Skill Enhancement Courses (SEC)
for 3rd Semester Plus 3 Arts (Regular) Curriculum under CBCS

A student has to choose any one course (2 Credit) out of the following four courses prescribed for the 3rd Semester of the +3 Arts (Regular) Curriculum under CBCS.

History of Odisha

UNIT I : Religion and cults of Odisha

1. Mahima Dharma
2. Cult of Jagannath

UNIT II : Formation of separate Odisha province

1. Role of Krishna Chandra Gajapati
2. Role of Madhusudan Das

UNIT III : Resistance Movement in the Nineteenth century

1. The Paik Rebellion
2. The Ghumar Rebellion

UNIT IV : Socio-cultural Developments in Modern Odisha

1. The Famine of 1866
2. Development of Education in Odisha during 19tl'and first half of 20th century

Readings

1. History of Orissa by S C Pradhan
2. History of Orissa by N K sahu, J K sahu & P K Mishra
3. Oriya nationalism by Nibedita Mohanty
4. The Cult of jagannath by K C Mishra
5. The Gajapati Cult of Orissa by P Mukherjee

Pedagogical Perspective in Education

UNIT I : Pedagogical Approaches

Concept of pedagogy and allied concepts such as, teaching, instruction, indoctrination, conditioning.
Concept of Critical Pedagogy .
Approaches to student learning: Behaviourism, Cognitivism and Constructivism.
Planning the lesson: Herbartian Approach, ICON Design and 5-E Approach.

UNIT ll : Learning Process

Learning as construction of knowledge; understanding constructivist learning . Role of the teacher, learner, peers and community members .
Multiple ways of organizing learning. individualised, self-learning, group learning, cooperative learning.
Views of Piaget, Bruner and Vygotsky on learning

UNIT lll : Forms of Learner Engagement

Forms of learner's engagement in the process of knowledge construction: observation, Demonstration, Exploration, Discovering, Analysis, Contextualization, Collaboration, Multiple interpretations.
Use of local knowledge to link with school knowledge.

UNIT lV : Use of Technology in Education

Concept of smart classroom, Basics of MS word, MS excel and MS Power Point Presentation
Browsing internet and learning through online resource materials

Readings:

1. Educational Technology and ICT by Dr. S.K.Mangal and Dr. Uma Mangal, Tandon Publication Ludhiana
2. Essentials of Educational Technology by J.C.Agarwalla
3. Educational Technology and ICT by Dr. A.B. Bhatnagar, Bookmandelhi.com

Data Analysis & Computer Application

UNIT I :
Basic statistical functions and analysis – mean, median, mode standard deviation, correlation, regression methods & techniques, estimation Linear trend and growth rate.

Measures of central tendency: mean, median and mode; arithmetic, geometric and harmonic mean. Measures of dispersion, skewness and kurtosis. Correlation and regression.

UNIT II :

Introduction to probability theory. Notions of random experiment, sample space, event, probability of an event. Conditional probability. Independence of events. Random variables and probability distributions. Binomial and normal distributions. Estimation of population parameters from sample data.

UNIT III :

Basic components and organization of a computer, Generation and classification of computers, Input/Output devices, Data representation, Computer Software, Programming languages and packages.

UNIT IV :

Familiarisation of MSExcel, Creating & Editing Worksheet, Formatting and Essential Operations, Formulas and Functions, and use of different Charts.

Readings

1. P.H. Karmel and M. Polasek (1978), *Applied Statistics for Economists*, 4th edition; Pitman.
2. M.R. Spiegel (2003), *Theory and Problems of Probability and Statistics* (Schaum Series).
3. Rajaraman, V. (1996) – Fundamentals of Computers, Prentice Hall (India) New Delhi
4. V.P.Jagi & S Jain (1996) – Computer for Beginners, Academic publisher, New Delhi

Renewable Energy And Energy Harvesting

UNIT I :

Fossil fuels and Alternate Sources of energy: Fossil fuels and nuclear energy, their limitation, need of renewable energy, non-conventional energy sources. An overview of developments in Offshore Wind Energy, Tidal Energy, Wave energy systems, Ocean Thermal Energy Conversion, solar energy, biomass, biochemical conversion, biogas generation, geothermal energy tidal energy, Hydroelectricity.

UNIT II :

Solar energy: Solar energy, its importance, storage of solar energy, solar pond, non plate collector, solar distillation, solar cooker, solar green houses, solar cell, absorption air conditioning. Need and characteristics of photovoltaic (PV) systems, PV models and equivalent circuits, and sun tracking systems.

UNIT III:

Wind Energy harvesting: Fundamentals of Wind energy, Wind Turbines and different electrical machines in wind turbines, Power electronic interfaces, and grid interconnection topologies.

UNIT IV :

Ocean Energy: Ocean Energy Potential against Wind and Solar, Wave Characteristics and Statistics, Wave Energy Devices. Tide characteristics and Statistics, Tide Energy Technologies, Ocean Thermal Energy, Osmotic Power, Ocean Bio-mass.

Hydro Energy: Hydropower resources, hydropower technologies, environmental impact of hydro power sources.

Readings

1. Non-conventional energy sources - G.D Rai - Khanna Publishers, New Delhi
2. Solar energy - M P Agarwal - S Chand and Co. Ltd.
3. Solar energy - Suhas P Sukhative Tata McGraw - Hill Publishing Company Ltd.
4. Godfrey Boyle, “Renewable Energy, Power for a sustainable future”, 2004, Oxford University Press, in association with The Open University.