

### 1.1.1 Curricula developed and implemented have relevance to the local, regional, national, and global developmental needs.

Name of the Department	Name of the Program	Curricula developed and implemented have relevance to the local, developmental needs, which is reflected in the Programme outcomes	Curricula developed and implemented have relevance to the regional	Curricula developed and implemented have relevance to the national, developmental needs, which is reflected in the Programme outcomes	Curricula developed and implemented have relevance to the global developmental needs, which is reflected in the Programme outcomes	Links for the Curriculums	
Anthropology	BA in Anthropology	18	31	44	41		<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1720006212.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1720006212.pdf</a>
	BSc in Anthropology						
	MA/MSc in Anthropology						
	PhD in Anthropology						
Botany	BSc in Botany	19	16	19	6	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1717735924.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1717735924.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1717736025.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1717736025.pdf</a>
	MSc in Botany						
	PhD in Botany						
Biotechnology	MSc in Biotechnology	8	7	7	7		<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1717993480.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1717993480.pdf</a>
	PhD in Biotechnology						
Chemistry	BSc in Chemistry	44	44	44	44	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1720246387.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1720246387.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1720246314.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1720246314.pdf</a>
	MSc in Chemistry						
	PhD in Chemistry						
Education	BA in Education	17	27	20	16	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1719991907.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1719991907.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1720244033.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1720244033.pdf</a>
	Integrated B.Ed.						
	MA in Education						
	PhD in Education						
Economics	BA in Economics	4	14	24	22	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1720326470.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1720326470.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1720326442.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1720326442.pdf</a>
	MA in Economics						
	PhD in Economics						
Commerce	Bachelor in Commerce	6	6	26	20	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1720079383.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1720079383.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1720078742.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1720078742.pdf</a>
	Master in Commerce						
	PhD in Commerce						
Computer Sc.	BSc in Computer Sc.	8	9	33	26	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1716664141.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1716664141.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1716665011.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1716665011.pdf</a>
	MSc in Computer Sc.						
	PhD in Computer Sc.						
English	BA in English	0	7	20	38	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1721895203.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1721895203.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1721895152.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1721895152.pdf</a>
	MA in English						
	PhD in English						

Geography	BA in Geography						
	BSc in Geography						
	MA/MSc in Geography						
	PhD in Geography	12	34	49	49	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1720865201.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1720865201.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1720865342.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1720865342.pdf</a>
Hindi	BA in Hindi						
	MA in Hindi						
	PhD in Hindi	49	41	51	40	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1721981823.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1721981823.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1721981797.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1721981797.pdf</a>
History	BA in History						
	MA in History						
	PhD in History	14	24	28	17	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1719558435.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1719558435.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1719558508.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1719558508.pdf</a>
Library & Information Sc.	Master in Library & Information Science						
	PhD in Library & Information Science	26	26	24	20		<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1724736977.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1724736977.pdf</a>
Mathematics	BA in Mathematics						
	BSc in Mathematics						
	MA/MSc in Mathematics						
	PhD in Mathematics	19	25	33	35	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1717566849.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1717566849.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1717566807.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1717566807.pdf</a>
Odia	BA in Odia						
	MA in Odia						
	PhD in Odia	30	43	33	15	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1720592214.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1720592214.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1720592984.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1720592984.pdf</a>
Philosophy	BA in Philosophy						
	MA in Philosophy						
	PhD in Philosophy	1	0	15	13	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1717655666.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1717655666.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1724227361.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1724227361.pdf</a>
Physics	BSc in Physics						
	MSc in Physics						
	PhD in Physics	0	0	4	40	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1720783780.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1720783780.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1717606887.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1717606887.pdf</a>
Political Sc.	BA in Political Sc.						
	MA in Political Sc.						
	PhD in Political Sc.	1	1	6	7	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1718867837.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1718867837.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1720049730.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1720049730.pdf</a>
Psychology	BA in Psychology						
	MA in Psychology						
	PhD in Psychology.	2	5	8	4	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1724089370.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1724089370.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1724089370.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1724089370.pdf</a>
Sanskrit	BA in Sanskrit						
	MA in Sanskrit						
	PhD in Sanskrit	3	56	58	8	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1724758540.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1724758540.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1724758540.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1724758540.pdf</a>
Sociology	BA in Sanskrit						
	MA in Sanskrit						
	PhD in Sanskrit	3	3	12	31	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1724138642.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1724138642.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1724138642.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1724138642.pdf</a>
Statistics	BA in Statistics						
	BSc in Statistics	11	18	16	15	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1724046988.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1724046988.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1724046988.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1724046988.pdf</a>

	MA/MSc in Statistics						
	PhD in Statistics						
Zoology	BSc in Zoology						
	MSc in Zoology					<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1719922405.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1719922405.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1719922430.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1719922430.pdf</a>
	PhD in Zoology	21	21	31	28		
Management	Bachelor in Business Administration						
	Master in Business Administration						
	Master in Finance Management	4	5	36	12	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1717468266.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1717468266.pdf</a>	<a href="https://www.gmuniversity.ac.in/dept/document/mscdoc1717468266.pdf">https://www.gmuniversity.ac.in/dept/document/mscdoc1717468266.pdf</a>
MCA	Master in Computer Application	6	9	19	17	<a href="https://www.gmuniversity.ac.in/dept/document/mcadoc1716915273.pdf">https://www.gmuniversity.ac.in/dept/document/mcadoc1716915273.pdf</a>	
BSc. IST	B.Sc. in Information Science & Telecommunication	20	27	26	26	<a href="https://www.gmuniversity.ac.in/dept/document/bscdoc1720447201.pdf">https://www.gmuniversity.ac.in/dept/document/bscdoc1720447201.pdf</a>	
<b>Total</b>		<b>346</b>	<b>499</b>	<b>686</b>	<b>597</b>		

**CORE PAPER-IV(C-IV)**  
**DIFFERENTIAL EQUATIONS**  
**(Credits-4) Full Marks-75 (Mid Term-15+End Term-60)**

**Course Objective:**

1. To familiarize the students with various methods of solving differential equations.
2. To have a qualitative application through models.
3. To solve problems to understand the methods.
4. To solve practical problems employing various methods.

**UNIT-I:** **(10 Hours)**

Differential equations and mathematical models, General, Particular, explicit, implicit and singular solutions of a differential equation. Exact differential equations and integrating factors, separable equations and equations reducible to this form, linear equations and Bernoulli's equation, special integrating factors and transformations.

**UNIT-II:** **(13 Hours)**

Introduction to compartmental models, Exponential decay radioactivity (case study of detecting art forgeries), lake pollution model (with case study of Lake Burley Griffin), drug assimilation into the blood (case study of dull, dizzy and dead), exponential growth of population, Density dependent growth, Limited growth with harvesting.

**UNIT-III:** **(13 Hours)**

General solution of homogeneous equation of second order, principle of superposition, Wronskian, its properties and applications, method of undetermined coefficients, Method of variation of parameters, Linear homogeneous and non-homogeneous equations of higher order with constant coefficients, Euler's equation.

**UNIT-IV:** **(12 Hours)**

Equilibrium points, Interpretation of the phase plane, predatory-pray model and its analysis, epidemic model of influenza and its analysis, battle model and its analysis.

**Practical / Lab work to be performed on a computer:**

Modeling of the following problems using *Matlab / Mathematica / Maple* etc.

1. Plotting of second & third order solution family of differential equations.
2. Growth & Decay model (exponential case only).
3. (a) Lake pollution model (with constant/seasonal flow and pollution concentration)/  
(b) Case of single cold pill and a course of cold pills.  
(c) Limited growth of population (with and without harvesting).
4. (a) Predatory-prey model (basic Volterra model, with density dependence, effect of DDT, two prey one predator).  
(b) Epidemic model of influenza (basic epidemic model, contagious for life, disease with carriers).  
(c) Battle model (basic battle model, jungle warfare, long range weapons).
5. Plotting of recursive sequences.

## **Paper - 203: NUMERICAL ANALYSIS (4L-0T-0P)**

**Full Marks: 100 (20 Mid Term + 80 End Term)**

### **Perquisites:**

Iteration methods, algebraic equations, transcendental equations, Interpolation, Difference operator, order of convergence, Numerical integration, solution of system of linear equations

**Objective:** This course is designed to introduce the basic concepts of Numerical Mathematics in order to solve the problems arising in various fields of application, for example in science, engineering and economics etc. that do not possess analytical solutions or difficult to deal with analytically. This course addresses development, analysis and application of different numerical methods to solve the problems, viz. system of linear & nonlinear equations, numerical initial and boundary value problems of ordinary differential equations etc.

### **Syllabus:-**

#### **Unit-I**

**(12 hrs)**

Errors: Root finding for non-linear equations: Bisection method, Iteration methods based on first degree equations (Secant method, Regula-Falsi method, Newton Raphson method), Iteration methods based on second degree equation (Muller method, Chebysev method), Rate of convergence, Iteration methods.

#### **Unit-II**

**(12 hrs)**

Interpolations: Lagrange and Newton interpolations, Finite differences, interpolating polynomials using finite differences, Hermite interpolation, Piecewise and Spline interpolation.

#### **Unit-III**

**(12 hrs)**

Differentiation: Methods based on Interpolation, Methods based on Finite Differentials, Methods based on undetermined coefficients, optimum choice of step length, Interpolation method. Integration: Methods based on Interpolation (Trapezoidal rule, Simpson's rule), Method based on undetermined coefficients (Gauss Legendre Integration method, Lobatto integration method, Radon integration method, Gauss-Chebysev Integration method (without derivation), Gauss-Laguerre Integration method (without derivation), Gauss-Hermite Integration methods (without derivation), Composite integration methods.

#### **Unit-IV**

**(12 hrs)**

Numerical Solution of system of linear equations: Direct methods, Gauss Elimination methods, Gauss-Jordan Elimination method, Triangularization method, Cholesky method, Iteration methods (Jacobi iteration method, Gauss-Seidel iteration method, Iterative method for  $A^{-1}$ ) Eigen value problems (Jacobi method for symmetric matrices) Givens Method for symmetric matrices, Rutishauser method for arbitrary matrices). Numerical solution of ordinary differential equation: Euler Method, Backward Euler method, Mid-point method, Single Step Methods (Taylor series method, Runge-Kutta method (Second order, Fourth order method))

## **Paper - 306 A: OPERATION RESEARCH (4L-0T-0P)**

**Full Marks: 100 (20 Mid Term + 80 End Term)**

**Prerequisites:** Linear programming, simplex methods, artificial variables, primal, dual, transportation, assignment problem, travelling salesman problem.

**Objective:** This module aims to introduce students to use quantitative methods and techniques for effective decisions-making; model formulation and applications that are used in solving business decision problems

### **Syllabus:-**

#### **Unit-I: (12 hrs)**

Introduction to linear Programming problem, Theory of simplex method, optimality and unboundedness, the simplex algorithm, simplex method in tableau format, introduction to artificial variables, two-phase method, Big-M method and their comparison.

#### **Unit-II: (12 hrs)**

Duality, formulation of the dual problem, primal-dual relationships, Fundamental Theorem of Duality, economic interpretation of the dual.

#### **Unit-III: (12 hrs)**

Transportation problem and its mathematical formulation, northwest-corner method least cost method and Vogel approximation method for determination of starting basic solution, algorithm for solving transportation problem.

#### **Unit-IV: (12 hrs)**

Assignment problem and its mathematical formulation, Hungarian method for solving assignment problem and Travelling Salesman Problem.

### **Book Prescribed:**

S. D. Sharma, *Operations Research*, Kedar Nath Ram Nath, 2020th Edition, 2014

### **Reference Books:**

- 1.S. I. Gass, *Linear Programming and Application: Methods and Applications*, 5<sup>th</sup> Edition, Dover Publications Inc, 2011.
- 2.G. Hadley, *Nonlinear and Dynamic Programming*, Addison-Wesley Pub. Co.; First 1964 Edition,
3. Kanti Swarup, *Operation Research*, Sultan & Chand, 2010.



## Discipline Specific Elective Paper -3: ODISHA ECONOMY

### Introduction:

Using appropriate analytical frameworks, this course reviews major trends in economic indicators and policy debates in Odisha in pre- and post-Independence period, with particular emphasis on paradigm shifts and turning points. Given the rapid changes taking place in Odisha, the reading list will have to be updated annually.

### Course Objective:

To understand Odisha's economic situation and its future prospects.

### Course Outcomes:

**After completion of the course, the students will be able to;**

CO1: Understand the economic situation in the pre-independence period.

CO2: Locate the macroeconomics problems in Odisha.

CO3: Identify the sectoral contributions and problems in Odisha economy.

CO4: Recognise the problems associated with social capital in Odisha.

### Unit I: Odisha Economy before 1947

Orissa's Economy in the Nineteenth Century: Benevolence or Exploitation, Forces of Nature, Animal Power, The Company Steps in, Public Works and Public Health, Education, Disintegration of Village Economy, New Social Environment, Changing Position of Social Classes, The Moneylenders, The Borrowers, Money-flows from Village to Metropolis, Pauperization of Peasantry, The Wage Earners, Demographic Changes, Profiting from Rural Adversity; Diarchy in 1919 and Separation of Provincial Finances from Central Government in 1937; Emergence of Federal Finance (Ref.: Das 1976a and 1976b, GoO 2016)

### Unit II: Macro Economy of Odisha

A macro glance of Odisha economy: aggregate income, broad sectoral decomposition, performance of districts, employment, child labour and bonded labour, employment programmes, consumption expenditure, cost of living; Odisha State public finances (Chapter 14 and 15 of Ref 1; & Chapter 2 and 9 of Ref 2)

### Unit III: Agriculture, Industry, Infrastructure and Environment in Odisha

Agriculture: land ownership and land tenure, agricultural wages and rural unemployment, production and productivity of major crops, agricultural inputs, agricultural policy; Animal Husbandry; Fisheries (Chapter 1 to 3 of Ref 1; & Chapter 3 of Ref 2)

Industry: Investment, industrial policy, and the growth of large industries, mining and quarrying; Construction; tertiary sector: tourism, transport and power; Water Resources, Forest Resources (Chapter 4 to 8 of Ref 1; & Chapter 4 & 5 of Ref 2)

### Unit IV: Social Sector in Odisha

Poverty: income poverty and inequality; health sector: outcomes, infrastructure, finance, public health, NRHM; education: Literacy, Primary education, secondary education, higher education, SSA; human development (Chapter 9 to 13 of Ref 1; & Chapter 7 & 8 of Ref 2)

## EF-4: Working with Community

Credit-02

### Course Outcome

After completion of this course, the pupil- teacher shall

- A. Explain the factors working within the society, community i.e. knowledge of social realities
- B. Develop the dignity of labour among student – teachers
- C. Create awareness on social and economic reconstruction of the country.
- D. Point out the educational problems and needs of the society.
- E. Prepare youth for sustainable development.
- F. Develop personality through community service.

Student teachers shall be provided exposure to community life for at least one week during which they shall live with the community members and act in terms of preparing school development plan, sharing cultural practices, holding cultural programmes and gaining community's perception about and aspirations from formal education system. The members of SMC/VMC should be associated in these activities.

The institution will form a committee, including faculty members, student teachers and community/SMC members for the smooth organization of this programme. The student teachers shall prepare a detailed report of the programme, individually and/or in group during the activity and submit at the end of the programme.

### Transaction Mode

Discussion, Rally, Competitions (Debates) Posters and Banner displays Working in community setting, Mass movement, *Nukkad* Performances, Local action group formation, surveys, interviews, action research, case study, dissemination of success stories etc.

#### Suggested Activities

- □ micro planning of a school community relationship
- study of the nature of community participation in a secondary school
- survey of community resources for participation in scholastic and co-scholastic activities of a school educational survey of a slum area report on social customs, traditions and superstition
- survey of a village/town with at least 20 households in order to study the socio-economic and educational status of the villager
- study of wastage and stagnation in local primary schools
- study of an area in regard to consumption of electricity and water and suggest remedial measures
- tree plantation programme in the campus/nearby village
- survey of parent's attitude towards education of their children
- organization of non-formal education centers for dropouts and out of school children in a locality
- organization of campus beautification programme
- identification of problems of parents with respect to education of their children
- AIDS awareness, electoral awareness, road safety, human rights, women rights etc literacy programmes in the community
- cleanliness drives in the community and awareness about its needs
- developing healthy food habits among the community members
- training of community in some simple vocations for self-employment



- action research on local problems in consultation with the community
- micro – planning exercises for assessing the educational status of the community
- establishment of Peace-committees and making them functional effectively
- critical review of implementation of RTE Act(2009) .
- assistance and working with local community in actual relief work whenever needed
- training of community in First Aid
- exploiting the community resources and finding means and ways of using them for school

Many more such exercises could be conceived. Any such activities could be planned at the institutional level and executed. It is suggested that these activities may be conducted individually or collectively under the supervision of teacher educators.

The performance of student teachers in all activities will be graded in a five point scale and at the end of the programme overall grade will be awarded.

A-Excellent, B-Very Good, C-Good, D-Average, E-Poor

**PSYCHOLOGY OF CRIME AND VIOLENCE**

**PAPER CODE: PSY-303 (THEORY)**

**Course Objectives:**

- To gain knowledge regarding different negative emotions.
- To inform the students of the negative consequences of crime.
- To impart knowledge of juvenile delinquency.

**Prerequisite:** (Required to achieve the course-outcomes)

- Knowledge of different emotions, fundamental concept of crime, information regarding yoga and meditation.

**Course Contents:**

**UNIT-I: (Aggression) (12 Hours)**

- i. Introduction – The concept of aggression, its meaning and characteristics.
- ii. Development of aggression, types or form of aggression, source of aggression.
- iii. Sex and age difference in aggression, hostility and aggression, experimental studies on aggression.

**UNIT-II : (Crime, Criminal and Criminology) (08 Hours)**

- i. What is criminology, growth of criminology, the field and scope of criminology
- ii. Concept of crime, characteristics of crime, methods and techniques of criminology.
- iii. Nature and scope of criminology, theories of criminal behaviour, crime in India.

**UNIT-III: (Juvenile Delinquency) (12 Hours)**

- i. Meaning, nature and characteristics of juvenile delinquency. Types of juvenile delinquency.
- ii. Causes and prevention of juvenile delinquency, treatment and rehabilitation of juvenile delinquency.
- iii. School and delinquency: The school as a source of motivator for delinquency, school dropout and delinquency, school safety, delinquency prevention through early childhood education.

**UNIT-IV: (Rehabilitation) (08 Hours)**

- i. Corbelling to individuals and group for prevention of crimes. Rehabilitation of victims of crime.
- ii. Development of morality and moral education, value education.
- iii. Yoga, Transcendental meditation.

## **Core Paper XI**

### **DEVELOPMENT OF EDUCATION IN ODISHA**

#### **Course Outcomes**

On completion of the course the students will:

- CO1. Grasp the structure of educational system of Odisha
- CO2. State the function of institutions/units at the state and district levels
- CO3. Appreciate the contribution of Utkalmani Gopabandhu Das to the thoughts and
- CO4. Practices of Indian Education narrate the Course Outcomes and implementation process of the major education
- CO5. Schemes of central as well as state government being implemented in the state of Odisha
- CO6. Explain the role of various state and district level institutions in education
- CO7. Analyze the scenario of higher and technical education of Odisha
- CO8. Establish linkage between higher education and development of the state

#### **UNIT 1: Status of Elementary Education**

- (i) History of primary education in Odisha
- (ii) Efforts to Universalize Elementary Education: DPEP, SSA and Right to Education Act, 2009
- (iii) Indicator wise Position in terms of provision, enrolment, retention and achievement for elementary level programmes: NPEGEL and KGBV
- (iv) Problem and issues in elementary education

#### **UNIT 2: Status of Secondary and Higher Secondary Education**

- (i) History of secondary education in Odisha
- (ii) Rashtriya Madhyamik Shiksha Abhiyan (RMSA) and its implementation in Odisha.
- (iii) Role of BSE, Odisha- Problems and issues
- (iv) Status of Higher Secondary Education and Role of CHSE; Problems and Issues
- (v) Status of Higher Secondary Vocational Education-Problems and Issues

#### **UNIT 3: Status of Higher Education**

- (i) History of Collegiate Education
- (ii) Organization of higher education at the under graduation level and University level- Present status
- (iii) RUSA and its implementation
- (iv) Autonomous colleges and their functioning
- (v) Problems and issues relating to higher education

#### UNIT 4: Status of Teacher Education

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#### BA Education (Honours, Elective & Pass) Syllabus 2023-24

- (i) History of Teacher Education in Odisha
- (ii) Pre-service and In-service teacher education for elementary schools teachers
- (iii) Pre-service and In-service teacher education for secondary school teachers
- (iv) Role of DIET, CTE, IASE and SCERT
- (v) Problems and issues in teacher education

#### Practical: 25 Marks

- Seminar Presentation (Each student has to present minimum two papers during this semester related to themes based on Core-11)

NB: It will be evaluated by both the Internal and External Examiners.

#### PO-PSO-CO MAPPING MATRIX

CO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	1	2	2	3	2	3	1	1	1	1	2	1	3	1
CO2	1	2	3	1	2	3	2	3	1	1	1	3	2	1
CO3	1	2	3	2	1	2	1	1	2	3	2	1	2	3
CO4	3	2	1	2	3	2	1	1	3	1	1	2	3	1
CO5	1	2	3	2	1	2	1	1	2	3	2	1	2	3
CO6	3	2	1	2	3	2	1	1	3	1	1	2	3	1
CO7	1	2	3	2	1	2	1	1	2	3	2	1	2	3
CO8	3	2	1	2	3	2	1	1	3	1	1	2	3	1

1. Slight (Low) 2. Moderate (Medium) 3. Substantial (High)





**Discipline Specific Elective Paper- II  
History and Culture of Orissa – I**

**COURSE OBJECTIVE:**

They will be able to understand history and culture of ancient Odisha and will know regional geography of ancient Odisha. The paper deals with local subregional and regional State formations from the Post-Gupta period. The paper deals with the Ganga and Gajapatis and emergence of unified polity and unified cult of Jaganatha. The course offers learning on rise of brahmanical order and transformation of a tribal society. This paper deals with social and cultural life in early and medieval Odisha and growth and decay of urban centers and trade and commerce.

**Unit: I**

1. Historical Geography: Kalinga, Utkal, Kosal
2. Kalinga War (261 B.C.) and its Significance.
3. Kharavela – Career and Achievements

**Unit: II**

1. Matharas and Eastern Gangas and Sailodbhavas
2. Bhaumakaras
3. Somavamsis

**Unit: III**

1. Imperial Gangas
2. Suryavamsi Gajapatis
3. Post- Gajapati Political developments upto 1568.

**Unit: IV**

1. Social and Cultural Life in Early and Medieval Odisha
2. Growth and Decay of Urban Centres
3. Trade and Commerce
4. Taxation and Land Revenue

**Reading List:**

1. K.C. Panigrahi, History of Odisha, Kitab Mahal.
2. Sahu, Mishra & Sahu, History of Odisha.

**Suggested Reading:**

1. S.K. Panda, Political and Cultural History of Odisha.
2. A. C Pradhan, A Study of History of Orissa
3. B.K. Mallik, etal (eds) Odia Identity, Page Maker Publications, Bhubaneswar, 2019.
4. R. D Banarjee, History of Orissa, 2 vols.
5. M.N. Das(ed), Sidelights on History and Culture of Orissa, Vidyapuri, Cuttack, 1977.

## Discipline Specific Elective Paper-II History and Culture of Orissa –II

### COURSE OBJECTIVES:

On completion of the course, the students shall be able to:

This course will explore the history of certain regions, drawing on historical developments in other parts of India. The exhibition will focus on the Afghan, Mughal, Maratha, and British conquest, rule, and occupation in Odisha from the mid-15<sup>th</sup> century CE to 1947 CE. It will explore several aspects such as administration, society, economic conditions, stable political conditions, and the actions of other agencies throughout the early colonial period. This course will examine various resistance movements that took place in the 19<sup>th</sup> century, including the Khurda rising of 1804-05, the *Paik* insurrection of 1817, the Ghumusur uprising, the Keonjhar uprising, and the involvement of Surendra Sai from Sambalpur. This study will examine the occurrence of natural disasters in Odisha, specifically focusing on the Famine of 1866. It will analyse the causes and consequences of this calamity, including its impact on the development of modern education and the expansion of the press and journalism. Additionally, this will examine the socio-cultural transformations that occurred in 19<sup>th</sup> century Odisha, including the *Odia Bhasha* and identity movement. The aim is to expand students' understanding of the establishment of a distinct province, the development of socio-political organisations, the rise of public associations during the 19<sup>th</sup> century, and the significance of Utkal Sammilini (1903–1920). This study will specifically examine the nationalist movements in Odisha, including non-cooperation, civil disobedience, the Quit India Movements in Odisha, and other significant events. These studies will focus on the British interactions with the Princely States of Odisha and the *Prajamandala* Movement, as well as the process of merging the princely states.

#### Units: I

1. Afghan Conquest and Mughal Rule in Odisha- Administration
2. Maratha rule in Odisha – Administration
3. British Occupation and Early Colonial Administration: Land Revenue, Salt Policy, Jail and Police Administration.

#### Unit: II

1. Resistance Movements: Ghumsar Rebellion, Paik rebellion, Revolt of 1857 and Surendra Sai, Keonjhar Uprisings.
2. Famine of 1866 – Causes and Consequences
3. Growth of Education and Language Movement

#### Unit: III

1. Growth of Nationalism
2. Formation of Separate Province of Orissa.
3. Prajamandal Movement

#### Unit: IV

1. Nationalist Politics in Odisha
2. Quit India Movement
3. Merger of Princely States



**Discipline Specific Elective Paper-III**  
**History and Culture of Odisha - III**

**COURSE OBJECTIVES:**

They will be able to understand the growth, development and various sects of Buddhism in Odisha. This paper also provides the royal patronage of Buddhism by the royal dynasties of Odisha and its impact of Buddhism on the socio-cultural life of the people of Odisha. Students also get knowledge of development of Buddhist art and architecture in Odisha. They will be able to get the idea of growth and development of Jainism in Odisha and Jain art architecture of Odisha. This paper deals with the growth and development of Saivism in Odisha and its art and architecture. Students also get the information about the Christian Missionaries of various denominations work and Socio-religious reforms of missionaries in Odisha in 19th and 20th century.

**Unit: I**

1. Buddhism in Odisha
2. Jainism in Odisha
3. Shaivism in Odisha

**Unit: II**

1. Saktism and Tantricism in Odisha
2. Growth of Vaishnavism in Odisha and Cult of Jagannath
3. Growth of Odia Literature : Sarala Mahabharata
4. Pancha-Sakha Literature

**Unit: III**

1. Buddhist Art and Architecture
2. Jaina Art
3. Evolution of Temple Architecture -Parsurameswar, Mukteswar, Lingaraja, Jagannath and Konarka

**Unit: IV**

1. Christian Missionaries – Education and Health
2. Mahima Movement and its Impact
3. Neo-Hindu Movements – Brahmo, Arya Samaj.

**Discipline Specific Elective Paper-IV**  
**(Optional/ Project) History of Contemporary Odisha (1947-1980)**

**COURSE OBJECTIVES:**

This paper will help the students to understand the new political development that occurred in Odisha during the transition as well as the post-independence phase. The students will learn about the making of modern Odisha state. They will know about the infrastructural development projects that were undertaken in post-independence era to boost Odisha's economic growth. They will be able to trace the development in the social fabric of the life of common people of Odisha after independence.

**Unit I: Political Developments**

1. Second Congress Ministry (1946-1950):
  - a) Integration of Princely States with Odisha
  - b) New Capital
  - c) Hirakud Dam Project
2. Years of Uncertainties (1950-1980)
  - a) Third Congress Ministry and Abolition of Zamindari System
  - b) Biju Patnaik's First Ministry Achievements

**Unit II: United Political Initiatives**

1. Coalition Politics- Achievements and Challenges
  - a) R.N. Singdeo,
  - b) Sadasiba Tripathy
2. Panchayati Raj Institutions-Its Working and Impacts.

- a) Rural Stages
- b) Urban Stages

**Unit III: Economic Development**

- a) Growth of Industries- Rourkela Steel Plant and Odisha Sponge Iron Ltd.
- b) Irrigation and Agricultural Infrastructure
- c) Development in Transport and State communication- National and State High Ways in Odisha

**Unit IV: Social Developments and Problems**

- a) Government Community Development Programmes- Its Impact
- b) Peasant Movements: Causes and Effects
- c) Growth of Art and Craft: Raghunathpur, Pipli and Bargarh

**Reading List:**

1. Hemant K. Mohapatra, Odisara Etihasha (Odia), Friends Publishers, Cuttack, 2019.
2. Sukadeva Nanda, Coalition Politics in Odisha, Sterling Publishers, Delhi.

**Suggested Reading:**

1. Sunit Ghosh, Orissa in Turmoil: A Study in Political Developments, Bookland International, Bhubaneswar, 1991.
2. Basant Das, Odisha Rajanitira Gopan Katha (Odia), Anusandhan Publication, Bhubaneswar, 2001.
3. B.B. Jena & J.K. Baral (eds), Government and Politics in Orissa, Print House (India), Lucknow, 1988.
4. Chittaranjan Das, Nabakrushna Chaudhury, NBT, New Delhi.
5. Dasarathi Bhuyan, Orissa Politics: From 1936 to Contemporary Politics, Mangalam Publishers, New Delhi, 2010.



## CC - VII: Geography of Odisha

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### Course Objectives:

To provide a broad understanding Odisha covering its geographical aspects and influences

### Course Outcomes (COs)

The students will be able to:

- CO-01: Understand the basics of geographies of Odisha (OBE Level: Understand)
- CO-02: Understand the spatial distribution and problems and prospects of agricultural products and minerals in Odisha (OBE Level: Apply)
- CO-03: Assess the resources of Odisha (OBE Level: Analyze)
- CO-04: Evaluate the problems and management of Odisha's (OBE Level: Evaluate)

### Course Work

**Unit - I:** Physiography of Odisha, River System, Climate, Soil, Natural Vegetation

**Unit - II:** Agriculture:

- (a) Production and Distribution of Rice, Pulses, Oil seeds;
- (b) Agricultural Problems and Prospects

**Unit - III:** Minerals and power recourses:

- (a) Distribution and production of Iron Ore, Bauxite, Chromite, Coal
- (b) Industrialization in Odisha – Problems and prospects, Iron and steel industry, Aluminum Industry, Textile, thermal power plants

**Unit - IV:**

- (a) Population: Distribution and Growth, distribution of tribes and tribal population
- (b) Urbanization-Growth of urban population and urban centers
- (c) Transport : Roadways & Railways

### Practical

1. Rainfall distribution of Odisha using choropleth techniques (State & District/ District & block)
2. Temperature / rainfall distribution using isopleth techniques giving point level data of important observation centers
3. Drawing of time series graphs to depict decadal growth of population/ urban population
4. Cartographic representation of socio-economic data (One, two three dimensional)
5. Practical records and viva -voce

### Reading Materials

**Text Book:**

1. Sinha, B. N. - Geography of Odisha

**Reading List:**

1. Roy, G. C.- Geography of Odisha

## **GEO (DSE) – 206 [B]: Geography of Odisha**

**Credit = 4**

F.M. = 100 [ 20 (Mid Term) + 80 (End Term Exam)]

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**Prerequisite Course / Knowledge (If any):** Basic knowledge of Geography of Odisha

### **Aim of the Course:**

is to train students in relevant topics of Geography of Odisha covering theoretical aspects in order to use the understanding of basic knowledge about Geography of Odisha and its Natural Resource Management.

### **Course Outcomes:**

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

- I. Review the basic knowledge about Odisha Geography such as Physiography, Climate, Soil, Vegetation, Drainage System, Natural Hazards, Coastal Erosion
  - II. Explore the types of crops and its production, agricultural problems of Odisha
  - III. Evaluate the study of demography, Transportation and Tourism of Odisha
  - IV. Discuss spatial planning principles, land use policies, infrastructure development, and urban growth management strategies in Odisha
- 

### **Course Contents:**

Unit 1:

Location; Physiography of Odisha, Drainage.

Unit 2:

Climate, Soil, Natural Vegetation

Unit 3:

Production and distribution of rice, pulses, oilseed; Agricultural problems in Odisha.

Unit 4:

Population distribution, growth; Development of Roadways; Major Religious cultural and natural tourist spots in Odisha: Puri, Konark, Similipal, Huma

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### **Reading List**

1. Roy, G.C.- Geography of Orissa, Kalyani Publication
  2. Sinha, B. N.- Geography of Orissa, NBT Publication.
-





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**Memorandum of Understanding  
between**

**Gangadhar Meher University, Sambalpur, Odisha  
and**

**Sambalpuri Bastralaya Handloom Coop. Society Ltd., Bargarh, Odisha**

This Memorandum of Understanding (MoU) has been entered into on 23<sup>rd</sup> day of February 2022 between Gangadhar Meher University, having its registered office at Fatak, Over Bridge, Modipara, Sambalpur, Odisha, 768001, India represented by its Registrar (hereafter referred to as the "First Party") which expression, shall, unless excluded by or repugnant to the subject or context deemed to include its successors and assigns of the First party.

And

Sambalpuri Bastralaya Handloom Coop. Society Ltd., Bargarh, Odisha (hereafter referred to as the "Second Party") which expression, shall, unless excluded by or repugnant to the subject or context deemed to include its successors and assigns of the Second party.

1. The purpose of this MoU is to generate greater awareness of the extraordinary handloom weaving skills and quality of fabric available in Odisha.
2. To provide an impetus to employment in Handloom sector, hand spinning and hand Reeling of Tassar & Eri as well, not only for the finest craftsman but also for those whose

*[Handwritten Signature]*  
23/2/2022  
REGISTRAR  
GANGADHAR MEHER UNIVERSITY  
SAMBALPUR

*[Handwritten Signature]*  
23.02.22  
Managing Director  
Sambalpuri Bastralaya  
H.L.C.S. Ltd., Bargarh



NO. 1310 01.22.22

SOLD TO Jegalewari Das, Registrar - G.M. University  
Bm

THROUGH \_\_\_\_\_

RESIDENT OF \_\_\_\_\_

PS \_\_\_\_\_ DIST Sambalpur

*Zulu*  
05 NOV 2020  
DISTRICT TREASURY  
SAMBALPUR

*G. S. Supkar*  
G. S. Supkar  
STAMP VENDOR  
SAMBALPUR



skills need improvement for better earning. Some emphasis will also be given to organic & indigenous cotton as well as silk. In addition, the following will also be considered:

- 2.1) Conducting collaborative research projects
  - 2.2) Conducting lectures and organizing symposia
  - 2.3) Exchange of academic information, materials and Research.
  - 2.4) To facilitate internship programmes for students of the First party
  - 2.5) Promoting collaboration in fields of mutual interest
  - 2.6) Promoting other forms of cooperation like fabric design etc as mutually agreed.
  - 2.7) Provision for making unstitched Sambalpuri apparel available for the purpose of university uniform and other requirements.
3. It is understood that the implementation of any of the types of co-operation stated in Clause 2 shall depend upon the availability of resources and financial support of the Parties concerned.
  4. Both Parties agree that prior written approval is required before using the other Party's name, logo, in any advertising or associated publicity.
  5. This MoU may only be amended or modified by a written agreement signed by the representatives of each Party.
  6. This MoU is valid for a period of 3 (three) years from the date of signing by the authorized signatories of each Party. Each Party shall review the status of the MoU at least three months before the end of the period to determine whether it wishes the MoU to continue and, if so, any modifications that might be necessary. The period of validity of this MoU may only be extended by the mutual written consent of both Parties.
  7. This MoU may, at any time during its period of validity, be terminated by one of the Parties upon prior notice to the other in writing not later than six months before the termination date.
  8. The Parties may disclose certain confidential information to the other in relation to any future proposal made under this MoU. Each Party therefore agrees that the contents of this MoU and the negotiations in relation to any future proposal remain strictly confidential and each Party hereby undertakes not to disclose the same to any

*[Handwritten Signature]*  
REGISTRAR  
GANGADHAR MEHER UNIVERSITY  
SAMBALPUR

*[Handwritten Signature]*  
23.02.22  
Managing Director  
Sambalpuri Bastralaya  
H.L.C.S. Ltd., Bargarh



third Party, save for its professional advisers, without the prior written consent of the other Party except where such disclosure is required by law (including, without limitation, under applicable freedom of information legislation).

Signed for and on behalf of Gangadhar Meher University by:

Signed for and on behalf of Sambalpur Bastralaya Handloom Coop. Society Ltd. by:

*[Signature]*  
27/2/22

*[Signature]*  
23.02.22

Name: Registrar  
Position: Asst. Vice-Chancellor  
Date:

Name: Managing Director  
Sambalpur Bastralaya  
H.L.C.S. Ltd., Bargarh  
Position: Sisir Ku. Nayak  
Date:

DY. Registrar  
Gangadhar Meher University  
Sambalpur

REGISTRAR  
GANGADHAR MEHER UNIVERSITY  
SAMBALPUR



Email : [gmuniversitysbp@gmail.com](mailto:gmuniversitysbp@gmail.com)

Email: [registrar@gmuniversity.ac.in](mailto:registrar@gmuniversity.ac.in)

Website: [www.gmuniversity.ac.in](http://www.gmuniversity.ac.in)

# GANGADHAR MEHER UNIVERSITY

AMRUTA VIHAR, SAMBALPUR (ODISHA)-768004

Letter No 3127/GMV

Date 29/7/2024

## OFFICE ORDER

It is for information of all concerned that as per instructions of the district administration vide letter no. 275/Cult, dt.25.07.2024 all faculties and staff of the University are instructed to wear Sambalpuri dress on account of "Sambalpuri Din" on dt.01.08.2024 in the memory of Late Guru Satya Narayan Bohidar. A committee is constituted with the following faculties and students of the University for the smooth management of the celebration.

Members:

- Prof. Partha Sarathi Mallik
- Dr. Sala Besra
- Dr. Sanjukta padhi
- Dr. Rosalien Rout
- Dr. Ananta Prasad Chakraborty
- Dr. Santosh Kumar Mallik
- Sri Bishwajyoti Patro - Secretarial Assistance

Student Representatives:

- Keertimayee Sahu
- Anchal Behera
- Lambodar Meher
- Priyanka Gana
- Yashwardhan Tiwari
- Bipasha Gukhura
- Subham Mohanty
- Swadhin Kumar Acharya

By order of the Vice - Chancellor

  
REGISTRAR 29/07/24

Memo No 3128/GMV

Date 29/7/2024

Copy Notice Board/ Persons concerned/ PA to VC/ PA to Registrar/ Dy. Registrar/ System Manager Cell for information and necessary action.

  
REGISTRAR 29/07/24





ଗୁରୁ ଶ୍ରୀ ସତ୍ୟନାରାୟଣ ବହିଦାର

ଗଙ୍ଗାଧର ମେହେର ବିଶ୍ୱବିଦ୍ୟାଳୟ

# ନିଉତା



## ସମ୍ବଲପୁରୀ ଦିନ

ଅଗଷ୍ଟ ୧, ୦୧୩- L.G.-1, ସମିୟା- ୧୧ ବଜେ

ଆସୁନ୍ ସଭେ ଠୋଲ୍ ହେମା L.G. 1 ନେ ଆର୍ ସବୁ  
ବଛର୍ ବାଗିର୍ ମନାମା ଆମର୍ ଅସ୍ତିତା ର୍ ଦିନ୍

ଗଙ୍ଗାଧର ମେହେର ବିଶ୍ୱବିଦ୍ୟାଳୟ,  
ଅମୃତ ବିହାର , ସମ୍ବଲପୁର



ନିଉତନ



ପ୍ରଫେସର ଏନ୍.ନାଗାରାଜୁ  
କୁଳପତି



ଅଗଷ୍ଟ-୧

# ସମ୍ବଲପୁରୀ ଦିନ

ସମିକ୍ଷା : ୧୧ବଜେ

ଆସୁନ୍ ସତେ ଚୋଲ ହେମା  
**L.G-1** ନେ ଆର ସବୁ  
ବଛର ବାଗିର ମନାମା  
ଆମର ଗରବ ର ଦିନ



ଗଙ୍ଗାଧର ମେହେର ବିଶ୍ୱବିଦ୍ୟାଳୟ  
ଅମୃତ ବିହାର, ସମ୍ବଲପୁର



