completion of program , students would gain a thorough grinding in the fundamentals commerce and finance.
2. The commerce and finance focused curriculum offers a number of specializations and practical exposers which would equip the students to face the modern-day challenges in commerce and business.

3. The all-inclusive outlook of the course offer a number of value based and job oriented courses ensures that the students are trained into up-to-date.

Program Specific Outcomes :

1. Students will be able to demonstrate progressive learning of various tax issues and tax forms related to individuals.
2. Students will be able to demonstrate knowledge in setting up a computerized set of accounting book.
3. Students will demonstrate progressive effective domain development of values, the role of accounting in society and business.
4. Students will learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.
5. Students will learn relevant managerial accounting career skills, applying both qualitative and quantitative knowledge to their future careers in business.
6. Learners will gain thorough systematic subject skills within various disciplines of commerce, business, accounting, economics, finance, auditing and marketing.

PROGRAM- M.Com.

Program Outcomes

- To acquaint a student with conventional as well as contemporary areas in the discipline of Commerce.
- To enable a student well versed in national as well as international trends.
- To enable the students for conducting business, accounting and auditing practices, role of regulatory bodies in corporate and financial sectors nature of various financial instruments.
- To provide in-depth understanding of all core areas specifically Advanced Accounting, International Accounting, Management, Security Market Operations and Business Environment, Research Methodology and Tax planning.

Program Specific Outcomes

- After the completion of the M.Com Course, a student is able
- For pursuing research in their chosen areas.
- For teaching in Schools and Colleges after qualifying requisite tests.
- For working as data analyst.
- To work as investment consultants after a brief internship in suitable organizations .

COURSE OUTCOMES

SN	Name of Course	Paper	Name of Subject/Paper	Course Outcome
1	B.COM. I	1	Financial Accounting	To develop conceptual understanding of fundamentals of financial Accounting system and to impart skills in accounting for various kinds of business transactions.
2	B.COM. I	2	Business Communicatin	To develop communication skills and overall personality development of the students.
3	B.COM. I	3	Business Mathematics	To enable the students to have such minimum knowledge of mathematics as is applicable to business and economic situations.
4	B.COM. I	4	Business Regulatory Framework	The Objective of this course is to provide a brief idea about the framework of Indian Business Law i.e. contract law , Sale of Goods Act , Partnership Act etc.
5	B.COM. I	5	Business Environment	To make the students aware about the Business and Business Environment. To give an insight into meaning of business environment and its components.
6	B.COM. I	6	Business Economics	The objective of this course is to acquaint the students with the business economic principles as are applicable in business.
7	B.COM. II	1	Corporate Accounting	This course aims to enlighten the students on the accounting procedures followed by the Companies and to understand knowledge of new trends in corporate accounting issue of share and redemption of shares
8	B.COM. II	2	Company Law	To acquire knowledge and develop understanding of the necessary framework of companies with reference to various provisions of company act.
9	B.COM. II	3	Cost Accounting	To understand knowledge of cost accounting, single output costing, material cost, labour cost and overhead and Contract and Process Costing
10	B.COM II	4	Principal of Business Management	To know to make planning, decision making, controlling, staffing, organizing etc. to understand new approaches in management
11	B.COM	5	Business	It enable the students to gain understanding of

	II		Statistics	statistical techniques as are applicable in business .
12	B.COM II	6	Fundamentals of Entreprenershi	To develop entrepreneurial awareness among students and motivate students to make their mind set for thinking entrepreneurship as career.
13	B.COM III	1	Income Tax	Students can understand Income Tax system properly, and can get the knowledge of different tax provisions.
14	B.COM III	2	Auditing	Students will be versed in the fundamental concepts of Auditing and different types of tax. and to give knowledge about preparation of Audit report.
15	B.COM III	3	Indirect Taxes	Students will be versed in the fundamental concepts of indirect Taxes like GST and its Provisions and return filing process of GST .
16	B.COM III	4	Management Accounting	To introduce a separate branch of accounting i.e. Management Accounting and its relevance in a business organization and Familiarization with Contemporary issues in management.
17	B.COM III	5	Principle of Marketing	The objective of this course is to facilitate understanding of the framework of marketing and its applications in decision making under various environment constraints.
18	B.COM III	6	International Marketing	This course aims at acquainting student with the operations of marketing in international environment.
19	M.COM I SEM.	1	Managerial Economics	To help the students form a clear idea of Managerial Economics and to enable the students understand determination of price under different market forms and enable the students understand the situation of consumer and producer equilibrium.
20	M.COM I SEM.	2	Advanced Accounting	To provide the knowledge of various accounting concepts and to impart the knowledge about accounting methods, procedures and techniques.
21	M.COM I SEM.	3	Managerial Accounting	The objective of this course is to acquaint student with the accounting concept. Tools and techniques for managerial decisions.
22	M.COM I SEM.	4	Statistical Analysis	To bring out clearly the importance of statistics in solving different research problems and to enable the students in-depth understanding of the concepts of probability, sampling, correlation and their applicability
23	M.COM I SEM.	5	Corporate Legal Framework	The objective of this course is provide knowledge of relevant provisions of various laws influencing business operations’
24	M.COM II SEM.	1	Business Economics	To provide students knowledge of Micro Economic concepts and inculcate an analytical approach to the subject matter and to arise the students interest by showing the relevance and use of various economic theories and how to apply economic reasoning to solve

				business problems.
25	M.COM II SEM.	2	Specialized Accounting	To introduce another specialized branch of Accounting and bring out its evolution and relevance in the contemporary business environment and understanding accounting process of Special Companies like electricity company , GIC and Banking companies .
26	M.COM II SEM.	3	Accounting for Managerial Decisions	The objective of the course is to equip the students with the ability to analysis interpret and use accounting information in managerial decision making. The student is expected to have a good working knowledge of the subject. This course provides the students an understanding of the application of accounting techniques for management.
27	M.COM II SEM.	4	Advance Statistics	The objective of this course is to help student learn the application of statistical tool and techniques for design making.
28	M.COM II SEM.	5	Business Law	The objective of this course is to provide knowledge of relevant provision of various laws influencing business operations – SEBI , FEMA , WHO etc.
29	M.COM III SEM.	1	Management Concept	To understand the concept & functions and importance of management and its application and to make the student understand principles, functions and different management theories.
30	M.COM III SEM.	2	Organizational Behaviour	To build up the conceptual , analytical , technical and managerial skills of students efficient office organization and records management and developing technical skills among the students for designing and developing effective means to manage records , consistency and efficiency of work flow in the administrative section of an organization will be developed.
31	M.COM III SEM.	3	Advance Cost Accounting	Providing knowledge about difference between financial accounting and cost accounting. Ascertainment of Material and Labor Cost and Student's Capability to apply theoretical knowledge in practical situation will be increased.
32	M.COM III SEM.	4	Income Tax law and Accounts	Providing knowledge of Computation of total Income and Submission of Income Tax Return, Advance Tax, and Tax deducted at Source, Tax Collection Authorities under the Income Tax Act, 1961.
33	M.COM III SEM.	5	Tax Planning and Management	To gain knowledge about the role of tax planning in managerial decision making and to understand how the Corporate Tax Laws can be used for tax planning.
34	M.COM IV	1	Banking Practices	To study the Indian Banking system, Banking regulation act 1949, Commercial Bank, Development

	SEM.			Bank and Digital Bank
35	M.COM IV SEM.	2	Banking Institutions In India	To familiar the students with the fundamentals of banking and thorough knowledge of bankingMoperations and to build up the capability of students for knowing banking Institutions in India and knowledge about Institutions like lFCl, ICICI ,SlDBl and knowledge regarding Banking Regulation Act 1949
36	M.COM IV SEM.	3	Life Insurance	This course enables the students to know the working of the Insurance and fundamentals of life insurance and various types of policy and role of Agent .
37	M.COM IV SEM.	4	General Insurance	Understanding the operations and working of General insurance companies in India as Fire Insurance , Marine Insurance .
38	M.COM IV SEM.	5	Project Report	Skill to write project report and bibliography of project report citing references from different sources.

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College Code- 3003

PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

DEPARTMENT OF BOTANY

PROGRAM- BSc, BOTANY

Program Outcomes :

1. Knowledge and understanding about the plant diversity.
2. Practical skill in the field and laboratory experiments.
3. Presentation skills (oral & writing) in life sciences.
4. Scientific knowledge in life science and fundamental metabolism of plants.

5. Knowledge about the biodiversity exploration, estimation and conservation.

Program specific outcomes :

1. Stewardship responsibility.
2. Hands on expertise in biological sciences.
3. Entrepreneurship skill development.
4. Gain potential to get through competitive examinations.
5. Career opportunities and job opportunities.

PROGRAM- MSc, BOTANY

PROGRAM OUTCOME

PO1. Critical

Thinking: Think logically and organize tasks into a structured form. Understand the evolving state of knowledge in a rapidly developing field. Plan, Conduct and write a report on an independent term project.

PO2.

Practical skills:

Students learn to carry out practical work, in the field and in the laboratory, with minimal risk.

PO3.

Scientific knowledge: Apply theknowledge of basicscience, life sciences and fundamental processes of plants to study and analyze any plant form.

PO4.

Social Interaction. Due tocontinuous field visits inthe fields studentsinteract with the socialactivities for their study.

PO5.

The Botanists and society: Applyreasoning informed bythe contextualknowledge to assess plant diversity, its importance for society, health, safety, legal and environmental issues and the consequent responsibilities relevant to the biodiversity and conservation practice

PO6.

Ethics: The subject teaches students about the ethical approach, not to cut the plants.

PO7.

Environment and sustainability: Conservation practicesare studied forsustainabledevelopment.

PO8.
Self-directed and Life-long learning: Each and every aspectof the syllabus teacheslife- long learning.

PROGRAM SPECIFIC OUTCOME

PSO1. Understand occurrence, morphology, anatomy, reproduction and life cycles of lower group and higher group of plants.
PSO2. Identify affinities among different groups of plants.
PSO3. Gain the knowledge of evolution of plants.
PSO4. To get introduced with fossils, fossilization and some primitive plants.
PSO5. Understand different plant physiological processes i.e. photosynthesis, respiration, nitrogen metabolism, water absorption, mechanism of flowering, mineral nutrition, plant movements, etc.
PSO6. Understand the application of genetic engineering and plant tissue culture.
PSO7. Understand the basic concepts of ecology.
PSO8. To explore the plants of economic importance.
PSO9. Perform the laboratory techniques in anatomy, physiology, biochemistry, biotechnology, ecology and utilization of plants.

COURSE OUTCOME

SN	CLASS	PAPER	COURSE OUTCOME
1	BSc I	Ist: Bacteria, Viruses, Fungi, Lichens and Algae	On completion of this course students will be able ➢ To gain knowledge about microbial diversity. ➢ To understand about range of thallus structure of algae, fungi and lichen and their occurrence. ➢ To know about life cycles of different algal and fungal spp. ➢ To gain knowledge about economic importance of bacteria, viruses, algae, fungi and lichens.
2	BSc I	2nd: Bryophytes, Pteridophytes, Gymnosperms	➢ To understand about occurrence, structure and reproduction in bryophytes. ➢ To know the evolution of sporophytes in bryophytes.

		and Palaeobotany	➢ To gain knowledge about stellar evolution and seed formation habit in pteridophytes. ➢ To understand about occurrence, structure and life cycles of pteridophytes. ➢ To gain knowledge about distribution, structure and life cycles of gymnosperms. ➢ To know about economic importance of bryophytes, geological time scale, fossils and fossilization.pteridophytes and gymnosperms. ➢ To understand aboutgeological time scale, fossils and fossilization.
3	BSc I	Practical	➢ To have the knowledge of study of morphology, anatomy of algae, fungi, bryophyte, gymnosperm. ➢ To know the technique of identification of plant disease symptoms. ➢ Gain knowledge of anatomy of some gymnosperms.
4	BSc II	Ist: Plant Taxonomy, Economic Botany, Plant Anatomy and embryology	➢ To know about Bentham and Hooker's system of Classification ➢ To understand about IUCN, Typification, numerical taxonomy chemotaxonomy, Herbaria and Botanical gardens. ➢ To gain knowledge about some important plant families. ➢ To explore the uses of plants as cereal, vegetable, oil, timber, spices, medicines, beverages, biodiesel plants. Also know about cultivation of important flowers and Ethnobotany of CG. ➢ To understand about plant root and stem structure, RAM, SAM organization, secondary growth and anatomical anomalies. ➢ To know the structure of a flower and its different parts. ➢ To get introduced to male and female gametophyte development, pollination, self-incompatibility, fertilization, endosperm and embryo development, polyembryony, apomixes and parthenocarpy.

5	BSc II	2nd Ecology and Plant Physiology	➢ To have knowledge of Ecology and its scope, understand different ecological factors, soil formation and soil profile. ➢ To understand Liebig's law of minimum, Shelford's law of tolerance, morphological and anatomical adaptations in hydrophytes, xerophytes and epiphytes. ➢ To know about population and community characterstics, population interactions. ➢ To understand about succession, ecotone, edge effect, ecotypes, ecads keystone species. ➢ To have knowledge of energy flow in ecosystem, food chain, food web and ecological pyramids and biogeochemical cycles. ➢ To understand osmosis, water absorption, mineral nutrition, transpiration photosynthesis and respiration. ➢ To gain knowledge of Plant growth hormone and mechanism of flowering. ➢ To know photoperiodism, vernalization, seed dormancy, germination and plant movement.
6	BSc II	Practical	➢ To get knowledge of study of some important plants in semi-technical language with their classification and identification. ➢ To know about morphology and anatomy of root, stem, and leaves with the help ofprepared slides. ➢ To know the structure of flower. To know the technique of study of ovules, placentation, embryo with the help of slides. ➢ To know about some experiments of osmosis, transpiration, photosynthesis, respiration. ➢ To have knowledge of studying of a community by quadrate method. ➢ To know about structure of ecosystem. ➢ Study of some economically important plants.
7	BSc III	Ist: Plant Physiology, Biochemistry and	➢ To understand osmosis, water absorption, mineral nutrition in plants. ➢ To have knowledge about photosynthesis and respiration.

		Biotechnology	➢ To gain knowledge of how light and temperature affects flowering in plants. ➢ To get introduced to the structure of phytochrome, cryptochrome and phototropin. ➢ To know the mechanism of nitrogen fixation in plants. ➢ To understand about different types of plant movements. ➢ To gain knowledge of mechanism of action of enzymes. ➢ To have knowledge about seed dormancy. ➢ To know the main techniques of genetic manipulation and plant tissue culture.
8	BSc III	2nd: Ecology and Utilization of plants	➢ To understand different ecological factors. ➢ To understand ecological relationship between organisms and their environment. ➢ To know about plant community and its development. ➢ To have knowledge of ecosystem, food chain, food web and ecological pyramids. ➢ To know about different biogeographical regions of India. ➢ To explore the uses of plants as cereal, vegetable, oil, timber, spices and medicines.
9	BSc III	PRACTICAL	➢ To know about some experiments of osmosis, transpiration, photosynthesis, respiration. ➢ To know the technique of identification of carbohydtraes, lipids and proteins. ➢ To have knowledge of studying of a community by quadrate method. ➢ To know about structure of ecosystem. ➢ Study of some economically important plants.
10	MSc I SEM.	Ist: Biology and Diversity of Virus, Bacteria and Fungi	On completion of this course students will be able to • Acquire the knowledge of history and development of Virology, Bacteriology and Mycology. • Develop an understanding of classification, nomenclature, distribution of microbes.

			• Understand the life cycle pattern and economic importance of microorganisms. • Learn the phylogeny and evolutionary concepts in lower group of organisms.
11	MSc I SEM.	2nd: Biology and Diversity of Algae, Bryophytes and Pteridophytes	• Acquire the knowledge of history and development of Phycology and Bryology. • Learn about the occurrence, distribution, structure and life history of lower plants. • Gain adequate knowledge of evolutionary concepts in Algae, Bryophytes and Pteridophytes. • Acquire knowledge of life cycle patterns and economic importance of Algae, Bryophytes and Pteridophytes.
12	MSc I SEM.	3rd: Cell and Molecular Biology of Plants	• It brings fundamental concepts as well as recent developments of cell structure and ultrastructure of organelles. • Acquire the knowledge about mechanism of translation, DNA replication,NDNA damage and repair, splicing of mRNA. • Understand about cytoskeleton, flagellar and other movements. • Get knowledge about mitosis and meiosis, cyclins and PCD.
13	MSc I SEM.	4th: Taxonomy of Angiosperms	• Prepare the botanical excursion report. • Understand classical and modern system of classification. • Acquire knowledge on molecular tools for classification. • Impart knowledge on taxonomic evidences. • Acquire knowledge about Plant conservation, sustainable utilization of bioresource and ecosystem research. • Know about endemism, hot spots and local plant diversity.
14	MSc I SEM.	Lab-1: Based on Paper I&II	• Identify cyanobacteria and algae. • Prepare and identify the fungal culture.

			• Know the symptoms of diseased specimens. • Identify Bryophytes and Pteridophytes.
15	MSc I SEM.	Lab-2: Based on Paper III&IV	• Know the technique of isolation of DNA, preparation of Karyotype. • Study of different stages of mitosis. • Obtained skill to identify the plants according to the rules. • Know the technique of preparation of Herbarium sheets. • Know about similarity coefficient and preparation of dendrograms. • Know the economic importance of plants.
16	MSc II SEM.	Ist: Cytology, Genetics and Cytogenetics	• To gain knowledge about DNA packeging. • To understand about structural and numerical Alter ations in chromosomes. • To know about mapping, genetic recombination in phages and bacteria. • To gain knowledge about gene structure. • Understand about mutation, transposable elements, oncogenes. • To understand about cytogenetics of aneuploids and heterozygotes, C value paradox, alien gene transfer.
17	MSc II SEM.	2nd: Biology and Diversity of Gymnosperm species	• To know about evolution of Gymnosperm and their characteristics. • To understand about classification and distribution of Gymnosperm. • To get acquainted with comparative study of Cycadeoidales, Cordaitales, Cycadales, Ginkgoales. • To know about comparative structure and reproduction in Cycadales, Ginkgoales, Coniferales, Ephedrales, Welwitschia and Gnetales.
18	MSc II SEM.	3rd: Plant Physiology	• To get knowledge about Plant-water relations, nutrient uptake, phloem loading and unloading. • To understand about nodule formation,

			nitrogen fixation, sulphate uptake and assimilation. • To get knowledge of mechanism of Photosynthesis. • To know about different biotic and abiotic stresses.
19	MSC II SEM.	4th: Plant Biochemistry and Bioenergetics	• To get knowledge of thermodynamic principles, structure and function of ATP. • To learn about plant respiration and lipid metabolism. • To know about enzyme action, its regulation and kinetics of enzyme catalysis. • To study about photomorphogenesis and phytochromes, cryptochromes, signaling and gene expression. • To know about physiological effects, signal transduction and gene expression of different plant hormones. • Study about photoperiodism, genetic and molecular analysis of floral induction and vernalization.
20	MSc II SEM.	Lab-1: Based on Paper I&II	• To know the technique of chromosome banding. • Study of effect of monosomy and trisomy on phenotype of plants. • To know the technique of induction of polyploidy. • Gain skill about isolation of DNA and their estimation. • Comparative study of different gymnosperms. • Collection of various Gymnospermic plant material.
21	MSc II SEM.	Lab-2: Based on Paper III&IV	• Know the technique of measurement of catalytic activity of catalase and diastase. • Gain skill to determine R.Q. of different respiratory substrates. • Know the technique of separation of protein by PAGE.

			• Study of the effects of differernt factors on seed dormancy. • Study of Phototropic and Geotropic movements. • Know the technique of plasmolysis and deplasmolysis. • Study about transpiration. • Know the technique of extraction of chloroplast pigment and their separation. • Preparation of absorption spectrum of chlorophyll a. • To know the technique of colorimetry, spectrometry and fluorimetry.
22	MSc III SEM.	Ist: Plant Development	• To get knowledge about important features of plant development. • To know different aspects of seed germination and seedling growth. • Study of organization of SAM, control of differentiation of tissues and wood development. • To know about organization of RAM, vascular tissue differentiation and rootmicrobe interaction. • Understand about phyllotaxy, control of leaf formation. • Study of origin, structure and differentiation of different plant tissues. • To gain knowledge of secondary growth and abnormal secondary growth in various plants.
23	MSc III SEM.	2nd: Plant Reproduction	• To know about flower structure and genetics of floral organ differentiation. • Study of microspore and development of male gametophyte. • Understand about megasporogenesis, organization of female gametophytes, GSI and SSI, fertilization. • Know about embryogenesis, endosperm development, storage proteins, dynamics of fruit growth.

			• Understand about PCD, senescence.
24	MSc III SEM.	3rd: Plant Ecology	• Gain knowledge of different types of climatic, edaphic, biotic factors and their interrelationships. • To know about primary production in ecosystem, energy flow, trophic organization, litter fall and decomposition, different biogeochemical cycles. • Study of different biomes and vegetation of the world, analytical and synthetic characteristics of a community, ordination, concept of ecological niche. • Study of air, water and soil pollution and Climate change. • To know about resistance, resilience, ecological perturbations, EIA and ecosystem restoration, ecological management.
25	MSc III SEM.	4th: Plant Pathology	• Study of history of plant pathology, its development and trends in 21st century. • Understand about parasitic and non-parasitic diseases. • To know about parasitic ability and virulence, mode of infection. • Understand about role of enzymes in pathogenesis, resistance and susceptibility, phytoalexins.
26	MSc III SEM.	Lab-1: Based on Paper I&II	• To study the effect of different factors on seed germination and seedling growth. • Gain knowledge of SAM, phyllotaxy and internal structure of leaves. • Study of whole root and internal structure of roots. • Study of different types of tissues and secondary growth. • To know the technique of study of microspore, microsporogenesis, megaspors, megasporogenesis, pollen viability, pollen

			germination, pollen tube growth. • Field study of different types of pollination mechanism. • Study of emasculation, and isolation of embryos at different stages.
27	MSc III	Lab-2: Based on Paper III&IV	• Understand to calculate mean, variance, standard deviation, standard error, coefficient of variation and ttest. • To know about community characteristics by quadrate method. • Gain skill of determination of productivity of ecosystem. • To know the technique of determination of organic matter. • To know about calibration of microscope. • Gain skill of determination of dimensions of microbes and their isolation on media. • Study of symptoms of plant diseases, effects of various biopesticides and artificial pathogenesis.
28	MSc IV SEM.	Ist: Plant Cell, Tissue and Organ Culture	• To understand about basic concepts and scope of Biotechnology. • To get acquainted with cellular differentiation, totipotency, organogenesis and adventive embryogenesis. • To understand about somatic hybridization, artificial seed, protoplast fusion, production of secondary metabolites, cryopreservation.
29	MSc IV SEM.	2nd: Plant Resource Utilization and Conservation	• To gain knowledge of biodiversity of ecosystem, IUCN categories of threats, hot spots, utilization of plants. • To gate acquainted with world centers of primary diversity of domesticated Plants. • Understand about origin, evolution, botany, cultivation and uses of some important plants. • To have knowledge of *in situ* and *ex situ* conservation, B BSI, NBPGR, ICAR, CSIR, DBT.
30	MSc IV	3rd: Genetic	• To understand about gene cloning, DNA

	SEM.	Engineering of Plants and Microbes and Biostatistics	synthesis and sequencing, PCR, DNA fingerprinting. • To have knowledge of strategies for development of transgenics, *Agrobacterium*, gene tagging, chloroplast transformation, IPR, ecological risk. • Understand about bacterial transformation, selection of recombinants, nitrogen fixer's, fermentation technology. • To have knowledge of mapping of genes, molecular markers, genome projects, bioinformatics, microarrays and protein profiling. • To understand about dispersion, standard deviation, standard error, comparison of data by chisquare test.
31	MSc IV SEM.	4th: Plant Pathology-II	• To get knowledge of effect of environment on disease development. • Regulatory, chemical, biological and breeding for disease resistant varieties. • Crop loss estimate and recommended control for important plant diseases caused by bacteria, viruses, mycoplasma and nematodes.
32	MSc IV SEM	Lab-1: Based on Paper I&II	• To know the technique of preparation of Tissue Culture medium and method of transfer of explants on culture media. • Study of isolation of protoplast. • Initiation of organogenesis and embryogenesis using appropriate explants. • Study of some economically important plants. • To have knowledge of herbarium, field survey and scientific visit to a protected area.
33	MSc IV SEM.	Lab-2: Based on Paper III&IV	• Study of bacterial culture media. • To know the technique of isolation of total DNA and plasmid DNA. • Isolation of Rhizobium and Agrobacterium from plant. • Study of various bacterial/ fungal plant

			pathogens. • To know about antibiosis. • To gain skill of technique of isolation of cellulose.

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College Code- 3003

PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

DEPARTMENT OF CHEMISTRY

PROGRAM – BSc, CHEMISTRY

PROGRAM OUTCOME

After successful completion of three year degree program in Chemistry a student should be able to-

PO-1. Demonstrate, solve and an understanding of major concepts in all disciplines 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, carry out, 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 sustainable development.
PO-6.To inculcate the scientific temperament in the students and outside the scientific community.
PO-7. Use modern techniques, decent equipments and Chemistry softwares.

PROGRAM SPECIFIC OUTCOME

PSO1. Have sound knowledge about the fundamentals and applications of chemical and Scientific theories.
PSO2. Every branch of Science and Technology is related to Chemistry
PSO3. Easily assesses the properties of all elements discovered.
PSO4. Apply appropriate techniques for the qualitative and quantitative analysis of chemicals in laboratories and in industries.
PSO5. Will become familiar with the different branches of chemistry like analytical, organic, inorganic, physical, environmental, polymer and biochemistry
PSO6. Helps in understanding the causes of environmental pollution and can open up new Methods for environmental pollution control.
PSO7. Develops analytical skills and problem solving skills requiring application of chemical principles.
PSO8. Acquires the ability to synthesise, separate and characterize compounds using laboratory and instrumentation techniques.

COURSE OUTCOME

SN	CLASS	PAPER	COURSE OUTCOME
1	BSc I	INORGANIC CHEMISTRY	CO1. Knowledge of atomic structure and periodic properties of elements. CO2. Understand various types of bonding in covalent molecules and ions. CO3. Understand various types of bonding in ionic solids. Programme Specific Outcome and can open up new Methods for environmental pollution control. CO4. Comparative knowledge of s-block elements of periodic table and there compounds. Chemistry of noble gases. CO5. Comparative knowledge of s-block elements of periodic

			table and there compounds. Chemical principles involve in inorganic chemical analysis.
2	BSc I	ORGANIC CHEMISTRY	CO1. Knowledge of electronic structure, bonding and mechanism of organic reactions. CO2. Knowledge of stereochemistry of organic compounds. CO3. Understand Chemistry of aliphatic and aromatic ring compounds. CO4. Understand Chemistry of alkenes, dienes and alkynes. CO5. Understand Chemistry of arenes and aromaticity.
3	BSc I	PHYSICAL CHEMISTRY	CO1. Understand the idea of mathematical concepts for chemists and basic knowledge of computer. CO2. Knowledge of various types of molecular velocities and their effect on properties. Understand behaviour of ideal gases. CO3. Understand intermolecular forces in liquid state, ideal and non ideal solutions, properties of dilute solutions. CO4. Understand structure, properties and uses of liquid crystals. Colloidal states and its properties and uses. CO5. Understand chemical kinetics rate constant and order of reactions and various theories. Characteristics types and industrial applications of catalysis.
4	BSc I	Practical work	CO1. Analyse qualitatively acid and basic radicals by semi-micro analysis method. CO2. Calibration of thermometers. CO3. Determination of melting point and boiling point of organic compounds. CO3. Mixed melting point determination. CO4 Crystallization CO5. Decolourisation and crystallization using charcoal. CO6. Sublimation. CO7. Detection of Nitrogen, Sulphur and Halogens and detection of functional group present in organic compounds. CO8. To determine specific rate of hydrolysis of methyl/ethyl acetate catalysed by hydrogen ion at room temperature. CO9. To study distribution of iodide between water and carbon tetra chloride. CO10. To determine the % composition of a given mixture by viscosity method.
5	BSc II	INORGANIC CHEMISTRY	CO1. Understand chemistry of first transition series elements. CO2. Understand chemistry of second and third transition series elements. CO3. Understand Oxidation and reduction. Coordination compounds. CO4. Understand chemistry of lanthanides and actinides. CO5. Understand Acid and bases and non-aqueous solvents.
6	BSc II	ORGANIC CHEMISTRY	CO1. Understand chemistry of alcohols, phenols and epoxides. CO2. Understand chemistry of aldehydes and Ketons and its

			uses. CO3. Understand chemistry of carboxylic acid, substituted carboxylic acids and there derivatives. CO4. Understand Chemistry of organic compound of nitrogen. CO5. Understand Chemistry of heterocyclic compounds and amino acids & peptides.
7	BSc II	PHYSICAL CHEMISTRY	CO1. Understand first law of thermodynamics and thermo chemistry. CO2. Understand second law of thermo chemistry, efficiency of a heat engine and concept of entropy. CO3. Understand phase equilibrium, Gibbs rule, and application of phase rule to two component systems and three component systems and Nernst distribution law. CO4. Understand electrolytic conductance, theories of strong electrolytes and migration of ions. CO5. Understand electrochemical cell or galvanic cell, single electrode potential, concentration cell, pH and its determination and corrosion.
8	BSc II	Practical work	CO1. Calibration of fractional weights, pipettes and burettes. CO2. Preparation of standard solutions CO3. Quantitative volumetric estimation of vinegar, antacid tablets, chalk, hardness of water, ferrous & ferric and copper. CO3.Colorimery: Jobs method and mol ratio method. CO4. Adulteration in food stuffs. CO5. Effluent analysis. CO6. Water analysis. CO7.Solvant extraction- separation and estimation of Mg and Fe. CO8. Ion exchange method; separation and estimation of Mg and Zn. CO9. Thin layer chromatography: Determination of Rf value and identification of organic compounds. CO10. Paper chromatography Ascending and circular, Determination of Rf value and identification of organic compounds CO11. Qualitative analysis: identification of an organic compound. CO12. Determination of the transition temperature of given substance by thermometric/ dialometric method. CO13. To study of a solute on the critical solution temperature of two partially miscible liquids CO14. Construct the phase diagram of two component system by cooling curve method. CO15. Determine the solubility of benzoic acid at different temperature. CO16. Determine the enthalpy of neutralization and ionization.

9	BSc III	INORGANIC CHEMISTRY	CO1. Understand metal ligand bonding in transition metal complexes. Thermodynamics and kinetic aspects of metal complexes. CO2. Understand magnetic properties of transition metal complexes and electronic spectra of complexes. CO3. Understand chemistry of organometallic compounds. CO4.undrstand bioinorganic chemistry. CO5. Understand hard and soft acids and bases and silicones and phosphazenes.
10	BSc III	ORGANIC CHEMISTRY	CO1. Understand chemistry of organometallic compounds, organosulphur compounds and organic synthesis via enolates. CO2. Understand biomolecules carbohydrates, proteins and nucleic acid. CO3. Understand Chemistry of synthetic polymers and synthetic dyes. CO4. Understand mass spectroscopy, infrared spectroscopy, UVVisible spectroscopy and application of mass, IR, UV-Visible spectroscopy to organic molecules. CO5. Understand NMR spectroscopy and ^{13}CMR spectroscopy and magnetic resonance imaging.
11	BSc III	PHYSICAL CHEMISTRY	CO1.Understand Quantum Mechanics black body radiation, DeBroglie's idea of matter waves, Schrödinger time independent wave equation and its applications. CO2. Understand quantum mechanical approach to molecular orbital theory, Orbitals and there characteristics. CO3. Understand Vibrational and Raman spectra. CO4. Understand Third law of thermodynamics, Nernst theorem and its application. Physical property and molecular structure, Magnetic properties. CO5. Understand of chemical kinetics rate constant and order ofreactions and various theories. Characteristics types and industrial applications of catalysis.
12	BSc III	Practical work	CO1. Synthesis analysis of sodium trioxalato ferrate(III). CO2. Preparation of Ni-DMG. CO3. Preparation of Copper tetra ammine complex. CO3. Preparation of cis- and trans-bioxalato diaqua chromate(III). CO4. Gravimetric analysis of Cu as CuSCN, Ni as Ni(DMG), Ba as BaSO4 and Fe as Fe_2O_3 CO5. Steam distillation: Naphthalene from its suspension in water, Clove oils from clove, Separation of ortho and para-nitrophenols. CO6. Separation of fluorescein and methelene blue by column chromatography. CO7. Separation of leaf pigments from Spinach leave by column chromatography.

			CO8. Resolution of recemic mixture of (+,-) maleic acid by column chromatography. CO9. Analysis of an organic mixture containing two solid components. CO10 Acetylation of salicylic acid, aniline, glucose and hydroquinone. CO11. Benzoylation of aniline and phenol. CO 12. Preparation of m-dinitrobenzene, p-nitroacetanilide. CO13. Preparation of p-bromoacetanilide, 2,4,6-tribromophenol. CO14. Preparation of methyl orange and methyl red. CO15. Preparation of benzoic acid from toluene. CO16. Preparation of aniline from nitrobenzene, preparation of mnitro aniline from m-dinitrobenzene. CO17. Determine strength of given acid conductometrically using standard alkali solution. CO18. Study of saponification of ethyl acetate conductometrically. CO19. Determine the specific rotation of a given optically active compound. CO20. Determination of molecular weight of a non-volatile solute by Rast method/ Beckmann freezing point method. CO21. Verify Beer-Lambert law for $KMnO_4$/ $K_2Cr_2O_7$ and determination of concentration of the given solution of the solution.

PROGRAM – MSc, CHEMISTRY

PROGRAM OUTCOME

After successful completion of two year degree programme in chemistry a student should be able to-

PO-1.Demonstrate, solve and an understanding of major concepts in all disciplines of Chemistry.

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

PO-3. Create an awareness of the impact of chemistry on the society, and development outside the scientific community.

PO-4. Become professionally trained in the area of Industry, material science, lasers and Nano-Technology.

PO-5. Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of Chemistry experiments.
PO-6.To inculcate the scientific temperament in the students and outside the scientific community.
PO-7. Apply modern methods of analysis to chemical systems in a laboratory setting.

PROGRAM SPECIFIC OUTCOME

PSO1 Provide theoretical background and develop practical skills for analysing materials using modern analytical methods and instruments,
PSO2 Inculcate a problem solving approach by coordinating the different branches of chemistry.
PSO3 Becomes professionally skilled for higher studies in research institutions and to work in chemical industries.
PSO4 In-depth knowledge helps to qualify in competitive exams.

COURSE OUTCOME

SN	CLASS	PAPER	COURSE OUTCOME
1	MSc I SEM.	INORGANIC CHEMISTRY	CO1. Understand stereochemistry and bonding in main group compounds. CO2. Understand metal ligand bonding. CO3. Understand electronic spectra of transition metal complexes. CO4. Understand magnetic properties of transition metal complexes. CO5. Understand symmetry and matrix representation. CO6. Understand group theory in chemistry.
2	MSc I SEM.	ORGANIC CHEMISTRY	CO1. Understand reaction intermediates. CO2. Understand nature of bonding in organic molecules. CO3. Understand stereochemistry. CO4. Understand reaction mechanism: structure and reactivity. CO5. Understand pericyclic reactions. CO6. Understand molecular rearrangement
3	MSc I SEM.	PHYSICAL CHEMISTRY	CO1. Understand Introduction to exact quantum mechanical results. CO2. Understand approximate methods and angular momentum.

			CO3. Understand electronic structure of atom. CO4. Understand molecular orbital theory. CO5. Understand chemical dynamics. CO6. Understand surface chemistry. CO7. Understand macromolecules
4	MSc I SEM.	Laboratory Course-I : ORGANIC CHEMISTRY	CO1. Separation, purification and identification of binary organic mixture. CO2. Organic synthesis based on various reactions. CO3. Quantitative estimation of various organic compounds.
5	MSc II SEM.	INORGANIC CHEMISTRY	CO1. Understand metal ligand equilibrium in solution. CO2. Understand reaction mechanism of transition metal complexes. CO3. Understand metal clusters. CO4. Understand metal carbonyls and metal nitrosyls. CO5. Understand isopoly and hetropoly acid and salts.
6	MSc II SEM.	ORGANIC CHEMISTRY	CO1. Understand aliphatic electrophilic substitution. CO2. Understand aliphatic nucleophilic substitution. CO3. Understand aromatic nucleophilic substitution. CO4. Understand free radical reaction. CO5. Understand addition to carbon-carbon multiple bond. CO6. Understand addition to carbon-hetero multiple bonds. CO7. Understand elimination reactions.
7	MSC II SEM.	PHYSICALCHEMISTRY	CO1. Understand classical thermodynamics. CO2. Understand statistical thermodynamics. CO3. Understand non equilibrium thermodynamics. CO4. Understand electrochemistry. CO5. Understand electro catalysis. CO6. Understand electron diffraction and neutron diffraction.
8	MSc II SEM.	SPECROSCOPY, DIFFRACTION METHODS & COMPUTER FOR CHEMISTS	CO1. Understand atomic spectroscopy. CO2. Understand molecular spectroscopy. CO3. Understand photo electric spectroscopy. CO4. Understand Nuclear magnetic resonance spectroscopy. CO5. Understand Electron spin resonance spectroscopy. CO6. Understand photo acoustic spectroscopy. CO7. Understand X-ray diffraction. CO8. Understand computer fundamental. CO9. Understand programming in C.

			CO10. Understand programming in chemistry and use of computer programmes
9	MSc II SEM.	Laboratory Course-I: INORGANIC CHEMISTRY	CO1. Qualitative analysis of mixture containing eight radicals including some less common metal ions. CO2. Quantitative analysis involving two ions in alloys or mixture in solution- one by volumetric and other by gravimetric method. CO3. Quantitative Analysis:-involving two of following in ores, alloys or mixture in solution- one by volumetric and other by gravimetric method Ag, Cu, Fe, Cr, Mn, Ni, Zn, Ca, Mg, Chloride, Sulphate. CO4. Estimation of:- (A) Phosphoric acid in Commercial ortho phosphoric acid. (B) Boric Acid in Borax. (C) Ammonium ion in Ammonium Salt. (D) MnO in pyrolusite (E) Available Cnl0rlne, in bleaching powder. (F) H_2O_2 in commercial sample. CO5. Preparation of selected inorganic compounds and study of their properties by various method including IR, Electronic Spectra,Mossbauer, ESR. Spectra, Magnetic susceptibility etc. (i) V(acac)2 (ii) cis $K[Cr(C_2O_4)_2(H_2O)_2]$, (iii) $[Co(NH_3)_6]Cl_3$, trans $K[Cr(C_2O_4)_2(H_2O)_2].2H_2O$ (iv) Na $[Cr(NH_3)_2(SCN)_4]$ (v) Mn $(acac)_3$ (vi) $K_4[Fe(C_2O_4)_3]$ (vii) Prussian Blue, Turnbull's Blue. (viii) $[Co(NH_3)_4][Co(NO_2)_6]$ (ix) Hg $[Co(SCN)_4]$ (x) $[Ni(NH_3)_4]Cl_2$, (xi) Ni $(DMG)_2$, (xii)$[Cu(NH.)_4SO_4$ (xii) $K_3[Cr(C_2O_4)_3].3H2O$ (xiii) $[Cu(NH_3)_4]SO_4$
10	MSc II SEM.	Laboratory Course-II: PHYSICAL CHEMISTRY	CO1. Verification of Freundlich's Adsorption isotherm. CO2. To study surface tension - concentration relationship for. solutions (Gibbs equation). CO3. Determination of congruent composition and temperature of binary system e.g. diphenylamine - benzophenone system. CO4. Determination of glass transition temperature of given salt e.g. $CaCl_2$ conductometrically. CO5. To construct the phase diagram for three

			component system e.g. chloroform, acetic acid and water. CO6. Hydrolysis of an ester/ ionic reactions. CO7. Determination of the velocity constant of hydrolysis of an ester. Determination of effect of (a) change of temperatures, (b) change of concentration of reactants and catalyst and(c) ionic strength of the media on the velocity constant of media. CO8. Determination of the rate constant for the oxidation of iodide ions by hydrogen peroxide. CO9. Determination of the primary salt effect on the kinetics of ionic reaction and Testing of the Bronsted relationship (iodide ions oxidized by persulphate ion). CO10. Determination of solubility of sparingly soluble salt (e.g.,$PbSO_4$, $BaSO_4$) Conductometrically. CO11. Determination of the strength of strong and weak acids in a given mixture conductometrically. CO12. Determination of dissociation constant of weak electrolyte by conductometer. CO13. .Determination of velocity constant, Order of reaction and energy of activation for Saponification of ethyl acetate by sodium hydroxide. CO14. Determination of the strength of strong and weak acid in a given mixture using pH meter/potentiometer. CO15. Determination of dissociation constant of weak acid by Ph meter. CO16. Determination of concentration of acid in given buffer solution by pH meter. CO17. Determination of strength of halides in a mixture potentiometrically. CO18. Determination of the valency of mercurous ions potentiometrically. CO19. Determination of the strength of strong acid, weak acids in a given mixture using a potentiometer/ pH meter. CO20. Determination of temperature dependence of EMF of a cell. CO21. Determination of the formation constant of silver- ammonia complex and stoichiometry of the complex potentiometrically. CO22. Determination of activity and activity coefficient of electrolytes.

			CO23. Determination of thermodynamic constant. ΔG, ΔS and ΔH for the reaction by e.m.f. method. $Zn + H_2SO_4 = ZnSO_4 + H_2$ CO24. Determination of the dissociation constant of monobasic / dibasic acid. CO25. Determination of rate constant for hydrolysis/inversion of sugar using a polarimeter. Enzyme kinetic - inversion of sucrose. CO26. Determination of molecular weight of non-volatile and nonelectrolyte/ electrolytes by cryoscopy method and to determine the activity coefficient of an electrolyte. CO27. Determination of the degree of dissociation of weak electrolyte and to study the deviation from ideal behaviour that occurs with a strong electrolyte.
11	MSc III SEM.	APPLICATIONS OF SPECTROSCOPY (COMPULSORY)	CO1. Understand Vibrational spectroscopy. CO2. Understand Electron spin resonance spectroscopy. CO3. Understand Nuclear Magnetic Resonance of Paramagnetic substances in solution CO4. Understand Ultraviolet and Visible Spectroscopy. CO5. Understand Nuclear Magnetic Resonance Spectroscopy. CO6. Understand Carbon-13 NMR Spectroscopy. CO7. Understand mass Spectrometry.
12	MSc III SEM.	CHEMISTRY OF BIO-INORGANIC & BIO.ORGANIC (COMPULSORY)	CO1. Understand Metal ions in Biological Systems. CO2. Understand transport and storage of dioxygen. CO3. Understand introduction of bioorganic chemistry. CO4. Understand enzymes. CO5. Understand kind of reactions catalysed by enzymes. CO6. Understand Co-enzyme chemistry. CO7. Understand enzyme models. CO8. Understand biotechnological application of enzymes.
13	MSc III SEM.	ORGANOTRANSITION METAL CHEMISTRY (Optional for group-A, Inorganic Chemistry)	CO1. Understand Alkyls and Aryls of Transition Metals. CO2. Understand Compounds of transition Metal-Carbon multiple bond. CO3. Transition Metal π-complexes. CO4. Understand Transition Metal Compounds with Bonds to Hydrogen. CO5. Understand Fluxional OrganometallicCompounds.

			CO6. Understand homogeneous catalysis.
14	MSc III SEM.	PHOTOINORGANIC CHEMISTRY (Optional for group-A, Inorganic Chemistry)	CO1. Understand basics of photochemistry. CO2. Understand properties of exited states. CO3. Understand exited states of metal complexes. CO4. Understand ligand field photochemistry. CO5. Understand metal complex sensitizers. CO6. Understand redox reactions by exited metal molecules.
15	MSc IV SEM.	PHOTOCHEMISTRY & SOLID STATE CHEMISTRY (Optional for group A, Inorganic Chemistry)	CO1. Understand photochemistry reaction. CO2. Understand determination of reaction mechanism. CO3. Understand photochemistry of alkenes. CO4. Understand photochemistry of carbonyl compounds. CO5. Understand photochemistry of aromatic compound. CO6. Understand miscellaneous photochemical reactions. CO7. Understand solid state reactions. CO8. Understand crystal defects and non-stoichiometry. CO9. Understand electronic property and band theory.
16	MSc IV SEM.	BIO-PHYSICAL & ENVIRONMENTAL CHEMISTRY (Optional for group-A, Inorganic Chemistry)	CO1. Understand Biological cell and its constituents. CO2. Understand Statistical mechanics in biopolymers. CO3. Understand Biopolymer interactions. CO4. Understand Thermodynamics of biopolymer solutions. CO5. Understand Cell Membrane and Transport of Ion. CO6. Understand Biopolymer and their Molecular Weights. CO7. Understand diffraction method. CO8. Understand Environment. CO9. Understand Hydrosphere. CO10. Understand water quality parameter. CO11. Understand industrial pollution
17	MSc IV SEM.	BIOINORGANIC CHEMISTRY &SUPRAMOLECULAR CHEMISTRY (Optional for group-A, Inorganic Chemistry)	CO1. Understand Metal Storage Transport and Biomineralization. CO2.Understand Metalloenzymes CO3.Understand Peroxidise and cytochrome p-450. Copper enzymes. CO4.Understand Metal-Nucleic Acid Interactions CO5.Understand Metals in Medicine. CO6.Understand Molecular recognition.

			CO7.Understand Transport processes and carrier designs. Understand supra-molecular chemistry.
18	MSc IV SEM.	ANALYTICAL CHEMISTRY (Optional for group-A, Inorganic Chemistry)	CO1. Understand Introduction, classification and various technique of analytical chemistry. CO2. Understand Error and Evaluation. CO3. Understand Food Analysis. CO4. Understand Analysis of Water Pollution. CO5. Understand Analysis of Soil Fuel. CO6. Understand Fuel analysis.
19	MSc IV SEM.	Laboratory Course-: (SPECIAL CHEMISTRY) PHOTO INORGANAIC & ORGANO-TRANSITION CHEMISTRY	CO1. Preparation of selected inorganic compounds and their study by IR, electronic spectra, Mossbauer, ESR, and magnetic susceptibility measurements. Handling of air and moisture sensitive compounds involving vacuum lines. CO2. Kinetics and mechanism of following reactions: i. Substitution reactions in octahedral complexes (acid hydrolysis and base hydrolysis). ii. Redox reaction in octahedral iii. Isomerisation reaction of octahedral. CO3. Extraction of chlorophyll from green leaves of student's choice. Separation of chlorophylls and their electronics spectral study. CO4. Complexation study of Cu (II) ion with biologically important amino acids. CO5. Synthesis of potassium ferrioxalate and determination of the intensity of radiation. ii. Photo-oxidation of oxalic by U02 sensitization. iii. Photodecomposition of HI and Determinant of its quantum yield.

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College Code- 3003

PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

DEPARTMENT OF MATHEMATICS

PROGRAM- BSc, MATHEMATICS

Program outcomes :

1. Inculcate critical thinking to carry out specific investigation objectively without being biased with preconceived notions.
2. Equip the students with skills to analyze problems, formulate an hypothesis, evaluate and validate results, and draw reasonable conclusions thereof.
3. Imbibe effective scientific and/or technical communication in both oral and writing.
4. Continue to acquire relevant knowledge and skills appropriate to professional activities and demonstrate highest standards of ethical issues in mathematical sciences.
5. Create awareness to become an enlightened citizen with commitment to deliver one's responsibilities within the scope of bestowed rights and privileges.

Program specific outcomes :

1. Understanding of the fundamental axioms in mathematics and capability of developing ideas based on them.
2. Inculcate mathematical reasoning.
3. Provide knowledge of a wide range of mathematical techniques and application of mathematical methods in other scientific engineering domains.
4. Provide advanced knowledge on topics in pure mathematics, empowering the students to pursue higher degree at reputed academic institutions.
5. Good understanding of number theory which can be used in modern online cryptographic technologies.

COURSE OUTCOME

SN	Name Of Course	Name Of Sub./Paper	Course Outcome
1	B.Sc. 1st	Algebra & Trigonometry - 1	1. To Give The Student Of First-Hand Knowledge Of Matrix. 2. To Develop In Students Application Of Linear Equation . 3. To Give Knowledge Of Major Mathematians Of Their Contribution. 4. To Give The Students On Knowledge Of Mappings

			And Homomorphism. 5.To Understand Permutation Group. 6. Knowledge Of Trigonometrical Functions. 7. Understand Group And Its Properties.
2	B.Sc. 1st	Elementary Calculus - 2	1. Knowledge Of Limit Of Function Asymptotes. 2. Understand Of Curvature & Tracing Of Curves. 3. Understand Of Integration Of Transcendental Functions. 4. Knowledge Of Degree And Order Offer Differential Equation. 5. Knowledge Of Linear Differential Equation.
3	BSc. I	Vector Analysis & Geometry - 3	1. Knowledge Of Is Scalar And Vector Product. 2. Understand Vector Integration In Theorem Of Gauss And Green Stocks. 3. Understand System Of Conics And Polar Equation Of Conic. 4. Understand Plane, Sphere And Cone.
4	BSc. II	Advanced Calculus - 1	1. Understand Sequence And Series. 2. Understand Continuity Of Function And It's Properties. 3. Understand Beta And Gamma Functions And Its Theorem. 4. Understand The Euler Theorem On Homogeneous Function. 5. Understand Envelops Maxima And Minima Lagrange's Multiplier Method.
5	BSc. II	Differential Eqaution - 2	1. Understand The Power Series Method Bessel And Legendre Functions. 2. Understand Laplace Transformation And It's Existence Theorem. 3. Understand The Lagrange's Solution And Charpit Method. 4. Understand Variational Problem With Fixed Boundaries Eulers Equation For Functional Containing First Order Derivatives.
6	BSc. II	Mechanics - 3	1. Understand Equilibrium Of Coplanar Forces Stable And Unstable Equilibrium And Virtual Work. 2. Understand Forces In Three Dimensions Poinsot's Central Axis And Null Lines And Planes. 3. Knowledge Of Simole Harmonic Motion And Hooke's Law. 4. Understand Velocities And Acceleration Along Radial And Transverse Directions.

			5. Knowledge Of Kepler's Law Of Motion (Planetary Motion).
7	BSc. III	Analysis - 1	1. To Give The Student A First Hand Knowledge Of Series Of Arbitrary Term Double Series And Implicit Function. 2. Understand The Riemann Integral And The Fundamental Theorem Of Integral Calculus. 3. Knowledge Of Matric Space And Limit Points. 4. Understand Complex Numbers As Ordered Pair And Analytic Function. 5. Understand Baire Category Theorem And Extension Theorem.
8	BSc. III	Abstract Algebra - 2	1. To Give The Student A Knowledge Of Group Automorphism A Normalizer. 2. Understand Ring Theory And Homomorphism And Isomorphism Theorem. 3. To Give The Student A Knowledge Of Vector Space And Their Basic Properties Basis. 4. To Give The Student A Knowledge Of Linear Transformation And Diagonalization. 5. Understand Inner Product Space And Cauchy Schwarz Inequality.
9	BSc. III	Discrete Mathematics - 3	1. Understand Phrase Structure Grammars And Langauges. 2. Knowledge Of Relation And Function Graph. 3. Understand Finite State Machine And Equivalent Machine. 4. Understand Recurrence Relation And Homogeneous. 5. Understand Boolean Algebra (Lattice) And Boolean Function 6. Knowledge Of Switching Circuits.

PROGRAM- M.Sc., MATHEMATICS

PROGRAM OUTCOME

1. Inculcate critical thinking to carry out specific investigation objectively without being biased with preconceived notions.

2. Equip the students with skills to analyze problems, formulate an hypothesis, evaluate and validate results, and draw reasonable conclusions thereof.

3. Imbibe effective scientific and/or technical communication in both oral and writing.

4. Continue to acquire relevant knowledge and skills appropriate to professional activities and demonstrate highest standards of ethical issues in mathematical sciences.

5.Create awareness to become an enlightened citizen with commitment to deliver one's responsibilities within the scope of bestowed rights and privileges.

PROGRAM SPECIFIC OUTCOME

PS01 - Understand All Branches Of Maths.
PS02 - Know The Computer Langauge and Computer Software.
PS03 - Appear For Competitive Examination.
PS04 - Understand For Electrical and Engineering Technique.
PS05 - Develop Research and Development Management.
PS06 - Understand Teaching Career In School and College, University Level.
PS07 - In Depth Knowledge Helps To Quality In Competative Exams.
PS08 - Understand The Signal Analysis.

COURSE OUTCOME

SN	Name Of Course	Name Of Sub./Paper	Course Outcome
1	M.Sc. 1st, 2nd SEM.	Advanced Abstract Algebra - 1	1. Understand Permutation Group, Isomorphism Theory. 2. Understand Normal Series, Solvable Group And Jordan-Holder Theorem. 3. Understand Rings and Modules Zorn's Lemma. 4. Understand Modules, Vector Space and Rank Nullity Theorem . 5.Understand Field Theory, Neothetherian and Artinian Modules.
2	M.Sc. 1st, 2nd SEM.	Real Analysis - 2	1. Understand The Riemann Stieljes Integral and Fundamental Theory Of Calculus. 2. Understand Function Of Several Variable (Linear

			Transformation). 3. Understand Sequence and Series Of Function and Its Theorem . 4. Understand Power Series and Abel's Theorem. 5. Understand Measurable Sets and Functions Riesz Theorem. 6. Understand Lebesque Integral and Lebesque LP Spaces.
3	M.Sc. 1st, 2nd SEM.	Topology - 3	1. Understand Topological Spaces, Closed Sets. 2. Understand Separation Axioms and Its Basic Properties. 3. Understand Countable Spaces and Tietz Extension Theory. 4. Understand Compactness and Its Basic Properties. 5. Understand Connected Spaces and Connectedness (Tychonoff's Theorem).
4	M.Sc. 1st, 2nd SEM.	Complex Analysis - 4	1. Understand Complex Integration, Cauchy Goursat Theorem And Cauchy's Integral Formula. 2. Understand Meromorphic Functions and Inverse Function Theorem. 3. Understand Residues and Cauchy Residue Theorem. 4. Understand Bilinear Transformation, Their Properties and Classification. 5. Understand Entire Functions, Gamma Function and Its Properties. 6. Understand Canonical Product and Jensen's Formula.
5	M.Sc. 1st, 2nd SEM.	Advanced Discrete Mathematics - 5	1.Knowledge Connectives, Truth Table and Tautology. 2. Knowledge Algebraic Structure and Basic Homomorphism Theorem. 3. Understand Lattices(Posets) and It's Properties . 4. Understand The Karnaugh Map Method. 5. Understand Grammar and Language Finite State Machines. 6. Knowledge Graph Theory, Degree Of Vertex and Trees.
6	M.Sc. 3rd, 4th Sem.	Integration Theory & Functional Analysis - 1	1. To Give The Student a First-Hand Knowledge Of Signed Measure, Hahn Decomposition Theory. 2. To Provide Them With Knowledge Of Inner Product Spaces, Orthonormal Sets, Bessel's Inequality . 3. To Develop In Student The Basic Knowledge Of Uniform Boundedness Theorem .

			4. To Give The Students a Knowledge Of Lebesque Stieltjes Integral, Product Measure and Hausdroff Measure .
7	M.Sc. 3rd, 4th Sem.	Partial Differential Eqaution	1. Understand Fundamental Solution Of Laplace's Equation, Mean Value Theorem and Properties Of Harmonic Function. 2. Understand Heat Equation, Mean Value Formulae and Properties Of Solution. 3. Understand Laplace and Fourier Transforms and Their Application . 4. Understand Hamilton Canonical Equations and Routh's Equations. 5. To Give The Students Knowledge Of Potential Of Rod, Spherical Shell, Surface and Solid Harmonics .
8	M.Sc. 3rd, 4th Sem.	Fuzzy Sets & Their Application - 3	1. Understand Fuzzy Sets α - Cut and Basic Properties On Fuzzy Sets . 2. To Give The Student a First-Hand Knowledge Of Fuzzy Numbers and Fuzzy Equation . 3. Knowledge Of Fuzzy Relation Of Fuzzy Sets and Fuzzy Morphism. 4. Understand Possibility Theory - Fuzzy Measure. 5. Knowledge Of Fuzzy Control Controllers Fuzzyfication. 6. To Develop In Students Decision Making In Fuzzy Environment, Individual Decision Making.
9	M.Sc. 3rd, 4th Sem.	Operation Research - 4	1. Understand Operation Research and Its Scope . 2. Knowledge Of Simplex Method and Big M Method Of Solution To LPP. 3. Understand Network Analysis - Shortest Path Problem and Maximum Flow / Problem. 4. Knowledge Of Game Theory - Two Person and Games With Mix Strategies. 5. Understand Of Quequeing System Deterministic Quequeing System.
10	M.Sc. 3rd, 4th Sem.	Fluid Mechanics	1. Understand Kinematics - Lagrangian and Eulerian Method. 2. Understand Equation Of Motion - Euler's Dynamical Equation and Incompressible Fluids. 3. Understand Languages Stream Function and Stoke's Stream Function. 4. Understand Vortex Motion and Its Properties Energy Of Progressive Waves.

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College Code- 3003

PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

DEPARTMENT OF PHYSICS

PROGRAM- BSc, PHYSICS

PROGRAM OUTCOME

1. Students will demonstrste proficiency in mathematics and the mathematical concepts needed for proper understanding of physics.
2. Students will demonstrate knowledge of classical mecanics, electromagnetism, quantum mecanics, and thermal physics and be able to apply this knowledge to analize variety of physical phenomena.
3. Students will show that they have learned laboratory skill, enabling them to take measurements in physics laboratory and analize the measurements to draw valid conclusions.
4. Students will be capable of oral and written scientific communication and willprove that they can think critically and work independently.

PROGRAM SPECIFIC OUTCOME

1. Understand the core concept of physics subject.
2. Acquire analytical and logical skill for higher education.
3. Excel in experimental and theoretical physics.
4. Trained to take up jobs in applied fields.
5. Confident to take up competitive examinations.

COURSE OUTCOME

SN	NAME OF COURSE	YEAR/SEMESTER	NAME OF SUBJECT/PAPER	COURSE OUTCOME
1	BSc.	Part-1, Paper 1	Mechanics, Oscillations and Properties of matter	1. Understand laws of motion and their applications to various dynamic situations, motion of inertial frame and concept of Galilean invariance. 2. Understand the analogy between translational and rotational dynamics. 3. Understand the phenomena of collisions and idea about center of mass and laboratory frames and their correlations. 4. Understand the principles of elasticity through the study of modulus of rigidity. 5. Understand the simple principle of fluid flow and the equations governing fluid dynamics and the phenomena of simple harmonic motion and the properties of system excuting such motions. 6. In the laboratory course , the students will perform experiments related to mechanics (Compound Pendulum), rotational dynamics (Flywheel), Elkastic properties (Young's modulus and modulus of rigidity), and fluid dynamics (verification of Stoke's law, Searl's method), etc.

				7. Demonstrate Gauss's law, Coulomb's law for electric field and apply to the systems of point charges as well as line, surface and volume distributions of charges. 8. Articulate knowledge of electric current resistance and capacitance in terms of electric field and electric potential.
2	BSc.	Part-1, Paper 2	Electricity, Magnetism and Electomagnetic Theory	1. Understand the electric properties , magnetic properties of materials and the phenomena of electromagnetic induction. 2. Apply Kirchhoff's rule to analize AC circuit consisting of parallel and/or series combinations of voltage source and resisters and to describe the graphical relation ship of resistsnce, capacitor and resister. 3. In the laboratory course the students will get an opportunity to verify various laws in electricity and magnetism such as Lenz's law, Faraday's law and learn about the construction, working of various measuring instruments.
3	BSc.	Part-2 Paper 1	Thermodynamics, Kinetic Theory and Statistical Physics	1. Comprehend the basic concepts of thermodynamics, the first and second law of thermodynamics, the concept of entropy and thermodynamic potentials and their physical interpretations. 2. Learn about the Maxwell's thermodynamic relations. 3. Learn the basic aspects of Kinetic theory of gases, Maxwell-Boltzman distribution law, Equation of energy, Mean free path of molecular collisions, viscocity, thermal conductivity, Diffusion. 4. Learn to calculate Maxwell, Bose-Einstein and Fermi-Dirac statistics. 5. In the laboratory course, the students are aspected to do some basic experiments in thermal physics, viz, determination of Stefen's constant, coefficient of thermal conductivity, temperature coefficient of resistance etc.
4	BSc.	Part-2 Paper 2	Waves, Acoustic and Optics	1. Recognize and use a mathematical oscillator equation and wave equation and derive these equations for certain systems. 2. Apply basic knowledge of principles and theories about the behavior of light and the physical environment to conduct experiments. Use the principles of wave motion and

				superposition to explain the physics of polarization, interference and Diffraction. 3. Understand the working of selected optical instruments like biprism, interferometer, diffraction grating. 4. Distinguish the different type of aberrations and achromatism. 4. Use different types of eyepieces according to their applications. 5. Familiar with basics of Laser physics. 5. In the laboratory course, students will gain hands- on experience of using various optical instruments and making finer measurement of wavelength of light using Laser beam, resolving power of prism and grating etc.
5	BSc.	Part-3 Paper 1	Relativity, Quantum Mechanics, Atomic, Molecular and Nuclear Physics	1. Understand the basic concepts of reference system. 2. To get familiar with inadequacies of classical mechanics in explaining microscopic phenomena, quantum theory formulation is introduced through Schrodinger equation. 3. Through understanding the behavior of quantum particle encountering a i) barrier ii) potential, the students gets exposed to solving non-relativistic hydrogen atom, for its spectrum and eigen functions. 4. Learn the ground state properties of nucleus and know about the nuclear reaction and the process of radioactivity.
6	BSc.	Part-3 Paper 2	Solid State Physics and Electronics	1. A brief idea about crystalline and amorphous solids, about lattice, unit cell, miller indices, reciprocal lattice, concept of Brillouin zones and diffraction of x-rays by crystalline materials. 2. Basic knowledge of P and N type semiconductors, mobility of charges, drift velocity, fabrication of P-N junctions, forward and reverse bise in P-N junctions 3. Applications of P-N junction diode for different types of rectifiers and voltage regulators. 4. NPN and PNP transistors and basic configurations namely common base, common emitter and common collector and also about voltage and current gain. 5. Basic and equivalent circuits, coupled amplifiers and feed back in amplifiers and

				oscillators. 6. To characterize various devices namely P-N junction diode, LED, Zener diode, solar cells, PNP and NPN transistors, also construct amplifiers and oscillators using descrete components.

PROGRAM- MSc, Physics

PROGRAM OUTCOMES

1. Domonstrate solve and an understanding of major concepts of all disciplines of physics.
2. Solve the problem and also think methodically independently and draw a logical conclusion.
3. Employ critical thinking and the scientific knowledge to design, carry out, record and analize the results of physics experiments.
4. Create an awareness of the impact of physics on the society and development outside the scientific community.
5. To inculcate the scientific temperament in the students and outside the scientific community.
6. Use modern techniques decent equipements and phonics softwares.

PROGRAM SPECIFIC OUTCOME

1. Gain the knowledge of physics through theory and practicals.
2. Understand good laboratory practices and safety.
3. Develop research oriented skills.
4. Make aware and handle the sophisticated instruments/equipments.

COURSE OUTCOME

SN	NAME OF COURSE	YEAR/SEMESTER	NAME OF SUBJECT/PAPER	COURSE OUTCOME
1	MSc.	I Sem.	Paper-1 Mathematical Method -1	1. To understand the vector spaces and matrices. 2. To obtain the series solution by Legendre and Laguerre polinomials. 3. Study the generating function for Bessels and Hermite polinomials. 4. To obtain the solution of integral transform and Fourier series.
2	MSc.	I Sem.	Paper-2 Classical Mechanics	1. Understand mechanics of system of particles. 2. Understand the concept of D'Alembert

				principle. 3. Solve Langrangian and Hamiltonian formulation. 4. Learn Canonical transformation and Poisson's Bracket.
3	MSc.	I Sem.	Paper-3 Numerical Method and C-Programing	1. Identify methods to solve numerical algebraic and transcendental equations. 2. Computes solutions to simultaneous linear algebraic equation. 3. Undersatand the concepts of finite differences. 4. Gains knowledge about to interpolation for equal intervals and unequal intervals. 5. Understand the computer fundamentals and the C-programing language concepts. 6. Study the concept of C-character set, identifiers and key words, variable names. 7. Choose the Loops and descision making statements to solve the problems. 7. Use function to solve given problems.
4	MSc.	I Sem.	Paper-4 Electronics-1	1. Know the special purpose of diode like MIS, MOS, CCD. 2. To study the microwave devices. 3. To understand the FET, JFET, MOSFET. 4. To understand the process of modulation and demodulation.
5	MSc.	II Sem.	Paper-1 Mathematical Method-2	1. Understand the tensor and their transformation law. 2. Solve the problem using Green's function and boundary value problem. 3. Understand the Cauchy integral problem and their evaluation.
6	MSc.	II Sem.	Paper-2 Quantum Mechanics-1	1. Understand the behavior of quantum particle through Schrodinger equation and their applications. 2. Understand the uncertainity relation and learn the matrix representation of an operator. 3. Know the motion in central force problem. 4. Study the time independent perturbation theory and its application such as Zeeman effect and Stark effect.
7	MSc.	II Sem.	Paper-3 Electrodynamics	1. Derive Maxwell equation and wave equation. 2. Study the Frensel equation and propagation of EW through different media. 3. Study the special theory of relativity and Lorentz transformation. 4. Get extended knowledge of electromagnetic

				scalar and vector potential.
8	MSc.	II Sem.	Paper-4 Electronics-2	1. Know the principles of LDR and LED. 2. Know the purpose of photo detector and bipolar transistor. 3. Study the OP-AMP and their types. 4. Study the multuvibrator.
9	MSc.	III Sem.	Paper-1 Quantum Mechanics-2	1. To study the application of time dependent pertubatin theory. 2. To understand the WKB approximation. 3. Know the application and validity of Born approximation. 4. To study the symmetry in quantum mechanics.
10	MSc.	III Sem.	Paper-2 Statistical Mechanics	1. To learn postulates of statistical mechanics. 2. To learn statistical interpretation of thermodynamics, micro canonical, canonical and grand canonical ensembles. 3. To study the methods of statistical mechanics used to develop the statistics for Bose-Einstein and Fermi-Dirac statistics. 4. To understand cluster expamnsion and thermodynamic fluctuation.
11	MSc.	III Sem.	Paper-3 Condensed Mater Physics-1	1. Study the crystalline and amorphous solids. 2. Understanding the concept of defects or imperfection in crystal. 3. Study the band theory and Hall effect. 4. Get knowledge of Weiss theory of ferromagnetism.
12	MSc.	III Sem.	Paper-4 Electronics-3	1. Understand different number system, codes, logic gates, Boolean laws and theorems. 2. Simplify the Boolean functions to the minimum number of literals using Karnaugh map. 3. Gain knowledge about combinational circuits and sequential circuits. 4. Can design various synchronous and asynchronous circuits using flip flop. 5. Design counters, shift resisters using J-K/D flip flop. 6. Understand the A to D and D to A converter.
13	MSc.	IV Sem	Paper-1 Condensed Matter Physics-2	1. Study the superconductivity. 2. Understand the polarization. 3. Study the semiconductor and its types. 4. Understand the nano-structure and their classification.
14	MSc.	IV Sem.	Paper-2 Nuclear Physics	1. Know the properties of nucleus like binding energy, magnetic dipole moment and electrical

				quadrapole moment. 2. To study achievement of nuclear models of physics and its limitations. 3. To give an extended knowledge about nuclear reactions such as nuclear fission and fusion. 4. To understand the basic concepts of particle physics.
15	MSc.	Iv Sem.	Paper-3 Atomic and Molecular Physics	1. Know the spectra of hydrogen, helium, alkali and alkaline earth material. 2. Understand thecomplete description of continuous X-ray spectra. 3. Study the types of molecule. Study the diatomic molecule and principle of Frank Condon.
16	MSc.	IV Sem.	Paper-4 Electronics-4	1.Explain microcontroller architecture. 2. Write simple programs for addition, subtraction, multiplication and division. 3. comprehend a suitable input and output peripheral. 4. Study thwe optical fibres.

GOVT. DR. INDRAJEET SINGH COLLEGE, AKALTARA DISTT. JANJGIR-CHAMPA (C.G.)

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College Code- 3003

PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

DEPARTMENT OF ZOOLOGY

PROGRAM- BSc., ZOOLOGY

PROGRAM OUTCOME

1. Knowledge and understanding about the animal diversity.
2. Practical skill in the field and laboratory experiments.
3. Presentation skills (oral & writing) in life sciences.
4. Scientific knowledge in life science and fundamental metabolism of animals.
5. Knowledge about the biodiversity exploration, estimation and conservation.

PROGRAM SPECIFIC OUTCOME

After successfully completing **M. Sc. Zoology** Programme students will be able to:

1. **PSO1.** Ability to connect and apply biological knowledge to other disciplines and to integrate knowledge into their personal and professional lives.

2. **PSO2**. Explain the origin of life with context to the origin of eukaryotic cell and endosymbiotic theory of origin., fossil records, Darwinism and Neo-Darwinism, experimental evidences. And evolution of horse.

3. **PSO3.** Illustrate zoological science for its application in branches like medical entomology, apiculture, aquaculture and agriculture etc

4. **PSO4.** Understand animal interactions with the environment and identify the majorgroups of organisms with an emphasis on animals and classify them within aphylogenetic framework.

COURSE OUTCOME

SN	NAME OF COURSE	YEAR/ SEMESTER	NAME OF SUBJECT	COURSE OUTCOME
1	BSc.	PART-1	Cell Biology	1. On completion of the course, students are able to: 2. Understand the Scope of cell biology, because cell is the basic unit of life. 3. Understand the Main distinguishing characters between plant cell and animal cell. 4. To study and understand the whole cell organelles with their structure and function.

				5. Understand the cell cycle and know the importance of various cells in body of organisms. 6. Understand the various applications of cells by using cell biology like study of various types of tumour.
2	BSc.	Part-1	Non-Chordates	1. Understand about the Non-Chordate animals. 2. To study the external as well as internal characters of non-chordates. 3. To study the distinguishing characters of non-chordates. 4. Understand the economical importance of Molluscs. 5. Understand the Characters of class Asterias with help of animal Sea star. 6. Understand the internal as well as external morphology of that animal. 7. To study and understand the concepts-Metamorphosis, regeneration and autotomy. 8. Understand the Mouthparts of insects. 9. Understand the Canal system in sponges. 10. Understand the Locomotion in Protozoa. 11. To observe and study the Foot in Mollusca.
3	BSc.	Part-1	Chordate	1. Understand the phylum Chordate. 2. Understand the evolution, history of phylum 3. Understand the evolution, history of phylum. 4. Understand the basic concepts about chordates. 5. Understand the external morphology and sexual dimorphism in chordates. 6. Study and understand the various systems, adaptation and dentition in Mammals.
4	BSc.	Part-1	General Embryology	1. Identify the developmental stages 2. Describe the key events in early and systematic embryological development. 3. Describe the process of gametogenesis. 4. Describe the chick development up to 96 hours of incubation and extra embryonic membranes. 5. Explain the theories of preformation, and concepts like growth, differentiation and reproduction. 6. Explain the principles and process of fertilization and cleavage. 7. Prepare the flow chart of gametogenesis process.
5	BSc.	Part-1	Practical Paper	1. Identify the life cycle stages of few parasites. 2. Identify and explain the cleavage blastulae and grastrulae 3. Identify the age of chick embryo.

				4. Identify the phases of cell division. 5. List the household Pest and social insects. 6. Explain the pathogenicity and morphology of few ectoparasites. 7. Explain the diseases spread by vectors. 8. Explain the interrelationship of insects and human with examples. 9. Explain the effects of household insects on human health. 10. Demonstrate rectal parasites in cockroach. 11. Demonstrate Mitochondria/ mitotic and meiotic stages by stained preparations. 12. Illustrate the social organization in insects. 13. Prepare temporary slide of chick embryo to identify the stage and age. 14. Prepare mounting of mouth parts of few common insects
6	BSc.	Part-2	Structure and Function of Vertebrates	1. Understand the classes of vertebrates: fishes, Amphibia, Reptilia, Aves and Mammals. 2. Study of endoskeleton of vertebrates. 3. Comparative Study of skin of vertebrates. 4. Understand the comparative account of urogenital system, nervous system, digestive system heart and aortic arches and its evolution in vertebrates. 5. Understand the physiology of nerve impulse and 87ignaling mechanism and digestion.
7	BSc.	Part-2	Vertebrate endocrinology and reproductive biology	1. define endocrine grands and hormone. 2. Understand the general idea about hormone roles in animal body. 3. Understand the types of hormone, synthesis, secretion and its function. 4. Understand the mechanism of hormone action and its termination. 5. Understand the reproductive system of animal and its function. 6. Understand the role of hormone in animal reproduction and reproductive cycle. 7. Understand the disease and disorder of imbalance of hormones. 8. Reproductive 87ehavior in animal like courtship pattern.
8	BSc.	Part-2	Ethology	1. Define the term ethology/animal behaviour. 2. Understand the reproductive behaviour in animals. 3. Understand about orientation behaviour in

				animal, like taxis, reflexes. 4. Understand about drugs, hormones and behavior.
9	BSc.	Part-2	Organic Evolution	1. Define organic evolution. 2. Explain the theories of organic evolution. 3. Describe the concept of origin of life and theories of origin of life. 4. Describe evolution of horse . 5. Illustrate the presence of organisms at various geological time scale. 6. Apply the knowledge in relevant experimentations. 7. Categorize different zoogeographical realms. 8. Compare animal distribution in different zoogeographical realms.
10	BSc.	Part-2	Applied Zoology	1. Introduce the term apiculture to the students. 2. To aware the students and provides the economical importance of Apiculture. 3. Understand the Bee keeping equipments and apiary management. 4. To study and understand the various species of Bees.
11	BSc.	Part-2	Practical Paper	1. Identify the organs by studying the histological slides. 2. Identify hormonal disorders using pictures. 3. Explain the anatomical features of brain, heart, kidney and skin of vertebrates. 4. Explain the anatomical features of brain, heart, kidney and skin of vertebrates. 5. : Identify the fossil types/ adaptations in animals. 6. Explain the evidences of evolution 7. Identify the age of chick embryo. 8. Illustrate the social organization in insects.
12	BSc.	Part-3	Environmental Biology &Toxicology	1. List the environmental challenges and their remedies. 2. Describe the nature of ecosystem, productivity, food webs, energy flow, 3. Describe the resilience of ecosystem and ecosystem management. 4. Explain Biosphere, biomes and impact of climate on biomes. 5. Explain wildlife management in India and conservation of wildlife. 6. Explain the three necessary and sufficient conditions i.e. struggle for existence; variation; and inheritance. 7. Illustrate the toxic effects of chemicals in the

				environment on human and his 8. livestock. 9. Discuss natural resources, causes of their depletion and their conservation.
13	BSc.	Part-3	Microbiology	1. Understand about general and applied microbiology. 2. Uses of microbes to making for useful product in industries. 3. Microbiology of domestic water and sewage.
14	BSc.	Part-3	Medical microbiology	1. Define the basic terms in parasitology. 2. List common ectoparasites and endoparasites. 3. Explain animal associations and their types. 4. Discuss the life cycle and importance of major parasites. 5. Illustrate transmission routes of animal and zoonotic parasites 6. Classify parasites. 7. Justify the control measures of arthropod vectors. 8. Convince the importance of hygiene with respect to epidemic diseases.
15	BSc.	Part-3	Genetics & Molecular biology	1. Define the basic terms in genetics. 2. Discuss the linkage groups and gene frequency. 3. Explain the concept of mutation. 4. Paraphrase the Central dogma of molecular biology. 5. Illustrate the mechanism of replication, transcription and translation.
16	BSc.	Part-3	Biological Chemistry	1. Define the basic terms in biochemistry. 2. Explain the structure, functions and reactions of the various biomolecules. 3. Give examples of each group type of biomolecules. 4. Correlate the changes in the levels of these biomolecules with the diseases in human 5. Calculate pH and pOH of buffer solution. 6. Classify the biomolecules. And enzyme. 7. Draw the structures of major biomolecules.
17	BSc.	Part-3	Biological techniques	1. Describe the techniques used in hematology. 2. Explain the principle of separation techniques. 3. Illustrate the working of microscopes. 4. List the separation techniques. 5. Demonstrate the principle, working, applications of centrifugation.
18	BSc.	Part-3	Practical Paper	1. Count total leucocytes from blood samples. 2. Estimate the Hb. level in blood samples. 3. Measure the pH of given samples.

				4. Identify the life cycle stages of few parasites. 5. Explain the pathogenicity and morphology of few ectoparasites. 6. Explain the importance and applications of techniques in biochemistry.

PROGRAM- MSC., ZOOLOGY

PROGRAM OUTCOME

1. Knowledge and understanding about the animal diversity.
2. Practical skill in the field and laboratory experiments.
3. Presentation skills (oral & writing) in life sciences.
4. Scientific knowledge in life science and fundamental metabolism of animals.
5. Knowledge about the biodiversity exploration, estimation and conservation.

PROGRAM SPECIFIC OUTCOME

1. **PSO1.** Explain how organisms function at the level of the gene, genome, cell, tissue, organ and organ-system and develop theoretical and practical knowledge in handling the animals and using them as model organism

2. **PSO2**. Illustrate physiological adaptations, development, reproduction and behaviour of different forms of life.

3. **PSO3.** Illustrate zoological science for its application in branches like medical entomology, apiculture, aquaculture and etc.

4. **PSO4.** Develop proficiency in the experimental techniques and methods of analysis appropriate for their area of specialization and relate concepts of

comparative biology to explain evolution and success to live in varied environment

5. PSO5. To know the detail knowledge about fish and fisheries. The structure and function, adaptation, reproduction, development, special organs like luminous, poison organs of different types of fishes.

COURSE OUTCOME

SN	NAME OF COURSE	YEAR/ SEMESTER	NAME OF SUBJECT	COURSE OUTCOME
1	MSc.	I Sem.	Non-chordate	1) Understand about the Non-Chordate animals. 2) To study the external as well as internal characters of non-chordates. 3) To study the distinguishing characters of non-chordates. 4) Understand the economical importance of Molluscs. 5) Understand the Characters of class Asterias with help of animal Sea star. 6) Understand the internal as well as external morphology of that animal. 7) To study and understand the concepts- Metamorphosis, regeneration and autotomy. 8) Understand the Mouthparts of insects. 9) Understand the Canal system in sponges. 10) Understand the Locomotion in Protozoa. 11) To observe and study the Foot in Mollusca.
2	MSc.	I Sem.	Animal behaviour	1) Define the term ethology/animal behaviour. 2) Understand the reproductive behaviour in animals. 3) Understand about orientation behaviour in animal, like taxis, reflexes. 4) Understand about drugs, hormones and behaviour.
3	MSc.	I Sem.	Biostatistics	**1.** Explain the application of sampling in biological sciences**.** 2. Explain standard Probability distributions. 3. Understand the Applications and uses of Statistics.

				4. Understand the Data Classification: Frequency, Relative frequency, class limits, class 5. width, inclusive and exclusive method of classification. 6. Understand the mean, mode and median. 7. Understand the Computation of Variation. 8. Understand the Correlation and Regression. 9. Understand the testing of hypothesis. 10. Understand the Statistical hypothesis, Null Hypothesis, Alternative hypothesis etc. 11. Understand the t-test, F-test. 12. Understand the analysis of variance, meaning of ANOVA. One way and two way classification. 13. Explain the concept and types of central tendency. 14. Explain the concept of correlation and regression with their properties. 15. Classify the given data. 16. Graphically represent the given data. 17. Illustrate the measures of dispersion with examples. 18. Solve statistical problems.
4	MSc.	I Sem.	Environmental Biology & Toxicology	1. List the environmental challenges and their remedies. 2. Describe the nature of ecosystem, productivity, food webs, energy flow, 3. Describe the resilience of ecosystem and ecosystem management. 4. Explain Biosphere, biomes and impact of climate on biomes. 5. Explain wildlife management in India and conservation of wildlife. 6. Explain the three necessary and sufficient conditions i.e. struggle for existence; variation; and inheritance. 7. Illustrate the toxic effects of chemicals in the environment on human and his livestock. 8. Discuss natural resources, causes of their depletion and their conservation.
5	MSc.	I Sem.	Practical	1) Identify the adaptations in animal. 2) Demonstrate physical and chemical properties of water and soil samples. 3) Explain the interrelationship of insects and human with examples. 4) Explain the effects of household insects on

				human health. 5) Demonstrate rectal parasites in cockroach. 6) Understand the various internal systems like Digestive system, nervous system with the help of charts. 7) Understand the functions of Gemmules and spicules. 8) Understand the economical importance of Molluscan shells. 9) To study and understand the classification of whole phyla includes in Non chordates 10) with the help of charts/models/pictures. 11) Understand the evolutionary history of Non chordates.
6	MSc.	II Sem.	Endocrinology and reproductive physiology	1. Discuss the roles of Pituitary gland and pineal body. 2. Explain hormonal regulation of biomolecules and mineral metabolism. 3. Describe the role of osmoregulatory and gastrointestinal hormones. 4. Explain the role of hormones in moulting, change in body colour of crustaceans; yolk synthesis in amphibians; insect development. 5. Illustrate the mechanism of hormone action and role of hormone receptors. 6. Justify hormones as coordination molecules 7. Sex determination in animals 8. Reproductive cycle and maturity in human being 9. Compare and contrast spermatogenesis and oogenesis. 10. Illustrate the histology of endocrine glands.
7	MSc.	II Sem.	Cell and Molecular Biology	1. Explain the DNA structure & types, topology, Physical properties; chromatin structure and organization. 2. Discuss genome organization. 3. explain the mobile DNA elements. 4. Explain mechanism of DNA damage and repair. 5. Illustrate the process of DNA replication, transcription, translation and their regulations. 6. Schematically represent the processes of central dogma. 7. Justify the post translational and post transcriptional modifications. 8. Aware the students for Cancer.

				9. Understand the Aging, Apoptosis
8	MSc.	II Sem.	Tools and techniques	1. Explain the importance and applications of techniques in biochemistry. 2. Explain the principle and applications of various chromatographic techniques with examples. 3. Explain the principle, working, materials used and applications of electrophoresis 4. Demonstrate the principle, working, applications of centrifugation. 5. Understand about cryopreservation, and cell culture. 6. Understand about media for cell and tissue culture method
9	MSc.	II Sem.	Practical	1. Understand the Animal cells and various cell organelles by using microphotographs. 2. Understand the concept vital staining , distinguishing points between nuclear stain and cytoplasmic stain. 3. Understand the techniques using for the study of blood corpuscles. 4. Understand the meaning of Osmotic pressure, isotonic, hypotonic, hypertonic. 5. explain the principle of Colorimetry and Spectrophotometry. 6. Use the basic equipment in biochemistry lab.
10	MSc.	III Sem.	Vertebrate structure and function	1. Understand the terms Histology and Physiology 2. Understand the cell, tissue, organ, system and organisms. 3. Study the derivatives of skin- horns, nails, hairs. 4. Understand the General Topics like Accessory respiratory organs in fishes. 5. Understand and study the various systems like Digestive systems 6. To study and understand the Scales, Fins, Arial adaptation and Dental formula. 7. Understand the Classification various classes of phylum Chordate i.e.Pisces, Reptiles, 8. Aves and Mammals.
11	MSc.	III Sem.	Biosystematics and biodiversity	1. State the outline of chordate classification. 2. Classify the higher vertebrate groups. 3. Categorize the diversity found in the vertebrate groups of animals like reptiles,birds and mammals.

				4. To know the Biodiversity. 5. Understand the principles and methods of taxonomy.
12	MSc.	III Sem.	Immunology and developmental biology	1. List the primary and secondary immune organs. 2. Explain the concepts of immunity, self-nonself immune response, autoimmune disease. 3. Explain the theories of antibody synthesis and generation of antibody diversity. 4. Illustrate the events and dynamics of inflammation 5. Compare the MHC molecules and diseases associated with HLA. 6. Differentiate between active and passive immunization. 7. Compare the three pathways of complement fixation pathway. 8. Define the terms in developmental biology 9. Explain model organism for developmental studies. 10. Explain the concept of fertilization. 11. Explain the concept of mesoderm induction and pattern formation with examples. 12. Explain the concept of growth and differentiation. 13. Illustrate the types of eggs and cleavage pattern.
13	MSc.	III Sem.	Population Genetics and evolution	1. To know about evolutionary forces. 2. Can construct a phylogenetic tree. 3. To know about inbreeding. 4. Explain the principles of Population genetics. 5. Illustrate the modified Mendelian laws of inheritance. 6. Justify the inheritance of qualitative and quantitative traits. 7. Solve the problems based on gene frequency. 8. Solve the problems based on Hardy-Weinberg law.
14	MSc.	III Sem.	Practical	1. Identify the pattern of identity of antigen-antibody reaction. 2. Identify the microscopic structure of the lymphoid organs. 3. Demonstrate immunoelectrophoresis technique. 4. Detect the human blood groups by antigen - antibody reactions.

				5. Understand the classification of Pisces, and tetrapodes . 6. Understand the classification of Amphibia, Reptilia , Aves, Mammals. 7. Understand the Axial skeleton of mammal. 8. Understand the urinogenital system of vertebrates. 9. Understand the cell culture techniques and separation techniques in biology. 10. Understand the function of Biosensors. 11. Understand the locomotory and respiratory adaptations in amphibians and reptiles. 12. Explain the principle and application of the common techniques used in Immunology.
15	MSc.	IV Sem.	Neurophysiology Physiology and general physiology	1. Demonstrate the effect of body size and salinity on oxygen consumption in given animal. 2. Understand the nervous system its part and structure with significant function. 3. Understand the synapse , receptor , nerve ending, and synaptic transmission. 4. EEG and ECG. 5. Demonstrate the effect of starvation on liver and muscle glycogen in given animal. 6. Detect the normal and abnormal constituents in human urine. 7. Find the absorption spectra of blood pigment. 8. Estimate serum uric acid from given sample.
16	MSc.	IV Sem.	Biochemistry	1. Define basic terms in biochemistry. 2. Explain the chemistry of life. 3. Explain the structure and functions of various biomolecules. 4. Explain the importance of vitamins and coenzymes and disorders related to them. 5. Illustrate the importance of pH, buffer and water in living systems. 6. Draw the structures of various carbohydrates and amino acids. 7. Classify enzymes with examples. 8. Define basic terminologies of metabolic pathways. 9. Explain the laws of thermodynamics, concept of free energy and ATP as currency molecule. 10. Describe the Concepts and regulation of metabolism. 11. Discuss the oxidation of fatty acids and its significance.

				12. Illustrate the electron transport chain and oxidative phosphorylation. 13. Illustrate the reactions, energetics and regulation of glycolysis, glycogen biosynthesis, 14. TCA cycle, Purine and Pyrimidine metabolism 15. Write the general reactions of various metabolic pathways. 16. Justify the role of enzymes in metabolism
17	MSc.	IV Sem.	Ichthyology (specialization)	1. Know all about fishes and there general as well as special characters. 2. Understand the classification of fishes 3. Understand the adaptation in stress condition. 4. Structure and function of fishes special organs 5. Understand the reproduction and growth of fishes 6. Understand the behaviour of fishes 7. Understand the distribution fishes in the world . 8. To know the indigenous and exogenous fishes. 9. Understand the diseases of fishes due to different parasites.
18	MSc.	IV Sem.	Practical	1. Identify the organs by studying the histological slides. 2. Demonstrate the structure of tissues by making temporary slides. 3. Use techniques like chromatography, 4. Prepare blood smear and identify the various cells. 5. Process animal tissues and prepare permanent histological slides. 6. Count total leucocytes from blood samples. 7. Estimate the Hb.level in blood samples. 8. Identify commercially important freshwater fish. 9. Separate biomolecules by chromatographic methods.

PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

DEPARTMENT OF COMPUTER SCIENCE

PROGRAM- PGDCA

PROGRAM OUTCOME

1. It will equip the students with skills required for designing, developing applications in information technology.
2. Students will be able to learn the latest trends in various subjects of computers and information technology.
3. The PG diploma is aimed at graduates with acomputing background and provide a detailed coverage of the key concepts and challenges in data and resource protection and computer software srcurity.
4. To give hands on to students while developing real life IT applications as part of study
5. To train graduate students in basic computer technology concepts and information technology applications.
6. Design and develop applications to analize and solve all computer science related problems.

PROGRAM SPECIFIC OUTCOME

1. Understand basic concepts and programming language like procedure oriented language, object oriented programming, event driven programming etc.
2. To expose the students to open source technologies so that they become familiar with it and can seek appropriate opportunity in trade and industry.
3. Able to provide socially acceptable technical solution to real world problems with the application of modern and appropriate programming techniques.
4. Design applications for any desired needs with appropriate considerations for any specific need on social and industrial aspects.

COURSE OUTCOME

SN	NAME OF COURSE	PAPER	COURSE OUTCOME
1	PGDCA	**Paper-1 Fundamentals of Computers and Introduction to Information**	1. This course will help the students to understand fundamentals of computer. 2. The course also gives the students an idea about various components of computer hardware and its working.

		Technology	3. Students will also be able to learn about internet and popular internet services like e-mail etc.
2	PGDCA	**Paper-2 PC Packages and computerized Accounting System**	1. To make students understand the importance and use of operating system. 2. To make students understand about MS word, MS excel and MS power poit. 3. After studying this course students will be able to understand procedure of financial accounting for organization and able to interact with accounting or information system.
3	PGDCA	**Paper-3 Data Communication and Computer System**	1. Study the basic taxonomy and terminology of computer networking and inumerate the layers of OSI model and TCP/IP model. 2. Gain core knowledge of network layerrouting protocols and IP addressing. 3. Understand the concept of analog and digital signal and multiplexing.
4	PGDCA	**Paper-4 System Analysis and Design**	1. Understand the concept of system. 2. Gain basic knowledge of system, planning and investigation. 3. Learn about implementing and maintainance software.
5	PGDCA	**Paper-5 Programming in C and C++**	1. Students will be able to develop programming knowledge. 2. Students will be able to solve any kind of problems using C++. 3. Data structure based problems can be solved based on C++ programming.
6	PGDCA	**Paper-6 Relational Database Management System (ORACLE)**	1. To make students understand basic concepts of database management system especially relational database. 2. To make students capable to design good database design with implementation of various constrains. 2. To make students effectively use of database for storing, managing and retrieving data from DBMS like MS-ACCess, MySQL, ORACLE and DB2 via SQL statements.
7	PGDCA	**PROJECT**	1. To help students develop their practical ability and knowledge about practical tool/techniques in order to develop software. 2. Prerequisite knowledge of programming methodology and GUI tools. 3. Students will be able to develop software applications.

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College Code- 3003

PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

DEPARTMENT OF HOME SCIENCE

PROGRAM- B.Sc., HOME SCIENCE

PROGRAM OUTCOMES

At the completion of the Undergraduate Programme, the student will be able to accomplish the following outcomes:

PO.1 Critical Thinking:

Take an informed and analytical approach to learning and demonstrate in-depth knowledge of the subject and give opinion(s) supported by logical reasoning that one have judged to be appropriate and understanding different approaches and using them.

PO.2 Effective Communication:

Demonstrate proficiency in communicating competently in groups and organizations, competence in interpersonal communication; possess skills to effectively deliver formal and informal presentations to a variety of audiences in multiple contexts.

PO.3 Social Interaction:

Foster social skills and peer interaction enabling them to make all people feel valued and respect their differences by being responsible citizens for creating a socially inclusive society.

PO.4 Ethical Standards:

Recognize values such as justice, trust, equity, fairness, kindness and develop a commitment to meeting and upholding standards of ethical behavior in all walks of life and comprehending the moral dimensions of decisions and actions.

PO.5 Environmental Consciousness:

Discern the issues of environmental contexts and engages in promoting values and attitudes that claim coexistence and sustainable living with reduced, minimal, or no harm upon ecosystems.

PO.6 Lifelong Learning:

Acquire the skill to be an independent lifelong learner embracing real-time changes in the socio-technological context, promoting continuous development and improvement of the knowledge and skills needed for employment and personal fulfillment.

PROGRAMME SPECIFIC OUTCOMES

The graduates will be able to:

PSO-1 UnderstandthebasicconceptsofHuman Physiology, biochemistry, microbiology, environment and Humanrights.

PSO-2 Plan and prepare diet for healthy life style using the principles of Food Science and Nutrition.

PSO-3 Understandtheprinciplesandpatternsof growthanddevelopmentof humansfromconception to old age and the roleoffamilyin development.

PSO-4 Acquire scientific skillsin themanagement of resources and develop basic skillsfor career options in the fields of dietetics, interior designing, textiles and fashion designing and preschool education.

PSO-5 Appreciate the role of Family and Community Science (Home Science) extension in communitydevelopment and to conduct effectiveextensioneducationprogrammesthroughdifferent media.

PSO-6 Apply the acquired conceptual knowledge offood quality assurance and sustainable waste managementforholisticliving.

PSO-7 Use concepts, tools and techniques related to Chemistry and Zoology and its application in Family and Community Science (Home Science).

COURSE OUTCOMES

SN	NAME OF COURSE	YEAR	SUBJECT	COURSE OUTCOME
1	B.Sc. Home Sience	Part-1	Basic Nutrition	1. Utilize knowledge from the physical and biological sciences as a basis for understanding the role of food and nutrients in health and disease processes.

				2. Provide nutrition counseling and education to individuals, groups, and communities throughout the lifespan using a variety of communication strategies. 3. Evaluate nutrition information based on scientific reasoning for clinical, community, and food service application. 4. Implement strategies for food access, procurement, preparation, and safety for individuals, families, and communities. 5. Perform food management functions in business, health-care, community, and institutional arenas.
2	B.Sc. Home Sience	Part-1	Introduction to Resource Management	1. Aware about of human resources and there potential 2. Understanding the potential of individual and as an national resource 3. Acquire ability to use human resource 4. Develop ability to improve human resources 5. Analyse job design recruitment and select and training of human resources 6. Performance appraisal
3	B.Sc. Home Sience	Part-1	Introduction to Human Development	1. Demonstrate an understanding of the biological, psychological, social and cultural influences of lifespan human development. 2. Demonstrate an understanding of how gender, ethnicity, class, historical period, and social location relate to the life course experience 3. Critically evaluate research relevant to human development as well as popular notions of human nature. 4. Use the primary literature of the field to prepare a clear, organized summary of a topic. 5. Understand and work effectively with a diversity of individuals and communities. 6. Apply theory and research to contemporary problems and real-world situation. 7. Design and implement research, analyze data appropriately, and judge the significance of findings.
4	B.Sc. Home Sience	Part-1	Textile and Clothing	1. Explain the impact of fibres on the environment. 2. Outline the process involved in manufacture of fibres. 3. Classify the different fibres. 4. Use of textiles inside home, outside home,

				clothing purposes, manufacturing purposes etc.
5	B.Sc. Home Sience	Part-1	Community Development	1. Understand the concept, structure and organisation of different types of communities 2. Understand the factors contributing to change in community 3. Role of community organisation and their mobilisation for developmental goods. 4. Understand the concept, theories of leadership, pattern and characteristics of leaders of different community 5. Assessment of socio economic state tribes.
6	B.Sc. Home Sience	Part-1	Personal Empowerment and Computer Basics	1. Understand use of computer in distribution and statistical analysis 2. Developed skill of drafting text, reports, tables, figures etc. 3. Extension Education System
7	B.Sc. Home Sience	Part-2	Clinical Nutrition and Dietetics	1. Plan, organize / supervise preparation & service of different kinds of therapeutic diets in hospital dietary service. 2. Develop skills for patient counseling. 3. Interact effectively with patient & their families. • Work as a diet counselor. 4. To provide service as a part of the medical team. • To give advice in the context of the patients sociocultural & economic milier. 5. Know the techniques of obtaining relevant information for patient through medical history assessment. 6. Provide patient diet Tiffin service to various hospitals. 7. To educate patient and create awareness in community.
8	B.Sc. Home Sience	Part-2	Textile and Fibre Science	1. Explain the impact of fibres on the environment. 2. Outline the process involved in manufacture of fibres. 3. Classify the different fibres. 4. Use of textiles inside home, outside home, clothing purposes, manufacturing purposes etc.
9	B.Sc. Home Sience	Part-2	Human Physiology and Community Nutrition	1. Human learning psychology 2. Types of learning for change in knowledge, attitude and skill 3. Indicators of human behaviour in learning 4. Factors affecting skill learning 5. Task description and task analysis

				6. Process, development of test/ scales/units
10	B.Sc. Home Sience	Part-2	Communication Process	1. Understand application of communication approaches for communication of extension messages to different target groups 2. Develop skill of preparation and use of tools of communication 3. Identify themes for communication in extension through literature research, experiences and pilot study 4. Prepare , present and evaluate the projected and non projected tools
11	B.Sc. Home Sience	Part-2	Life span Development	1. Define human development and identify the stages of human development 2. Explain the lifespan perspective 3. Examine how to do research in lifespan development
12	B.Sc. Home Sience	Part-2	Consumer Economics	1. Having an opportunity to learn about the practical aspects of money management. The knowledge of this aspect would be useful to them in planning their future status as family leaders in dealing with these vital issues. 2. About the importance of money savings and investment etc so that they can enlighten their elders in managing the family income scientifically. 3. To learn practical aspects of the market and the way in which they can use their knowledge in developing appropriate buying strategies and in learning how to face the problem of consumer grievances etc. 4. The learning of the various aspects specified in the course contents will help the students in developing them as good managers of family income and also as wise customers in the market.
13	B.Sc. Home Sience	Part-3	Nutrition Biochemistry	1. Augment the biochemistry knowledge. 2. Understand mechanism of human body for regulation of metabolic pathways. 3. Become proficient for specialization in nutrition. 4. Perform biochemical analysis with accuracy & reproducibility. 5. Able to do the laboratory estimation

14	B.Sc. Home Sience	Part-3	Food Preservation	1. Appreciate scientific principles and techniques of food processing and preservation. 2. Acquire skills to establish food service outlet. 3. Formulate environmental friendly and nutritious food products. 4. Develop analytical skills to be employed in industries. 5. Gain employment in central and state government sectors.
15	B.Sc. Home Sience	Part-3	Early Childhood Education	1. Understand and use positive relationships and supportive interactions as the foundation for their work with young children and families 2. Know, understand and use a wide array of developmentally appropriate approaches, instructional strategies and tools to connect with children and families 3. Positively influence each child's development and learning 4. Use content knowledge to build meaningful curriculum
16	B.Sc. Home Sience	Part-3	Extension Education	1. Material-Increase in production and income 2. Educational-Change the outlook of people or develop the individual 3.Social and cultural- development of the community.
17	B.Sc. Home Sience	Part-3	Foundation of Arts and Design	1. Understand the design development process L 2. Use the design development process in own work. 3. Communicate ideas and intentions clearly using appropriate English language where applicable.
18	B.Sc. Home Sience	Part-3	Marketing and Fashion Designing	1. To make student familiar with the marketing method required for fashion product 2. To create awareness about export procedures and merchandising 3. To learn techniques of product development and promotion

PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

DEPARTMENT OF GEOGRAPHY

PROGRAM- B.A., GEOGRAPHY

PROGRAM OUTCOMES

By the end of this course, the student will:

PO1 Describe what geography and human geography are.

PO2 Underst and population dynamics and migration.

PO3 Understand political systems, states, territory,and borders.

PO4 Understand the basic elements of culture.

PO5 Understand the types and levels of economic activities.

PO6 Understand urban structure and development.

PROGRAM SPECIFIC OUTCOMES

PSO1 Establish the position of Geography as a subject and its importance and interrelationships that reiterate and validate the Man Environment relationship.

PSO2 In the course of field surveys, students acquire a greater understanding of the socio-economic and cultural dimensions of the populations with greater focus on marginalized section of society.

PSO3 Physical field surveys enable the students to understand the landforms, geomorphic process and associated hazards.

PSO4 Provide training to students in handling modern instruments and methods like Aerial Photographs, Satellite Imagery, Total Station and Meteorological instruments.

PSO5 The comprehensive syllabus promotes and develops a thorough knowledge of concepts, methods and theory.

PSO6 The Ability Enhancement Course strives to develop communication powers in the student, both written and oral.

PSO7 The syllabus is oriented towards emerging job opportunities and future prospects for the students.

COURSE OUTCOMES

SN	COURSE	YEAR	PAPER/SUBJECT	COURSE OUTCOMES
1	B.A. Geography	1	Paper-1 Physical Geography	1. Understand earth's tectonic and structural evolution. 2. Gain knowledge about earth's interior. 3. Develop an idea about concept of plate tectonics, and resultant landforms. 4. Acquire knowledge about types of folds and faults and earthquakes, volcanoes and associated landforms.
2	B.A. Geography	1	Paper-2 Human Geography	1. Understand political systems, states, territory, and borders. 2. Understand the basic elements of culture. 3. Understand the types and levels of economic activities. 4. Understand urban structure and development.
3	B.A. Geography	1	Paper-3 Practical	Map making and scale of the maps and diagram and statistical technique knowledge about chains tap survey.
4	B.A. Geography	2	Paper-1 Economic and Resource Geography	1. Explain, synthesize, and apply key concepts, techniques, and theoretical approaches in economic geography. 2. Establish and analyze spatial patterns of economic development. 3. Explain the role of historical, environmental, cultural, and other factors in determining economic activities.
5	B.A. Geography	2	Paper-2 Geography of India	1. Understand earth's tectonic and structural evolution. 2. Gain knowledge about earth's interior. 3. Develop an idea about concept ofplate tectonics, and resultant landforms. 4. Acquire knowledge about types of folds and faults and earthquakes, volcanoes and associated landforms.
6	B.A. Geography	2	Paper-3 Practical	Making projections and statistical methods to know about weather map & prismatic compass survey.
7	B.A. Geography	3	Paper-1 Remote	1. Gaining knowledge on concepts and applications leading to modeling of earth

			Sensing and Geographical Information System	resources management using Remote Sensing 2. Acquire skills in storing, managing digital data for planning and development. 3. Gain the efficiency of decision making and planning. 4. Provide efficient means for data distribution and handling. 5.Elimination of redundant database-minimize duplication.
8	B.A. Geography	3	Paper-2 Geography of Chhattisgarh State	1. Knowledge of physical and cultural characteristics of Chhattisgarh state. 2. Acquire knowledge about types of folds and faults and earthquakes, volcanoes and associated landforms of Chhattisgarh.
9	B.A. Geography	3	Paper-3 Practical	Understand Topographical Sheets and soio-economic survey of village.