



**SRI JAGADGURU MURUGHARAJENDRA  
COLLEGE OF ARTS, SCIENCE & COMMERCE  
CHANDRAVALLI, CHITRADURGA-577502**



Affiliated to Davangere University, Davangere  
Accredited with 'A' Grade Third cycle

# **SELF STUDY REPORT (SSR) FOURTH CYCLE NAAC ACCREDITATION**



## **CRITERIA - I**

### **1.3.1**

**Crosscutting issues**

**Environment**



**Submitted to  
NATIONAL ASSESSMENT AND  
ACCREDITATION COUNCIL, BENGALURU**

# Environmental Issues

# Environmental

## B.A. Political Science

V- SEMESTER

Course Code: (Pol.Sci.Elective: V- 6)

(5 hrs. per We)

### PRINCIPLES OF INTERNATIONAL RELATIONS

#### Module - I

- Meaning, Nature, Scope and importance of International Relations.
- Approaches to the study of International Relations; a) Classical- Historical and Philosophical Scientific- The Realist and Systems theory.

#### Module - II

- National Power: Meaning, Elements and limitations on National Power.
- National Interest: Meaning, Types and Methods of promoting national interest.

#### Module - III Foreign Policy.

- Meaning, Objectives, Principles and determinants of Foreign policy.
- Foreign Policies of India, USA and China

#### Module -IV Instruments of Foreign Policy.

- Diplomacy: Meaning, Kinds and Functions.
- War: Kinds, Causes, Effects and Remedies.
- Propaganda: Meaning and Methods.
- Economic instruments.

#### Module - V Control Over Inter - State Relations.

- Disarmament.
- Collective security.
- Balance of power.
- Pacific Settlement of International Disputes.
- Alliances.

#### Module - VI Contemporary Global Concerns

- Democracy.
- Human Rights.
- Gender justice.
- Terrorism.
- Environmental Issues.
- Nuclear Proliferation.

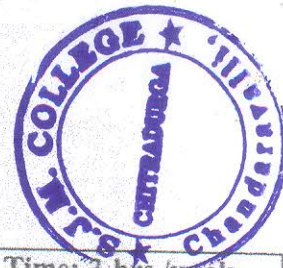
#### References:

- Palmer Perkins: International Relations - Third revised edition.
- Hans. J. Morgenthau revised by Kenneth.W.Thompson: Politics among Nations.
- Vinay Kumar Malhotra: International Relations (4<sup>th</sup> revised and enlarged edition).
- U.R.Ghai: International Politics: Theory and Practice (12<sup>th</sup> edition 2007).
- MahendraKumar: International Relations.
- Johari. J.C: International Politics.
- R.T.Jangam: International Politics (1970) allied publishers.
- H.T.Ramakrishna: International Relations 3<sup>rd</sup> edition 1993.
- Oxford University Press: Dictionary of International Relations.



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**OPEN ELECTIVE**  
**ENERGY SOURCES**



<b>Course Title: ENERGY SOURCES</b>		Time: 3 hrs./week
<b>Course Code: 21BSC101PHY1</b>	<b>Contact Hours: 42</b>	<b>Credits:03</b>
<b>Formative Assessment Marks: 40</b>	<b>Summative Assessment Marks: 60</b>	<b>Duration of ESA/Exam: 3 Hours</b>
<b>Unit-I Non-Renewable energy sources</b>		
<b>Chapter-1:</b>	<b>Introduction:</b> Energy concept-sources in general, its significance & necessity. Classification of energy sources: Primary and Secondary energy, Commercial and Non-commercial energy, Renewable and Non-renewable energy, Conventional and Non-conventional energy, Based on Origin-Examples and limitations.	14
<b>Chapter-2</b>	<b>Conventional energy sources:</b> Fossil fuels & Nuclear energy- production & extraction, usage rate and limitations. Impact on environment and their issues& challenges. Overview of Indian & world energy scenario with latest statistics-consumption & necessity. Need of eco-friendly & green energy.	
<b>Unit-II Renewable energy sources</b>		
<b>Chapter-3</b>	<b>Introduction:</b> 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.	14
<b>Chapter-4</b>	<b>Solar energy:</b> Solar Energy-Key features, its importance, Merits & demerits of solar energy, Applications of solar energy. Solar water heater, flat plate collector, solar distillation, solar cooker, solar green houses, solar cell -brief discussion of each. Need and characteristics of photovoltaic (PV) systems. PV models and equivalent circuits and sun tracking systems.	
<b>Unit-III Wind and Tidal Energy harvesting:</b>		
<b>Chapter-5</b>	<b>Fundamentals of Wind energy,</b> Wind Turbines and different electrical machines in wind turbines, Power electronic interfaces, and grid interconnection topologies. Ocean Energy Potential against Wind and Solar, Wave Characteristics and Statistics, Wave Energy Devices. Tide characteristics and Statistics, Tide Energy Technologies, Ocean Thermal Energy.	14
<b>Chapter-6</b>	<b>Geothermal and hydro energy:</b> Geothermal Resources, Geothermal Technologies. Hydropower resources, hydropower technologies, environmental impact of hydro power sources. Carbon captured technologies, cell, batteries and power consumption.	
<b>Activity for tutorial classes 01 lectures/week</b>		
1. Demonstration of on Solar energy, wind energy, etc, using training modules at Labs.		

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DAVANGERE UNIVERSITY  
GRADUATE PROGRAMME

Bachelor of Science (B.Sc.)  
Semester Scheme Syllabus (From 2016-17)

Subject: PHYSICS

SEMESTER – II

Paper 2: Thermal Physics and Waves

52 hours

(4 Hours of Teaching per Week)

Module – 1

**Thermodynamics** : Zeroth Law, First Law and Internal energy, Isothermal & adiabatic changes – indicator diagram. Derivation of  $PV^\gamma = \text{constant}$ . Applications of first law for work done during (i) Cyclic process (ii) adiabatic process (iii) isothermal process (iv) isobaric process (v) isochoric process.

Carnot's engine – Working – its efficiency (Derivation). Carnot's theorem, Clausius – Clapeyron equation (derivation) – application to melting point and boiling point of a substance.

**Entropy: Second law of Thermodynamics**, Entropy Concept – Physical analogies. Change of entropy during reversible and irreversible process with examples. Change of entropy in Carnot's cycle (T-S diagram). Third law of Thermodynamics (Statement).

( 13 hours )

Module-2

**Kinetic Theory**: Maxwell's law of velocity distribution (No derivation) – Calculation of rms velocity & most probable velocity – Derivation of expression for mean free path. Degrees of freedom. Gas laws. Arrival of Van der waal's equation – critical constants (Derivation).

**Thermal Conductivity** : Thermal conductivity, Thermal conductivity of good conductor by Searle's method, Thermal conductivity of good conductor by Lee's and Charlton's method, Wiedeman-Franz law.

( 13 hours )

Module – 3

**Radiation**: black body, Energy distribution in black body spectrum. Wein's law, Rayleigh-Jean's Law & Stefan's law of radiation. Derivation of Planck's law of radiation (from concept of oscillators) – Deduction of Wein's displacement law, Rayleigh-Jean's Law & Stefan's law from Planck's law. Solar constant – estimation of surface temperature of sun.

**Low temperature Physics**: Joule-Thomson effect, Porous plug experiment with theory (for real gases) – derivation of expression for temperature of inversion. Relation between Boyle temperature, inversion temperature and critical temperature of a gas. Liquefaction of Oxygen by cascade process, regenerative cooling. Principle of Adiabatic demagnetization.

( 13 hours )

Module-4

**Oscillations**: Setting up of differential equation describing SHM. Composition of two rectangular SHM's having same period (Lissajou's figures).

Free, forced & damped vibrations, resonance with examples. Analytical treatment of damped & forced vibration. Condition for amplitude of resonance, phase of forced vibration resonator.

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**Superconductivity:** Experimental facts (Transition temperature, persistent current, Isotope effect, Meissner effect), Critical magnetic field, BCS theory, Josephson's effect (AC & DC), Type I & Type II superconductors - Applications of Superconductors- Maglev & Squids (Brief).

**Magnetic materials:** Langevin's theory of Diamagnetism and paramagnetism, Curie Law, Domain theory of Ferromagnetism (Qualitative).

**Nanomaterials:** Introduction, Properties of Nanoparticles (Mechanical, Optical, Magnetic and Electronic), Preparation of nanomaterials (Bottom up and Top-down approaches), Quantum nano structures: quantum wells, wires and dots. Graphene and Fullerene (Brief), Carbon Nanotubes - properties and uses, Synthesis for CNT (high pressure carbon monoxide deposition and chemical vapour deposition), Applications of Nanotechnology.

13 hours

## REFERENCES:

1. V K Mehta & Rohit Mehta, *Principles of Electronics*, S Chand & Company (2016)
2. S L Gupta and Sanjeev Gupta, *Unified Physics (Volume IV)*, Jaiprakash Nath Publications.
3. R S Sedha, *Elements of Electronics*, S Chand & Company
4. D Roy Choudary & Sheel B Jain, *Linear Integrated Circuits (4e)*, New Age International
5. Thomas L Floyd, *Digital Fundamentals (9e)*, Pearson
6. Albert Malvino & David J Bates, *Electronic Principles (7e)*, Tata McGraw Hill
7. S O Pillai, *Solid State Physics*, New Age International
8. M Ali Omer, *Solid State Physics*, Pearson Education
9. Charles Kittel, *Introduction to Solid State Physics*, John Wiley & Sons.
10. J P Srivatsava, *Solid State Physics*, Prentice Hall of India
11. Sundararajan N, George Thomas & Syed Azeez, *College Physics*, United Publishers (2006).
12. B Basavaraj and P Sadashiva, *B Sc Physics*, Omkar Publications (2016)
13. Rajagopal P and Aruldas G, *Modern Physics*, Prentice Hall of India (2009)
14. Murugesan R, Kiruthiga Sivaprasath, *Modern Physics*, S Chand & Company (2016)
15. R B Singh, *Introduction to Modern Physics (Second Edition)*, New Age International (2009)
16. S L Kakani & Shubhra Kakani, *Modern Physics*, Viva Books (2011)
17. C L Arora & P S Hemne, *Physics for Degree Students*, S Chand & Company (2016)
18. Paul A Tipler & Ralph A Llewellyn, *Modern Physics (Sixth Edition)*, W H Freeman (2012)
19. Sehgal, Chopra and Sehgal, *Modern Physics*, Sultan Chand and Co.
16. Arthur Beiser, *Concepts of Modern Physics (Sixth Edition)*, Tata McGraw Hill (2003)
17. Kenneth S Krane, *Modern Physics (Third Edition)*, John Wiley & Sons (2012)



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... of pumping (one) Ruby Laser. He-Ne laser energy level diagram.  
Glass Laser (Nd-YAG Laser), CO<sub>2</sub> Laser and Semiconductor Laser construction and working.  
Laser application in Research, Industries, Medicine, Communication, Defence and Entertainment (Brief).

Holography- principle of recording and reproduction.



13 hours

## REFERENCES:

1. Arthur Beiser, **Concepts of Modern Physics (Sixth Edition)**, Tata McGraw Hill (2003)
2. Kenneth S Krane, **Modern Physics (Third Edition)**, John Wiley & Sons (2012)
3. Sundararajan N, George Thomas & Syed Azeez, **College Physics**, United Publishers (2006).
4. B Basavaraj and P Sadashiva, **B Sc Physics**, Omkar Publications (2016)
5. S L Gupta and Sanjeev Gupta, **Unified Physics (Volume IV)**, Jaiprakash Nath Publications.
6. Murugesan R, Kiruthiga Sivaprasath **Modern Physics**, S Chand & Company (2016)
7. R B Singh, **Introduction to Modern Physics (Second Edition)**, New Age International (2009)
8. S L Kakani & Shubhra Kakani, **Modern Physics**, Viva Books (2011)
9. Rajagopal P and Aruldas G, **Modern Physics**, Prentice Hall of India (2009)
10. C L Arora & P S Hemne, **Physics for Degree Students**, S Chand & Company. (2016)
11. S N Ghoshal, **Atomic Physics**, S Chand & Company (2016)
12. H E White, **Atomic Physics**, McGraw Hill
13. Richtmyer F K, Kennard E H & Cooper J N, **Introduction to Modern Physics (6e)**, McGraw Hill
14. Paul A Tipler & Ralph A Llewellyn, **Modern Physics (Sixth Edition)**, W H Freeman (2012)
15. Sehgal, Chopra and Sehgal, **Modern Physics**, Sultan Chand and Co.
16. M N Avadhanulu, **A Text book of Lasers**, S Chand & Company (2016)
17. B B Laud, **Lasers and Non-Linear Optics**, New Age International
18. D P Khandelwal, **Optics and Atomic Physics**, Himalaya Publications
19. Satyaprakash, **Optics and Atomic Physics**, Ratan Prakashan Mandir

M. S. S. S.

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**Subject : PHYSICS**

**Semester V**

**Paper 6: Molecular Physics, Nuclear Physics and Statistical Mechanics**

**(3 Hours of Teaching per Week)**

**Module 1**

**Molecular Physics**

Molecular Band- Band head and tail, molecular spectra-pure rotational spectrum and selection rules, Vibrational spectrum and selection rules. Rotational - Vibrational spectrum, Raman Scattering. Experimental study of Raman effect. Quantum theory of Raman effect. Applications of Raman effect.

**6 hours**

**Statistical Mechanics**

Micro and macro systems, statistical nature of macro systems, statistics of distinguishable objects, Most probable distribution, Thermodynamical probability, Maxwell-Boltzmann distribution law. Indistinguishable particles. Bose-Einstein distribution law. Bose-Einstein Condensation, Fermi-Dirac Distribution, A qualitative comparison of three distribution laws.

**7 hours**

**Module 2**

**Nuclear Physics I**

**Radioactivity:** Theory of successive disintegration, radioactive equilibrium (secular and transient). **Radioactive dating- Carbon dating.**

$\alpha$ -decay- Characteristics of alpha spectrum, Range and disintegration energy of  $\alpha$ -particle, Geiger- Nuttal law, Gamow's theory of  $\alpha$ -decay.

$\beta$ -decay, Types of  $\beta$ -decay (electron decay, positron decay and electron capture). Characteristics of  $\beta$ -spectrum and Pauli's neutrino hypothesis.

**Nuclear Forces:** Characteristics of Nuclear Forces, Yukawa's Meson Theory.

**Nuclear Models :** Liquid drop model, Shell model & Fermi Gas model of nucleus (Qualitative)

**13 hours**

**Module 3**

**Nuclear Physics II**

**Detectors:** GM Counter, Scintillation counter,

**Accelerators:** Construction, working and theory of Linear Accelerator, Cyclotron and Betatron,

**Nuclear reactions:** Types of reactions, Q value of a reaction, threshold energy (mention of expression). Conservation laws.

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(Brief).

**Magnetic materials:** Langevin's theory of Diamagnetism and paramagnetism, Curie Law, Domain theory of Ferromagnetism (Qualitative).

**Nanomaterials:** Introduction, Properties of Nanoparticles (Mechanical, Optical, Magnetic and Electronic), Preparation of nanomaterials (Bottom up and Top-down approaches), Quantum nano structures: quantum wells, wires and dots. Graphene and Fullerene (Brief), Carbon Nanotubes - properties and uses, Synthesis for CNT (high pressure carbon monoxide deposition and chemical vapour deposition), Applications of Nanotechnology.

13 hours

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19. Sehgal, Chopra and Sehgal, *Modern Physics*, Sultan Chand and Co.
16. Arthur Beiser, *Concepts of Modern Physics (Sixth Edition)*, Tata McGraw Hill (2003)
17. Kenneth S Krane, *Modern Physics (Third Edition)*, John Wiley & Sons (2012)



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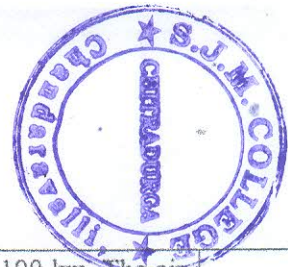
Climate Science

<b>Course Title: Climate Science</b>		<b>Time: 3 hrs./week</b>
<b>Course Code: 21BSC2O2PHY1</b>	<b>Contact Hours: 42</b>	<b>Credits:03</b>
Formative Assessment Marks: 40	Summative Assessment Marks: 60	Duration of ESA/Exam: 3 Hours
<b>Unit-I</b>		
<b>Chapter-1</b>	<b>Atmosphere:</b> Atmospheric Science (Meteorology) as a multidisciplinary science. Physical and dynamic meteorology, Some terminology, difference between weather and climate, weather and climate variables, composition of the present atmosphere: fixed and variable gases, volume mixing ratio (VMR), sources and sinks of gases in the atmosphere. Green house gases. Structure (layers) of the atmosphere. Temperature variation in the atmosphere, temperature lapse rate, mass, pressure and density variation in the atmosphere. Distribution of winds	14
<b>Unit-II</b>		
<b>Chapter-2</b>	<b>Climate Science:</b> Overview of meteorological observations, measurement of : temperature, humidity, wind speed and direction and pressure. Surface weather stations, upper air observational network, satellite observation. Overview of clouds and precipitation, aerosol size and concentration, nucleation, droplet growth and condensation (qualitative description). Cloud seeding, lightning and discharge. Formation of trade winds, cyclones. Modelling of the atmosphere: General principles, Overview of General Circulation Models (GCM) for weather forecasting and prediction. Limitations of the models. R and D institutions in India and abroad dedicated to climate Science, NARL, IITM, CSIR Centre for Mathematical Modeling and Computer Simulation, and many more	14
<b>Unit-III</b>		
<b>Chapter-3</b>	<b>Global Climate Change:</b> Greenhouse effect and global warming, Enhancement in concentration of carbon dioxide and other green house gases in the atmosphere, Conventional and non-conventional energy sources and their usage. EL Nino/LA Nino Southern oscillations. Causes for global warming: Deforestation, fossil fuel burning, industrialization. Manifestations of global warming: Sea level rise, melting of glaciers, variation in monsoon patterns, increase in frequency and intensity of cyclones, hurricanes, tornadoes. Geo-engineering as a tool to mitigate global warming? Schemes of geo-engineering.	14
<b>Activities to be carried out on Climate Science:</b>		
1. Try to find answer to the following questions:		


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	<p>(a) Imagine you are going in a aircraft at an altitude greater than 100 km. The air temperature at that altitude will be greater than 200°C. If you put your hands out of the window of the aircraft, you will not feel hot.</p> <p>(b) What would have happened if ozone is not present in the stratosphere.</p> <ol style="list-style-type: none"><li>2. Visit a nearby weather Station and learn about their activities.</li><li>3. Design your own rain gauge for rainfall measurement at your place.</li><li>4. Learn to determine atmospheric humidity using wet bulb and dry bulb thermometers.</li><li>5. Visit the website of Indian Institute of Tropical Meteorology (IITM), and keep track of occurrence and land fall of cyclone prediction.</li><li>6. Learn about ozone layer and its depletion and ozone hole.</li><li>7. Keep track of melting of glaciers in the Arctic and Atlantic region through data base available over several decades.</li><li>8. Watch documentary films on global warming and related issues (produced by amateur film makers and promoted by British Council and BBC).</li></ol>	
	<p><b>Reference Books:</b></p> <ol style="list-style-type: none"><li>1. Basics of Atmospheric Science – A Chndrashekar, PHI Learning Private Ltd. New Delhi, 2010.</li><li>2. Fundamentals of Atmospheric Modelling- Mark Z Jacobson, Cambridge University Press, 2000.</li></ol>	

  
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अनुक्रम

1) सभ्यता का रहस्य / प्रेमचन्द	<i>Social Values</i>	...	1
2) सच्ची वीरता / सरदार पूर्णसिंह		...	10
3) यह देश एक है / दिनकर		...	21
4) नीलू / महादेवी वर्मा		...	30
5) बदला / श्रीराम शर्मा		...	38
6) नेत्रहीन / विष्णु प्रभाकर	<i>Social Values</i>	...	46
7) बर्फ के दरिया के साथ-साथ / कमलेश्वर		...	53
8) प्रदूषण / डॉ. हरचरणलाल शर्मा	} <i>Environment</i>	...	62
9) साइकिल / प्रो. देवेन्द्रनाथ शर्मा		...	70
10) दस हजार / उदयशंकर भट्ट		...	77

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II B Com  
III Sem.



ಮೂರನೇ ಚತುರ್ವರ್ಷ : ಬಿ.ಕಾಂ. / ಬಿ.ಬಿ.ಎ.

ಸ್ನಾತಕ ಕನ್ನಡ ಪಠ್ಯಕ್ರಮ (2022-2023 ತದನಂತರ)

**AECC L-1.3 : ಕನ್ನಡ ಭಾಷಾ ಪಠ್ಯ : ಕನ್ನಡ ವೈಶಾಖ-೩ (ಪ್ರಥಮ ಭಾಷೆ-ಕಡ್ಡಾಯ ಕನ್ನಡ)**

ಪ್ರಥಮ ಬೋಧನಾ ಅವಧಿ : ವಾರಕ್ಕೆ 03+01+00=04 ಗಂಟೆಗಳು

ಪರೀಕ್ಷೆಗೆ : 60 ಅಂಕಗಳು

ಒಟ್ಟು ಅಂಕಗಳು : 100

ಆಂತರಿಕ ಅಂಕಗಳು : 40 ಅಂಕಗಳು

ಕಾರ್ಡ್ ಫಲಶ್ರುತಿ (Course Outcomes) :

1. ಕನ್ನಡ ನಾಡು-ನುಡಿ-ಸಂಸ್ಕೃತಿ ಕುರಿತು ತಿಳುವಳಿಕೆಯನ್ನು ವಿಸ್ತರಿಸುವುದು
2. ವೈಚಾರಿಕ ಸಂಶೋಧನಾತ್ಮಕ ವಿಮರ್ಶಾತ್ಮಕ ದೃಷ್ಟಿಕೋನವನ್ನು ಬೆಳೆಸುವುದು.
3. ಸೃಜನಶೀಲತೆ ಅಭಿವ್ಯಕ್ತಿ ಸಾಮರ್ಥ್ಯಗಳನ್ನು ಬೆಳೆಸುವುದು
4. ಕನ್ನಡದಲ್ಲಿ ತಾಂತ್ರಿಕ ಕೌಶಲ್ಯ ಜೀವನ ಕೌಶಲ್ಯ ಹಾಗೂ ಉದ್ಯಮಶೀಲತೆಗಳ ತರಬೇತಿ

ಕನ್ನಡ ಭಾಷಾ ಪಠ್ಯ : ಕನ್ನಡ ವೈಶಾಖ-೩

ಉಪ-೩.೧ : ಮನೋರಂಜನಾ ಮಾಧ್ಯಮ

1. ರಾಮಾತ್ಮಮೇಧ (ಮನೋರಮೆಯರ ಸರಸ ಸಲ್ಲಾಪ ಭಾಗ) - ಮುದ್ದಣ
2. 'ದುಡಿ' (ದಲಿತ ಲೋಕದ ಅನುರಣನ) - ಕೆ. ಪುಟ್ಟಸ್ವಾಮಿ (ಸಿನಿಮಾಯಾನ ಕೃತಿ)
3. ಜಾರ್ಜ್ ಬಾರ್ನ್ಸ್ - ಐ. ವಿ. ರಾಜೇಂದ್ರ

ಉಪ-೩.೨ : ಮಾರುಕಟ್ಟೆ

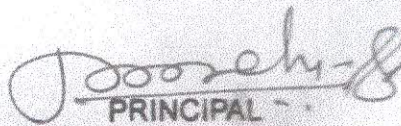
1. ಬರ ಅಂದ್ರೆ ಎಲ್ಲರಿಗೂ ಇಷ್ಟ - ಸಿ. ಸಾ. ರಾಜೇಂದ್ರ
2. ಏ ದಿಲ್ ಮಾಂಗೇ ಮೋರ್ - ಡಾ. ಕಮಲೇಶ್ ಮಗಡೋಣಿ
3. ಕುರುಡು ಕಾಂಚಾಣಾ - ದ. ರಾ. ಗೋಂದ್ರೆ

ಉಪ-೩.೩ : ಲಿಂಗ ಸಮಾನತೆ

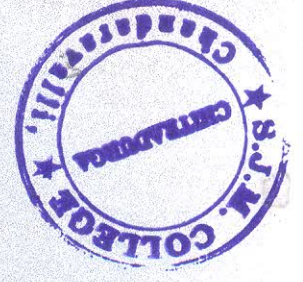
1. ಮಂಜಮ್ಮ ಜೋಗತಿ (ಜೀವನ ಕಥನ) - ಡಾ. ಚಂದ್ರಪ್ಪ ಸೊಬಟಿ
2. ಮರೆವಿಗೆ ಸಂದ ಫಾತಿಮಾ ಪೇಖಿ (ಲೇಖನ) - ಕೆ. ಪರಿಪಾ
3. ನಾವು ಹುಡುಗಿಯರೇ ಹೀಗೆ - ಶ್ರುತಿಧಾ ವಂದಕುಮಾರ್

ಉಪ-೩.೪ : ಸಂಕೀರ್ಣ

1. ನದಿಗಳ ಜೋಡಣೆ-ನೀರಿನ ಸಮಸ್ಯೆ ಪರಿಸರಾತ್ಮಕ ಸಮಸ್ಯೆಗಳು - A. ಯತಿರಾಜು
2. ತಂತ್ರಜ್ಞಾನದ ಪ್ರಾಚೀನತೆ - ಜಿ. ರಾಮಕೃಷ್ಣ
3. ವಚನ ಚಳವಳಿಯ ಪ್ರಸ್ತುತತೆ - ಪಂಡಿತಾರಾಧ್ಯ ಶಿವಾಚಾರ್ಯ ಸ್ವಾಮಿಗಳು

  
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1 Sem  
IBSC



ಒಂದನೇ ಚತುರ್ಮಾಸ : ಬಿ.ಎಸ್ಸಿ. / ಬಿ.ಸಿ.ಎ.

ಸ್ನಾತಕ ಕನ್ನಡ ಪಠ್ಯಕ್ರಮ (2021-2022 ತದನಂತರ)

AECC L-1.1 : ಕನ್ನಡ ಭಾಷಾ ಪಠ್ಯ : ಕನ್ನಡ ಶ್ರಾವಣ-೧ (ಪ್ರಥಮ ಭಾಷೆ-ಕಡ್ಡಾಯ ಕನ್ನಡ)

ಪ್ರಕ್ರಿಯೆ ದೋಷನಾ ಅವಧಿ : ವಾರಕ್ಕೆ 04 ಗಂಟೆಗಳು

ಪರೀಕ್ಷೆಗೆ : 60 ಅಂಕಗಳು

ಪ್ರತಿಗೆ ಒಟ್ಟು ಅಂಕಗಳು : 100

ಆಂತರಿಕ ಅಂಕಗಳು : 40 ಅಂಕಗಳು

ಕೋರ್ಸ್ ಫಲಶ್ರುತಿ (Course Outcomes) :

೧. ಸಾಹಿತ್ಯದ ಓದು, ತಿಳುವಳಿಕೆ ಹಾಗೂ ಬರವಣಿಗೆಯನ್ನು ರೂಢಿಸಿಕೊಳ್ಳುವುದು.
೨. ನಾಡು-ನುಡಿಯನ್ನು ಕುರಿತು ಅರಿವನ್ನು ಹೆಚ್ಚಿಸಿಕೊಳ್ಳುವುದು
೩. ಸಮಕಾಲೀನ ವಿದ್ಯಮಾನಗಳ ಅರಿವು
೪. ಸಾಮಾಜಿಕ ಹೊಣೆಗಾರಿಕೆಯ ಅರಿವು
೫. ಸದೃಶ ಬೌದ್ಧಿಕ ವ್ಯಕ್ತಿತ್ವ ನಿರ್ಮಾಣ
೬. ಭಾಷಾ ಕೌಶಲ್ಯವನ್ನು ಬೆಳೆಸಿಕೊಳ್ಳುವುದು

ಕನ್ನಡ ಭಾಷಾ ಪಠ್ಯ : ಕನ್ನಡ ಶ್ರಾವಣ-೧ :

ಪಾಟಕ -೧ : ಕನ್ನಡ ನಾಡು-ನುಡಿ-ಚಿಂತನೆ

- |                                |                           |
|--------------------------------|---------------------------|
| ೧. ಕನ್ನಡ ದೇವಿ                  | : ಮುಳಿಯ ತಿಮ್ಮಪ್ಪಯ್ಯ (ಕವನ) |
| ೨. ಒಂದೇ ಕರ್ನಾಟಕ                | : ದ.ರಾ. ಬೇಂದ್ರೆ (ಕವನ)     |
| ೩. ನನ್ನ ಕನ್ನಡ ಜಗತ್ತು           | : ಕೆ.ವಿ.ಸುಬ್ಬಣ್ಣ (ಲೇಖನ)   |
| ೪. ಕನ್ನಡ ಬರಹ ಎಲ್ಲರ ಸೊತ್ತಾಗಬೇಕು | : ಡಿ.ಎನ್.ಶಂಕರಭಟ್ಟ         |

ಪಾಟಕ -೨ : ಭೂಮಿ


- |                             |                                   |
|-----------------------------|-----------------------------------|
| ೧. ಹುತ್ತರಿ ಹಾಡು             | : ಪಂಜೆ ಮಂಗೇಶರಾಯ                   |
| ೨. ಕಾಡತೊರೆಯ ಜಾಡು            | : ಕಡಿದಾಳು ಶಾಮಣ್ಣ ಆತ್ಮಚರಿತ್ರೆಯ ಭಾಗ |
| ೩. ಒಬ್ಬನಿಗೆ ಎಷ್ಟು ಭೂಮಿ ಬೇಕು | : ಲಿಯೋ ಟಾಲ್‌ಸ್ಟಾಯ್                |
| ೪. ಕೆಂಪು ಗಿಳಿ               | : ವಸುಧೇಂದ್ರ (ಕಥೆ)                 |

ಪಾಟಕ-೩ : ವೈಜ್ಞಾನಿಕ ಮನೋಧರ್ಮ

- |                            |                          |
|----------------------------|--------------------------|
| ೧. ವೈಜ್ಞಾನಿಕ ಮನೋಧರ್ಮ       | : ಜಿ.ಟಿ.ನಾರಾಯಣರಾವ್(ಲೇಖನ) |
| ೨. ಜ್ಞಾನ-ವಿಜ್ಞಾನ-ತತ್ವಜ್ಞಾನ | : ಕೆ.ವಿ.ತಿರುಮಲೇಶ್(ಲೇಖನ)  |
| ೩. ಇರುವುದೊಂದೇ ಭೂಮಿ         | : ನಾಗೇಶ ಹೆಗಡೆ (ಲೇಖನ)     |
| ೪. ಮಾನವತಾವಾದ               | : ಬಿ.ಎ.ವೀರಭದ್ರಪ್ಪ (ಲೇಖನ) |

ಪಾಟಕ-೪ : ಸಂಕೀರ್ಣ : ವಿಜ್ಞಾನ ಮತ್ತು ಸಾಹಿತ್ಯ ಸಂಬಂಧ / ಮಹಿಳಾ ಸಂವೇದನೆ

- |                                 |                          |
|---------------------------------|--------------------------|
| ೧. ವೈಜ್ಞಾನಿಕ ದೃಷ್ಟಿ             | : ಸರ್.ಸಿ.ವಿ.ರಾಮನ್ (ಲೇಖನ) |
| ೨. ವಿಜ್ಞಾನದ ನೈತಿಕ ಮುಖಗಳು        | : ಬಿ.ಸಿ. ರಾಯ್ (ಲೇಖನ)     |
| ೩. ಕರೆಗಂಟೆ ಬಾಗಿಲು ಮತ್ತು ಗುಡಿಸಲು | : ವೈದೇಹಿ (ಕವನ)           |

  
Davangere University  
Subject: ZOOLOGY (CBCS)



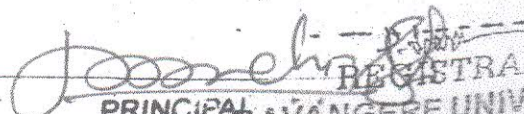
I-SEMESTER

Course Code: (Zool.Core: I-1)

(60 hours-4 Hours of Teaching per Week)

**NONCHORDATA, BIODIVERSITY AND PARASITOLOGY**

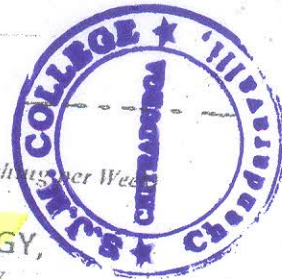
- Module-1: INTRODUCTION** (2 Hour)  
Principles of Animal Classification with Outline Classification of Animal Kingdom – Zoologic Nomenclature – International Code – Cladistics – Molecular Taxonomy : an general Account.  
Definition with an example – Acoelomate, Pseudocoelomate and Coelomate, Protostomes and Deuterostomes, Bilateria and Radiata, Metagenesis, Metamerism, Cephalization.  
Status of Protista, Origin of Metazoa. (4 Hour)
- Module - 2: BIODIVERSITY** (2 Hour)  
Definition, Levels of Biodiversity (Genetic, Species and Ecosystem level) – Number of Species in Different Phyla - Global and India.
- Module - 3: NONCHORDATA**
- Phylum PROTOZOA** – General Characters of the Phylum and Classification up to Classes with suitable example, Locomotion in Protozoa, Reproduction in Protozoa. (4 Hour)
- Phylum PORIFERA** – General Characters of the Phylum and Classification up to Classes with suitable examples; Skeleton in sponges; Canal System in Sponges. (4 Hour)
- Phylum COELENTERATA** – General Characters of the Phylum and Classification up to Classes with suitable examples: Corals, Reefs and their Formation; Polymorphism in Coelenterata. (5 Hour)
- Phylum PLATYHELMINTHES** – General Characters of the Phylum and Classification up to Classes with suitable example; *Planaria* – Structure and Regeneration. (3 Hour)
- Phylum NEMATHELMINTHES** – General Characters of the Phylum and Classification up to Classes with suitable examples; *Caenorabditiselegans* – salient features. (3 Hour)
- Phylum ANNELIDA** – General Characters of the Phylum and Classification up to Classes with suitable examples. Type Study - *Hirudinariagrqnulosa* – Structure, Digestive and Reproductive systems. (6 Hour)
- Phylum ARTHROPODA** – General Characters of the Phylum and Classification up to Classes with suitable Examples. Type Study – *Penaeus* – Appendages, Branchial Formula, General Topic Metamorphosis in Insect and its Hormonal Regulation, Trophi of Insects, Economic Importance Insects. (8 Hour)
- Phylum MOLLUSCA** – General Characters of the Phylum and Classification up to Classes with suitable examples. Types Study – *Unio* – externals, Shell Structure.  
General Topics – Economic Importance of Mollusca, Shells in Mollusca, Pearl Formation. (7 Hour)
- Phylum ECHINODERMATA** – General Characters of the Phylum and Classification up to Classes with suitable examples. *Astropecten* – Externals, Water Vascular System. (3 Hour)
- Minor Phyla:**
- HEMICHORDATA** – Salient Features of *Balanoglaossus*
- ONYCHOPHORA** – *Peripatus* – Salient Features and Systemic Position (2 Hour)
- Module-4: PARASITOLOGY** (7 Hour)  
Structure, Life History and Pathogenicity of *Plasmodium Vivax*; *Entamoebahistolitica*; *Trypanosoc Fasciola hepatica*; *Taeniasolum* (Only Life Cycle); *Ascarislumbricoides*; *Schistosom Wuchereriabancrofti* (External and Pathogenicity only). Parasitism and Parasitic Adaptation: Helminthes.

  
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CHITRADURGA Davangere-577

Subject: ZOOLOGY

IV-SEMESTER

Course Code: (Zool.Core: IV-4) (60 hours-4 Hours of Teaching per Week)



**ENVIRONMENTAL BIOLOGY, ETHOLOGY,  
HISTOLOGY AND ENDOCRINOLOGY**

**Module-1: ETHOLOGY**


- i) Definition and Types of Animal Behavior with Example? Innate Behavior – Reflexes, Motivation; Learning Behavior – Habituation, Imprinting, Trial and error, Conditioned Response; Insight Learning; Aggression and Territoriality, Sensory Filtering, Sign Stimuli, Ecolocation (17 Hours)
- ii) Social Organization in Animals – Honeybee (with Communication), Ants, Termites, Ele Macaques (4 Hours)
- iii) Animal Migration : (3Hours)
- a) Migration in Fishes – Types, Anadromous and Catadromous Migration with Hilsa and Indian Examples.
- b) Migration in Birds – (Methods of Study, route, Advantages, Origin, Pattern, Mechanism, Preparation, Orientation and Navigation, Significance) (2Hours)
- iv) Courtship Behavior – General Principle, Courtships of Three Spined Stickle Back, Betta Splendens, Frog, Peacock (2Hours)
- v) Parental Care  
a) In Fishes – Hippocampus, Arius  
b) In amphibians – Ichthyophis, Rhacophorus, Alytes  
c) In birds – Koel, Penguin, Sun bird (2 Hours)
- vi) Nesting Behavior – Wasps, Birds like Weaver Bird, Bower Bird and Tailor Bird (1Hour)
- vii) Pheromones in Animals; Role of Hormones in Drive; Role of Pheromones in Alarm Spread, Crypsis, Predator Detection & Tactics (2Hour)
- viii) Animal Cognition, Tool Using by Animals; Biological Clock – Its Nature, Types, Significance; A Brief Account of Coloration and Mimicry in Animals (2Hours)

**Module-2: ENVIRONMENTAL BIOLOGY**

1. Ecosystem: Definition, Types of Ecosystems with Examples, Man Engineered and Micro ecosystems, Pond Ecosystem- Abiotic and Biotic Components; Interaction between Components (3 Hours)
2. Community Ecology: Community Structure; Ecological Determinants; Ecological Stratification; Ecotone and Edge Effect; Ecological Niches; Ecological Succession; Climax Community (3 Hours)
3. Habitats: Terrestrial Habitat – Types, a Brief Account of Forest and Desert Biomes; Flora, Fauna and Adaptations; Estuary and Marine Habitat with Zonation of Sea; Fresh Water Habitat – Lentic and Lotic Systems, Fauna and its Adaptations (5 Hours)
4. Food Chains and Energy Flow: Types of Food Chains with Examples; Food Webs with Examples; Ecological Pyramids with Examples; Energy Flow and Laws of Thermodynamics (3Hours)
5. Limiting Factors: Concept, Definition of Liebig's Law and Shelford's Law, Combined Effect; Subsidiary Principles with Examples (2Hours)
6. Population Ecology: Population Density; Natality and Mortality; Population Growth Rate; Biotic Potential – Allele's Principle and Gause's Principle; Life Tables (3Hours)
7. Biogeochemical Cycles: Carbon, Nitrogen, Phosphorous, Oxygen, Water Cycles; Carbon Debt (5 Hours)
8. Environmental Pollution: With Reference to India – Air, Water, Soil, Noise, and Radiation Pollutions – Sources, Effects and Control; A Brief Account Pollution Control Measures with the Help of Biotechnology (4Hours)

  
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PRACTICALS - 5.2A

ECONOMIC ZOOLOGY

1. Breeds of Fowls / 1 Prt
2. Estimation of Protein in albumen and yolk / 2 Prt
3. Breeds of Cows and Buffaloes 1 Prt
4. Estimation of Protein in Milk 1 P
5. Life Cycle and Morphology of *Bombyx Mori* 1 Prt
6. Study of Digestive system, Silk gland and Nervous system of *B.mori* (Dissection) 2 Prt
7. Silk worm Diseases - Pebrine, Muscardine, Flacherie and Grasserie; 1 P
8. Life Cycle, Morphology, caste Mouth Parts and mounting of Sting Apparatus of *Honey Bee*. 1 P
9. Study of digestive system of *Honey Bee*: (Dissection) 1 Prt
10. Bee Keeping Equipments 1 P
11. Food Fishes : Catla; Anabas; Labeo; Channa; Shark; Mackerel; Sardine; Wallagoattu 1 P
12. Estimation of Protein in fish 1 P
13. Byproducts of Aquaculture, Poultry Dairy Apiculture and Sericulture - Fish Oil; Milk Powde; Egg Powder; Fowl Excreta; Bee wax, Pollen, Bee venom, Dry Cocoons and Silk Worm Excreta 1 Pr



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**AECC - ENVIRONMENTAL STUDIES SYLLABUS**

Number of Theory Credits	Number of lecture hours	Number of field work hours
2	45	5

	Content of AECC - Environmental Studies	45 hours
<b>Unit 1</b>	<b>Introduction to Environmental Studies</b>	<b>2</b>
	Multidisciplinary nature of environmental studies Scope and importance; Concept of sustainability and sustainable development.	
<b>Unit 2</b>	<b>Ecosystems</b>	<b>6</b>
	What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems: <ul style="list-style-type: none"> <li>a) Forest ecosystem,</li> <li>b) Grassland ecosystem,</li> <li>c) Desert ecosystem,</li> </ul> Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)	
<b>Unit 3</b>	<b>Natural Resources: Renewable and Non-Renewable Resources</b>	<b>8</b>
	Land resources and land-use change; Land degradation, soil erosion and desertification. Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state). Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.	
<b>Unit 4</b>	<b>Biodiversity and Conservation</b>	<b>8</b>
	Levels of biological diversity: Genetic, species and ecosystem diversity; Biogeographic zones of India;	



	<p>Biodiversity patterns and global biodiversity hot spots.</p> <p>India as a mega-biodiversity nation; Endangered and endemic species of India.</p> <p>Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.</p> <p>Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.</p>	
<b>Unit 5</b>	<b>Environmental Pollution</b>	<b>8</b>
	<p>Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution,</p> <p>Nuclear hazards and human health risks</p> <p>Solid waste management, Control measures of urban and industrial waste</p> <p>Pollution case studies.</p>	
<b>Unit 6</b>	<b>Environmental Policies &amp; Practices</b>	<b>7</b>
	<p>Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture.</p> <p>Environment Laws: Environment Protection Act; Air (Prevention &amp; Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD).</p> <p>Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context</p>	
<b>Unit 7</b>	<b>Human Communities and the Environment</b>	<b>6</b>
	<p>Human population growth: Impacts on environment, human health and welfare.</p> <p>Resettlement and rehabilitation of project affected persons; case studies.</p> <p>Disaster management: floods, earthquake, cyclones and landslides.</p> <p>Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan</p> <p>Environmental ethics: Role of Indian and other religions</p>	



Government of Karnataka



Curriculum

Program Name	B.Sc.	Semester	VI
Course Title	Environmental Biology, Wildlife Management & Conservations (Theory)		
Course Code:	ZOO C17-T	No. of Credits	4
Contact hours	60 Hours	Duration of SEA/Exam	2 Hours
Formative Assessment Marks	40	Summative Assessment Marks	60

Course Pre-requisite(s):

Course Outcomes (COs): After the successful completion of the course, the student will be able to:

- CO1. Develop an understanding of how animals interact with each other and their natural environment.
- CO2. Develop the ability to use the fundamental principles of wildlife ecology to solve local, regional and national conservation and management issues.
- CO3. Develop the ability to work collaborative team-based projects.
- CO4. Gain an appreciation for the modern scope of scientific inquiry in the field of wildlife conservation management.
- CO5. Develop an ability to analyze, present and interpret wildlife conservation management information.

Contents	60 Hrs
<b>Unit-I</b>	<b>15</b>
1. <b>Ecology:</b> Introduction to ecology, Definition, ecosystem, types of ecosystem, food chain and food web, trophic levels. <b>Environment:</b> Definition, types of environment, terrestrial, aquatic, desert, grassland and aerial environment. <b>Environmental Biology:</b> Adaptive features of animals to different environment. <b>Population Ecology:</b> Population density, Natality, Mortality	
<b>Unit-II</b>	<b>15</b>
2. <b>Pollution:</b> Definition, types of pollution, air, soil, water and thermal pollution, ozone layer depletion. Greenhouse effect and Acid rain. Effects of pollution on animals. Biomagnification, bioaccumulation and bioremediation.	
<b>Unit-III</b>	<b>15</b>
3. <b>Wildlife Conservation:</b> HIPPO, National parks, Wildlife sanctuaries, biosphere reserve. Project tiger. Project Elephant. Habitat preservation, breeding in captivity. Ex-situ and in-situ conservation. Wildlife Protection Act 1972. Biodiversity Act 2002.	



Course Code: **B.Com. Core : 1.3 FINANCIAL ACCOUNTING**

Course Objectives: To make students to learn the basic principles of Financial Accounting.

Pedagogy: Combination of direct teaching, assignments and small group discussions. Course Inputs

**Module-1: Basics of Accounting: 15 Hours**

Introduction, Accounting as an Information System, Branches of Accounting, Meaning of Financial Accounting, Users of Accounting Information- GAAPS- Basic Concepts and Conventions- Accounting Standards issued by ICAI and IFRS issued by IASB- Manual Vs Computerized Accounting.

**Module-2: Financial Statements of Sole Proprietor: 16 Hours**

Introduction, Preparation of Manufacturing Account, Trading and Profit & Loss Account and Balance Sheet.

**Module-3: Accounting For Consignment Transactions: 19 Hours**

Meaning, Consignment Vs. Sales - Proforma Invoice-Account Sales-Types Of Commission, Accounting for Consignment in the books of Consignor and Consignee – Valuation of Stock - Goods Sent at Cost Price and Invoice Price-Normal and Abnormal Loss of Goods Sent on Consignment.

**Module-4: Single Entry System of Accounting: 16 Hours**

Meaning-Limitations of Single Entry System-Problems on Conversion of Single Entry into Double Entry.

**Module-5: Accounting for Agricultural Farms: 10 Hours**

Introduction- Objectives of Farm Accounting- Preparation of Crop and Cattle Account- Preparation of Balance Sheet.

**Module-6 : Inculcation of Soft Skills: 04 Hours**


1. Visit proprietary concerns and discuss the accounting methods adopted by them and give your suggestions for improvement.
2. Visit a Progressive farmer in your area, collect information relating to the income and expenses connected with cultivation for the year and produce the relevant accounts to enable him to avail loan from a bank.

**Skill Development Activities:**

1. Single entry system –Tracing missing figures.
2. Final accounts of sole trader-Correcting a wrong trial balance.
3. Preparation of proforma invoice and account sales.

**References:**

1. Maheswari S.N., Financial Accounting.

  
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