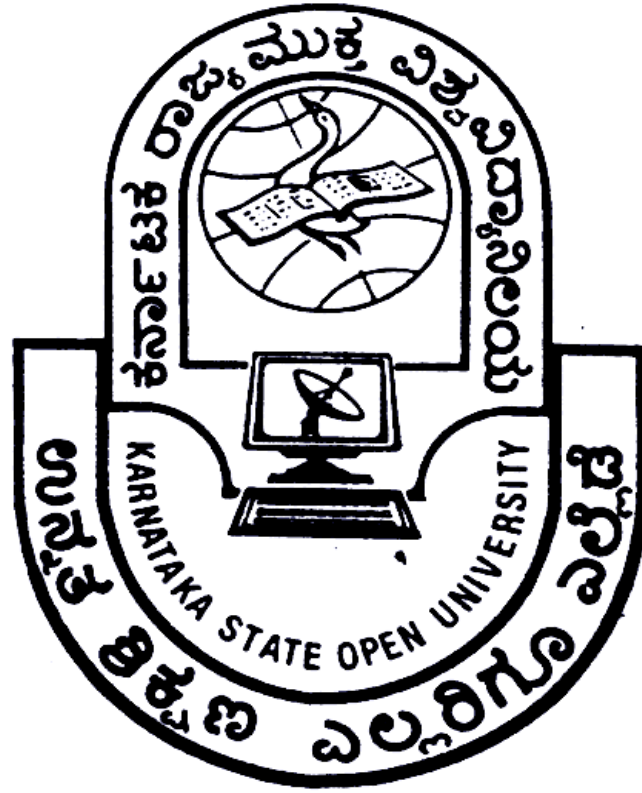


**KARNATAKA STATE OPEN UNIVERSITY**

**PROGRAMME GUIDE**

**M.Sc in GEOGRAPHY**



**DEPARTMENT OF POST GRADUATE STUDIES AND  
RESEARCH IN GEOGRAPHY**

Mukthagangothri, Mysore – 570 006

## **VICE CHANCELLOR'S MESSAGE**

**Dear Learner,**

The family of KSOU welcomes you to pursue the academic programmes you have chosen to achieve not only academic excellence but also to fulfill the desire of your career. The University, established by the Act of State Legislature has created wonderful academic ambience. The programmes offered by the University have been recognized by University Grants Commission. Therefore, the degrees are valid for employment opportunities across the country. The 'core values' of the University are derived from its vision 'Higher Education to Everyone, Everywhere'. The ultimate touchstone of quality higher education is the motto of the University. Today, higher education stands at the crossroads of keeping pace with the emerging needs of the country.

The University has adopted a school concept in its functioning. The school of science headed by a Director offers academic programmes in basic and applied sciences. It combines an inter disciplinary and professional approach to pedagogy and research. The University believes that rigors of the contemporary world require competent quality human resources to create knowledge based society. The academic activities of B.Sc. programmes are initiated through well-established department/s led by the Chairperson/s. Well-qualified teaching faculty with equally dedicated non-academic team is an asset to the University, which is always, committed for the welfare of the students.

The University functions in a 3-tier system of student support service, namely Headquarters, Regional Centres and Learners Support Centres spread all over Karnataka. The learners can undergo teaching-learning process in the notified Regional Centres/Learner Support Centres. The University has adopted a mechanism to deliver Self Learning Material by print, limited audio visual and Counseling/Personal Contact Programme. As a learner, you will have greater opportunity to gain knowledge and skill through those mechanisms. The academic counselors will play a strategic role and supports you from the enrollment of the programme till you accomplish the goal. A proper blending of the knowledge and skill will be imparted so that you will be transformed as a good citizen to contribute to the development of society and the country.

The UGC in its Public Notice dated: 23.02.2018 stated that the Degree/Diploma/Certificate Programme awarded through distance mode are at par with corresponding Degree/ Diploma/ Certificate Programme obtained through conventional universities. The degrees acquired through distance education are recognized for the purpose of employment in State/Central Government, MNCs, Private Sector etc. and also for pursuing higher education in other educational institutes. Therefore, you have greater opportunity of pursuing Higher Education without any kind of fear about your career.

I am sure you will enjoy good experience with services rendered by the university through its Regional centres and Learner Support Centres, besides Headquarters. I wish you all the best in your academic endeavors.

**Prof. Vidyashankar S**

## MESSAGE FROM DEAN (ACADEMIC)

**Dear learner,**

As you know education imparts knowledge and skills which empowers all to build civilized society. Higher education policy which was once a priority sector is no longer maintaining the same, due to General Agreements and Trade in Services (GATS). The education policy of the government provides a greater opportunity to accelerate Gross Enrolment Ratio (GER).

Higher education is imparted both by conventional system and ODL system. The former education has inbuilt rigidity where ODL enjoy flexibility. Presently the GER in higher education around is 27%, thanks to the role played by ODL system. The ODL system operates under access, flexibility and success.

The Karnataka State Open University, which came up in 1996 under the Act of state legislation 1992 play a stupendous role in imparting quality education. As one of the premier institution in ODL system of the country, the university strive hard to empower various disadvantaged sections of the society like, house wives, economically and culturally backward, tribal, senior citizens, working groups, differently abled, professionals, technocrat, jail inmates etc., The University cater to the needs of students ranging from the age of 18 years to 80 years.

The programmes offered by KSOU are strictly in conformity with quality and standards set by regulatory bodies UGC/AICTE etc., The Karnataka State Open University was established on 1<sup>st</sup> June 1996 vide Government Notification No. EDI/ UOV/ 95 dated 12<sup>th</sup> February 1996- KSOU Act 1992, keeping in view the educational needs of our country, in general, and the state in particular. The University has a long and rich experience in the field of Distance Education as the erstwhile Institute of Correspondence Course and Continuing Education. University Grants Commission (UGC) New-Delhi vide order No: F.No 14-5/2018 (DEB-I) Dated : 14th August 2018 for the period from 2018-19 to 2022-23. The KSOU operates on dictum quality first and students foremost. Further the university is highly committed to provide need based education to the door steps of the students.

The KSOU has students' support services which work in 3 tiers - head office; regional centres and study centres within the jurisdiction of state. The admissions, counseling and the examinations are conducted in different places, hence, education at the door steps.

The dedicated staffs in various department and state of the art student support services create a conducive environment for teaching learning. The university put in places all possible efforts to keep the learners happy from the stage of enrolment till they get employed. I am confident that, as a learner in the university, you will enjoy good experience in the system.

I wish you all the best in your academic endeavors.

Truly yours,  
Dean (Academic)

## **Programme Guide**

1. **Department:** Department of studies in Geography

### **2. Chairman's message**

Geography is an integral part of the educational system of the world right from level of primary education up to the post-graduate level. It is a subject which deals with relationship between man and environment and any problems related to environment are dealt in detail in Geography. In these days of huge environmental problems emanates for which, the knowledge of Geography is indispensable. The subject, especially during the last four decades or so, has witnessed metamorphic changes in its content and techniques, which are directly related with enhancing welfare of mankind. The knowledge of Geography has become essential in fields such as urban and regional planning, land use planning, environmental management, resource planning and management etc. New techniques such as G.I.S., G.P.S and Remote Sensing that are developed recently are very powerful techniques in the analysis of any problems related to the fields mentioned above.

Hitherto, Geography was taught only with Humanities such as History, Economics, Political Science and Anthropology etc. Of late in most of the universities in India and outside the importance of the subject is very well acclaimed and the subject is being introduced in the science stream also along with Physics, Mathematics, Chemistry, Geology etc. Thus it is with both Arts and Science faculties. There is more demand for Geography teachers in CBSC, ICSE, NDA Schools and Kendriya Vidyalayas. Geographers are also required in the Census offices and Mapping organizations. In addition to this, Geographers with G.I.S and GPS knowledge are in great demand in many software companies.

It is because of the above mentioned facts, there is growing demand for post-graduate degree holders in Geography. Keeping these facts in view the KSOU is offering two years Master's degree program in Geography. This M.Sc. program consisting of four semesters, (2 semesters per year) which is especially designed for teachers teaching at secondary level and below and also for others who are interested in pursuing their higher studies in Geography the program is very well designed, tightly scheduled and highly structured.

### **3. About the Department Introduction**

Geography is an integral part of educational system of the world at various levels. The discipline of Geography is among the most ancient of sciences deals with complex and dynamically changing earth. Over the years, the discoveries of new modern Geographies led to stupendous growth. Today Geography continues to flourish and

expand in education. In order to live with sustainable environment and to solve the environmental problems, knowledge and skills of Geography has become indispensable.

The M. Sc. in Geography by ODL system is of greater relevance as it meets the mission and goals of higher education institution. The program targets the mass learner at affordable cost besides enriching the moral, ethical and civil values. The curriculum is blended in such a way which is a parallel program of the conventional mode of education.

The department of Geography was established in the year 2011 as one of the departments of School of Sciences and offers Master of Science in Geography and under graduation course. The department has qualified teaching staff, resource persons from other universities/institutes, well equipped class rooms and laboratories. The curriculum is designed such that it covers many aspects of geography which caters to employability in digital cartography, regional planning, resource management and teaching. Students also undergo training in basic experimental techniques required for both teaching and research. The Department also provides learners an exposure to research by including a dissertation research in the final semester to actively engage in research, by conducting independent research projects in the department.

**Vision:**

To develop knowledge of Geography among learners through innovative, engaged and relevant teaching thereby transforming individuals and communities.

**Mission:**

- To promote scientific thinking among the learners through offering accessible, affordable quality higher education.
- To empower learners to gain knowledge and skills in the field of Geography.
- To train the learners on curriculum to imbibe with moral, ethical and civic values.
- To impart the specific skills to the learners so as to enable them to be a responsible citizen in the society.
- To enhance the attitude of the learners in such a way that they realize individual responsibility in the society.
- To train the learners through Information and Communication Technology.
- To enhance the professionalism to diagnose and offer solutions thereof.

## Faculty Details

### a. Department of Geogrpahy

| Sl. No. | Name of the Faculty      | Designation                          | Qualification | Specialization               | Experience in Years | Mobile Number |
|---------|--------------------------|--------------------------------------|---------------|------------------------------|---------------------|---------------|
| 1       | Dr. C.S. Manjunatha      | Assistant Professor & Chairman       | M.Sc. Ph.D.   | Physical and Urban Geography | 08                  | 8762100678    |
| 2       | Dr. Y.P. Chandrashekhara | Assistant Professor                  | M.A. Ph.D.    | Agricultural Geography       | 24                  | 551           |
| 3       | Dr. N.S. Satheesh Kumar  | Assistant Professor (Contract Basis) |               |                              | -                   | -             |
| 4       | Dr. Divya A.S            | Assistant Professor (Contract Basis) |               |                              | -                   | -             |

### 4. Programmes offered: M. Sc. in Geography

### 5. Objectives:

- To conversant with the basic concepts, principles and theories relating to Geography and relevance of these to contemporary world,
- To acquire the skills of handling and applying advanced and update instruments, tools and techniques of Geography,
- To familiarize with the methods of presentation, interpretation and analysis of both spatial and non-spatial data,
- To produce trained professional to work in digital cartography, geo-spatial analysis, surveying and planning, meteorology, resource management, teaching etc

### 6. Course details

- Syllabus** along with paper code, title of the course and credits: **Annexure-I**
- Detail Syllabus** (Block and Unit wise): **Annexure-II**
- Duration of the course:** Two years (Four semesters)
- Medium of Instruction:** Medium of Instruction is English. However, the students can write examination in Kannada.
- Mode of Instruction:** Print material, E-content, PCP/Counseling.
- Attendance (Minimum required):** 75% for counselling sessions of theory courses. 85% for practical sessions.

7. **Any other information:** - Nil-

**M.Sc. Geography (CBCS mode)**

| Sem | Course Code  | Course Title             | Credits   | Counseling/PCP Hours | Max. Marks          |               |             | Min. Passing Marks  |               | Duration of Exam |
|-----|--------------|--------------------------|-----------|----------------------|---------------------|---------------|-------------|---------------------|---------------|------------------|
|     |              |                          |           |                      | Internal Assessment | Term end exam | Total Marks | Internal Assessment | Term end exam |                  |
| I   | MGDSC-1.1    | Geomorphology            | 4         | 12                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|     | MGDSC-1.2    | Cultural Geography       | 4         | 12                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|     | MGDSC-1.3    | Map Analysis (Practical) | 4         | 120                  | 20                  | 80            | 100         | 08                  | 32            | 3                |
|     | MGDSE-1.4    | Geography of Resource    | 3         | 09                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|     | MGDSE-1.5    | Environmental Geography  | 3         | 09                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|     | MGDSE-1.6    | Tourism Geography        | 3         | 09                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|     | ELMG –01     | disciplinary Elective-1  | 2         | 06                   | 10                  | 40            | 50          | 04                  | 16            | 1 ½              |
|     | <b>Total</b> |                          | <b>20</b> | <b>168</b>           | <b>110</b>          | <b>440</b>    | <b>550</b>  | <b>44</b>           | <b>176</b>    | <b>-</b>         |

**Note:** choose any two from MGDSE-1.4/ MGDSE-1.5/ MGDSE-1.6

| Sem | Course Code  | Course Title   | Credits   | Counseling/PCP Hours | Max. Marks          |               |             | Min. Passing Marks  |               | Duration of Exam |
|-----|--------------|--|-----------|----------------------|---------------------|---------------|-------------|---------------------|---------------|------------------|
|     |              |  |           |                      | Internal Assessment | Term end exam | Total Marks | Internal Assessment | Term end exam |                  |
| II  | MGDSC-2.1    | Climatology  | 4         | 12                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|     | MGDSC-2.2    | Population Geography                                 | 4         | 12                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|     | MGDSC-2.3    | Cartograms, weather report and surveying (Practical) | 4         | 120                  | 20                  | 80            | 100         | 08                  | 32            | 3                |
|     | MGDSE-2.4    | Oceanography   | 3         | 09                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|     | MGDSE-2.5    | Evolution of Geographical thought                    | 3         | 09                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|     | MGDSE-2.6    | Transport Geography                                  | 3         | 09                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|     | ELMG –02     | Interdisciplinary Elective-2                         | 2         | 06                   | 10                  | 40            | 50          | 04                  | 16            | 1 ½              |
|     | <b>Total</b> |  | <b>20</b> | <b>168</b>           | <b>110</b>          | <b>440</b>    | <b>550</b>  | <b>44</b>           | <b>176</b>    | <b>-</b>         |

**Note:** choose any two from MGDSE-2.4/ MGDSE-2.5/ MGDSE-2.6

| Sem          | Course Code | Course Title                                    | Credits   | Counseling/PCP Hours | Max. Marks          |               |             | Min. Passing Marks  |               | Duration of Exam |
|--------------|-------------|---|-----------|----------------------|---------------------|---------------|-------------|---------------------|---------------|------------------|
|              |             |   |           |                      | Internal Assessment | Term end exam | Total Marks | Internal Assessment | Term end exam |                  |
| III          | MGDSC-3.1   | Research Methodology                            | 4         | 12                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|              | MGDSC-3.2   | Fundamentals of Remote Sensing                  | 4         | 12                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|              | MGDSC-3.3   | Statistical techniques in Geography (Practical) | 4         | 120                  | 20                  | 80            | 100         | 08                  | 32            | 3                |
|              | MGDSE-3.4   | Agricultural Geography                          | 3         | 09                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|              | MGDSE-3.5   | Geography of India                              | 3         | 09                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|              | MGDSE-3.6   | Natural Disaster Management                     | 3         | 09                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|              | MGSEC-1     | Thematic cartography (Part -1)                  | 2         | 06                   | 10                  | 40            | 50          | 04                  | 16            | 1 ½              |
| <b>Total</b> |             |   | <b>20</b> | <b>16</b>            | <b>110</b>          | <b>440</b>    | <b>550</b>  | <b>44</b>           | <b>176</b>    | <b>-</b>         |

**Note:** choose any two from MGDSE-3.4/ MGDSE-3.5/ MGDSE-3.6

| Sem | Course Code  | Course Title                    | Credits   | Counseling/PCP Hours | Max. Marks          |               |             | Min. Passing Marks  |               | Duration of Exam |
|-----|--------------|---------------------------------|-----------|----------------------|---------------------|---------------|-------------|---------------------|---------------|------------------|
|     |              |                                 |           |                      | Internal Assessment | Term end exam | Total Marks | Internal Assessment | Term end exam |                  |
| IV  | MGDSC-4.1    | Urban Geography                 | 4         | 12                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|     | MGDSC-4.2    | Regional Planning               | 4         | 12                   | 20                  | 80            | 100         | 08                  | 32            | 3                |
|     | MGDSC-4.3    | Geographical Information System | 4         | 120                  | 20                  | 80            | 100         | 08                  | 32            | 3                |
|     | MGDSE-4.4    | Dissertation                    | 8         | 240                  | 50                  | 150           | 200         | 20                  | 80            | -                |
|     | MGSEC-2      | hematic cartography (Part -2)   | 2         | 06                   | 10                  | 40            | 50          | 04                  | 16            | 1 ½              |
|     | <b>Total</b> |                                 | <b>22</b> | <b>390</b>           | <b>120</b>          | <b>430</b>    | <b>550</b>  | <b>48</b>           | <b>192</b>    | <b>-</b>         |



### Interdisciplinary Electives

| SL No | Department                        | Sub Code   | I Semester  | Sub Code  | II Semester                                       |
|-------|-----------------------------------|------------|---|-----------|---|
| 1     | KANNADA                           | ELK-01     | ಅಧುನಿಕ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಇತಿಹಾಸ  | ELK-02    | ಪ್ರಾಚೀನ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಇತಿಹಾಸ                     |
| 2     | ENGLISH                           | ELE-01     | Indian Literature -I  | ELE-02    | Indian Literature -II                             |
| 3     | HINDI                             | ELH-01     | Vyavaharik Hindi Vyakaran   | ELH-02    | Hindi Cinema                                      |
| 4     | TELUGU                            | ELT-01     | Tilak   | ELT-02    | Telugu Samskruthi – Samaajam                      |
| 5     | HISTORY                           | ELHS-01    | Ancient World Civilisations (Egypt, Mesopotamia, Greek, Roman, Inca, Chinese) | ELHS-02   | Social Reform Movement in India                   |
| 6     | ECONOMICS                         | ELEC-01    | Economic Policies of India Since 1991   | ELEC-02   | Institutions for International Development        |
| 7     | POLITICAL SCIENCE                 | ELP-01     | Local Government in India.  | ELP-02    | Indian Constitution                               |
| 8     | PUBLIC ADMINISTRATION             | ELPA-01    | Indian Polity-1   | ELPA-02   | Indian Polity-2                                   |
| 9     | SOCIOLOGY                         | ELS-01     | Invitation to Sociology   | ELS-02    | Study of Indian Society                           |
| 10    | JOURNALISM AND MASS COMMUNICATION | ELJ-01     | Aspects of Journalism and Mass Communication - I                              | ELJ-02    | Aspects of Journalism and Mass Communication - II |
| 11    | ANCIENT HISTORY AND ARCHEOLOGY    | ELA-01     | World heritage sites of India   | ELA-02    | Cultural History of Hoysalas                      |
| 12    | Education                         | ELED-01    | Foundations of Education  | ELED-02   | Higher Education                                  |
| 13    | COMMERCE                          | ELC –01    | Personal Financial Planning   | ELC –02   | Entrepreneurship Development                      |
| 14    | Management                        | ELM –01    | Disaster Management   | ELM –02   | E-Commerce  |
| 15    | Biochemistry                      | ELMBC –01  | Basics of Bioinorganic and Biophysical chemistry for Biology graduates.       | ELMBC –02 | Basic Bioorganic chemistry for Biology graduates. |
| 16    | Biotechnology                     | ELMBT –01  | Biotechnology Principles and applications                                     | ELMBT –02 | Fundamentals of Biotechnology                     |
| 17    | Chemistry                         | ELMC –01   | Open Elective I   | ELMC –02  | Open Elective II                                  |
| 18    | Clinical Nutrition and Dietetics  | ELMCND –01 | Healthy lifestyles and nutrition  | ELMCND–02 | Nutraceuticals and health foods                   |
| 19    | Computer Science                  | ELMCS –01  | Mobile App Development  | ELMCS –02 | E-Commerce  |
| 20    | Environmental Science             | ELMES –01  | Basics of Environmental Science   | ELMES –02 | Advances in Environmental Science                 |

|       |                                   |            |   |            |   |
|-------|-----------------------------------|------------|---|------------|---|
| 21    | Geography                         | ELMG –01   | Introduction to Physical Geography  | ELMG –02   | Geography of Karnataka                              |
| 22    | Mathematics                       | ELMM –01   | Fundamentals of Mathematics   | ELMM –02   | Combinatorics and Graph Theory                      |
| 23    | Microbiology                      | ELMMB –01  | Microbial World and Microbial Diversity                                       | ELMMB –02  | Microbes in Sustainable Agriculture and Development |
| 24    | Physics                           | ELMP –01   | Mechanics   | ELMP –02   | Waves and Optics                                    |
| 25    | Psychology                        | ELMPsy –01 | Introduction to Psychology  | ELMPsy –02 | Psychology in Everyday Life                         |
| 26    | Information Technology            | ELMIT –01  | Green Computing   | ELMIT –02  | E-Commerce  |
| 27    | Botany (NEW)                      | ELMBOT –01 | Plant-Microbe Interactions  | ELMBOT –02 | Plant Diversity and Human Welfare                   |
| 28    | Zoology (NEW)                     | ELMZ –01   | Parasites Vectors & communicable diseases                                     | ELMZ–02    | Essential of Reproductive Health                    |
| 29    | FOOD AND NUTRITION SCIENCES       | ELMFNS –01 | Food Psychology   | ELMFNS –02 | Nutritional Management in Disaster Conditions       |
| SL No | Department                        | Sub Code   | I Semester  | Sub Code   | II Semester   |
| 1     | KANNADA                           | ELK-01     | ಆಧುನಿಕ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಇತಿಹಾಸ  | ELK-02     | ಪ್ರಾಚೀನ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಇತಿಹಾಸ                       |
| 2     | ENGLISH                           | ELE-01     | Indian Literature -I  | ELE-02     | Indian Literature -II                               |
| 3     | HINDI                             | ELH-01     | Vyavaharik Hindi Vyakaran   | ELH-02     | Hindi Cinema  |
| 4     | TELUGU                            | ELT-01     | Tilak   | ELT-02     | Telugu Samskruthi – Samaajam                        |
| 5     | HISTORY                           | ELHS-01    | Ancient World Civilisations (Egypt, Mesopotamia, Greek, Roman, Inca, Chinese) | ELHS-02    | Social Reform Movement in India                     |
| 6     | ECONOMICS                         | ELEC-01    | Economic Policies of India Since 1991   | ELEC-02    | Institutions for International Development          |
| 7     | POLITICAL SCIENCE                 | ELP-01     | Local Government in India.  | ELP-02     | Indian Constitution                                 |
| 8     | PUBLIC ADMINISTRATION             | ELPA-01    | Indian Polity-1   | ELPA-02    | Indian Polity-2                                     |
| 9     | SOCIOLOGY                         | ELS-01     | Invitation to Sociology   | ELS-02     | Study of Indian Society                             |
| 10    | JOURNALISM AND MASS COMMUNICATION | ELJ-01     | Aspects of Journalism and Mass Communication - I                              | ELJ-02     | Aspects of Journalism and Mass Communication - II   |
| 11    | ANCIENT HISTORY AND ARCHEOLOGY    | ELA-01     | World heritage sites of India   | ELA-02     | Cultural History of Hoysalas                        |
| 12    | EDUCATION                         | ELED-01    | Foundations of Education  | ELED-02    | Higher Education                                    |
| 13    | COMMERCE                          | ELC –01    | Personal Financial  | ELC –02    | Entrepreneurship                                    |

|    |                                  |            | Planning  |            | Development   |
|----|----------------------------------|------------|---|------------|---|
| 14 | MANAGEMENT                       | ELM –01    | Disaster Management   | ELM –02    | E-Commerce  |
| 15 | BIOCHEMISTRY                     | ELMBC –01  | Basics of Bioinorganic and Biophysical chemistry for Biology graduates. | ELMBC –02  | Basic Bioorganic chemistry for Biology graduates.   |
| 16 | BIOTECHNOLOGY                    | ELMBT –01  | Biotechnology Principles and applications                               | ELMBT –02  | Fundamentals of Biotechnology                       |
| 17 | CHEMISTRY                        | ELMC –01   | Open Elective I   | ELMC –02   | Open Elective II                                    |
| 18 | CLINICAL NUTRITION AND DIETETICS | ELMCND –01 | Healthy lifestyles and nutrition  | ELMCND–02  | Nutraceuticals and health foods                     |
| 19 | COMPUTER SCIENCE                 | ELMCS –01  | Mobile App Development  | ELMCS –02  | E-Commerce  |
| 20 | ENVIRONMENTAL SCIENCE            | ELMES –01  | Basics of Environmental Science   | ELMES –02  | Advances in Environmental Science                   |
| 21 | GEOGRAPHY                        | ELMG –01   | Introduction to Physical Geography                                      | ELMG –02   | Geography of Karnataka                              |
| 22 | MATHEMATICS                      | ELMM –01   | Fundamentals of Mathematics   | ELMM –02   | Combinatorics and Graph Theory                      |
| 23 | MICROBIOLOGY                     | ELMMB –01  | Microbial World and Microbial Diversity                                 | ELMMB –02  | Microbes in Sustainable Agriculture and Development |
| 24 | PHYSICS                          | ELMP –01   | Mechanics   | ELMP –02   | Waves and Optics                                    |
| 25 | PSYCHOLOGY                       | ELMPsy –01 | Introduction to Psychology  | ELMPsy –02 | Psychology in Everyday Life                         |
| 26 | INFORMATION TECHNOLOGY           | ELMIT –01  | Green Computing   | ELMIT –02  | E-Commerce  |
| 27 | BOTANY (NEW)                     | ELMBOT –01 | Plant-Microbe Interactions  | ELMBOT –02 | Plant Diversity and Human Welfare                   |
| 28 | ZOOLOGY (NEW)                    | ELMZ –01   | Parasites Vectors & communicable diseases                               | ELMZ–02    | Essential of Reproductive Health                    |
| 29 | FOOD AND NUTRITION SCIENCES      | ELMFNS –01 | Food Psychology   | ELMFNS –02 | Nutritional Management in Disaster Conditions       |

**Note:**

- A. I and II Semester Open elective (Interdisciplinary Electives) syllabus are attached in Annexure – I and Annexure - II respectively.
- B. The Students may contact respective department chairperson in case of any queries regarding open elective course. The contact details available in the university website.

## **DETAILED SYLLABUS**

### **FIRST SEMESTER**

#### **Hard Core**

**Course code : MGDSC – 1.1**

**Geomorphology (Credits – 4)**

#### **Block-1**

Basic concepts of Geomorphology –Thornberry; Structure of the Earth's interior and Landform development; Continental drift and Plate tectonics theories; Theory of Isostasy: views of Airy and Pratt.

#### **Block-2**

Earth's movements - Endogenic and Exogenic forces; Concept of Geosynclines and theories of Mountain building; Volcanicity: Types and distribution; Earthquakes: Types and distribution.

#### **Block-3**

Rocks- Formation, Types and Significance; Weathering: Concepts, Processes, Types; Mass Wasting: Types; Concept of Geomorphic Cycle-Davis, Penck and L. C. King.

#### **Block-4**

Landforms associated with Fluvial Cycle; Landforms associated with Coastal and Karst Cycles; Landforms associated with Glacial and Arid cycles; Rejuvenation and Polycyclic landforms.

#### **References:**

1. Ahmed E. (1985) Geomorphology, Kalyani Publishers, New Delhi
2. Alan H. Strahler, Arthur N. Strahler., (1998) Introducing Physical Geography. Wiley, New York
3. Board SHW M.J., (1979) The Earth's Changing Surface, Hodder Stoughton, London
4. Brusden D (1985) Geomorphology in the service of Man: The future of Geography, Methen, U.K.
5. Dayal, P., (1995) A Text Book of Geomorphology (2<sup>nd</sup> ed), Sukla Book/Dept. Patna.
6. Goudie Andrew., (1981) Geomorphology in the service of Man: The future of Geography, Methen, U.K
7. Homes. A., (1965) Principles of Physical Geology, (2<sup>rd</sup> ed), Ronald Press Co., New York

8. Thornbury W.D., (1969) Principles of Geomorphology (2<sup>nd</sup>ed), Willey Intl.Edn& Willey Eastern Represents, New York
9. Verstappen, H., (1983) Applied Geomorphology, Geomorphological Surveys for Environmental Development, Elsevier, Amsterdam.
10. Woordringe S.W., and R.S.Moregon, (1991), An Outline of Geomorphology. The Physical Basis of Geography, Orient Longman, Kolkata.
11. Worcester P.G., (1965) A text book of Geomorphology (2<sup>nd</sup>ed), East – West Edn, New Delhi.

## **Hard Core**

**Course code: MGDSC - 1.2 Cultural Geography (Credits –4)**

### **Block-1**

Cultural Geography - Definition, Nature, Scope and Approaches; Cultural Evolution of Man- kind; Cultural Change; Concept of Culture, Themes of Culture, Convergence and Divergence of Culture.

### **Block-2**

Human Races - Caucasoid, Mongoloids and Negroids; World's major regions-based on culture; Major languages of the world; Religions of the World

### **Block-3**

Cultural Realms of the World; Dwelling place as cultural expressions; Theories of Tribal Groups: Tribes and their problems; Major Ethnic and Tribal Groups: Bushman, Eskimos, Pigmies, Aborigines of Australia etc., and their changing livelihoods.

### **Block-4**

Tribes of India: Economy and Society of Tribal groups; Human Settlements: Pattern of Rural and Urban settlements – Social Process in the city; Technological changes and their Geographical Implications; Patterns of Livelihood & various Economic Activities – Agriculture, Industrialization and Modernization and its impact on culture

### **References:**

1. Hussain M (1999) Human Geography, 2<sup>nd</sup> edition, Rawat Publication, Jaipur.
2. Robestein J.H & Robert S. Barren (1990) The Cultural Landscape an Introduction to Human Geography, Prentice Hall of India Pvt.Ltd, New Delhi.
3. Singh R.Y (2003) Geography of Settlements, Rawat Publication, Jaipur.
4. TirthaRanjit (2002) Geography of India 2<sup>nd</sup> edition, Rawat publication, Jaipur.
5. [www.fortunecity.com/victorian/updike/188.culture.html](http://www.fortunecity.com/victorian/updike/188.culture.html)  
[www.utexas.edu/grg/sanders/GRG305/industrialgeography.html](http://www.utexas.edu/grg/sanders/GRG305/industrialgeography.html)

## **Hard Core**

**Course code: MGDSC -1.3**

### **Map Analysis (credits -4) (Practical)**

- I. Introduction to Topographical maps: uses, Types based on scale. Information on the map – Linear, areal, Symbolized, Written, Marginal information of Toposheets: Interpretation of Indian Toposheets – Physical: Drainage, Vegetation, Topography, Cultural: Landuse, Settlements, Transport and Communication.
- II. Representation of Land forms: Profile: Serial, Superimposed, Projected and composite. Block Diagrams: One point perspective and two point perspective.
- III. Slope analysis: Calculation of slope and Aspects – Degree, Percent, Ratio. Wentworth's method, Dhuranders's method.

#### **References:**

1. Ashis Sarkar (1997) Systematic Practical Geography, Oriental Longman Ltd, Calcutta.
2. Harwell J.D & M.D Newson (1973) Techniques in Physical Geography, Macmillan Edn, Ltd London.
3. Mishra R.P (1969) Fundamentals of Cartography, Prasara University of Mysore.
4. Monkhouse F.J & H.R. Wilkinson (1952) Maps and Diagrams, their complication and concentration, Methuen & Co. London.
5. Namowitz S.N & Donald B. Stine (1965) Earth Science – The World We Live in 3<sup>rd</sup> edition, D. Van Nostrand and Company Inc, New Jersey, USA, PP3-59.

## **Soft Core**

### **Course code: MGDSC -1.4 Geography of Resources (Credits -2)**

#### **Block-1**

Concept of Resource, Consciousness to dynamic aspects; Classification of Resources renewable and non-renewable resources; Soil: Soil formation, Factors influencing soil formation, Profile, Characteristics and Classification of soils, major soils and their distribution, conservation; Forest Resources- types, distribution and conservation.

#### **Block-2**

Water Resources: Hydrological Cycle, Trends in the water utilization with reference to India, Conservation of water; Mineral Resources- Iron, Manganese, Mica, Non-ferrous, Copper, Bauxite- Types, distribution; Mineral Fuel- Coal, Petroleum and Natural Gas; Atomic Minerals, Energy sources and alternate energies; Marine resources: Types, Products and their distribution in the world, Major Fishing grounds of the world.

#### **References:**

1. Dubey R.N and Negi B.S (2002) Economic Geography of India Kitabmahal, Allhabad.
2. Erich Walter Zimmermann., (1972) World resources and Industries. Ed; W.N. Peach., (3rd Revised ed), Joanna Cotler Books, New York.
3. Guhal.L and Chattoraj (2004) A New approach to Economic Geography, A Study of Resources, the world press Pvt.Ltd, Calcutta.
4. Khanna K.K and Gupta V.K (1993) Economic and Commercial Geography, Sultan Cahnd, New Delhi.
5. Mallappa P (2004) Economic Geography – A Study of Resources, New Central Book Agency, (P) ltd, Calcutta.
6. P.Hagget (1997) Geography- A Modern Synthesis, Haper and Roo publications, New Delhi.



### **Soft Core**

**Course code: MGDSC - 1.5 Environmental Geography (Credits -2)**

#### **Block-1**

Environment - types, major elements of environment; Ecology and Ecological Succession; Biogeochemical Cycles; Biomes of the world; Equatorial to Tundra -11 types and distribution.

#### **Block-2**

Biodiversity- Types, Importance; Environmental pollutions and preventive measures; Natural hazards, Disasters and their Management; Global Environmental Issues-climate change, acid rain, ozone depletion, green-house effect, global warming etc.

#### **Reference:**

1. Goldsmith Edward et al (1998) The Earth Report – The Essential Guide to Global Issues, price Stern Solan Inc. California, USA.
2. Healey I.N and Moore P.D (1973) Bio-Geography, Backwell oxford, U.K.
3. Paul Selman (2000) environmental planning, Sage Publications, New Delhi.
4. Richard H.B (2004) Physical Geography, Heinmann Simple Services, Rupa& Company, New Delhi.
5. Robinson (1982) Bio Geography, ELBS, New York.
6. Savindra Singh (2004) Environmental Geography, PrayogPustak Bhavan, Allahabad, India.
7. Strahler A.N (1968) The Earth Sciences, Harper International Education, New York.
8. Strahler A.N and Atrahler A.H (1973) Environmental Geo Science, Hamilton, California, USA.
9. Strahler A.N and Strahler A.H (1977) Geography and Man's Environment, John Wiley & sons, New York.

## **Second semester**

Hard Core

**Course code: MGDSC - 2.1Climatology (Credits - 4)**

### **Block-1**

Formation, Structure and Composition of the atmosphere; Insolation - Heat budget, Latitudinal balance; Temperature - vertical and horizontal distribution; Atmospheric pressure belts

### **Block-2**

Winds - Global and Monsoon; Jet streams - types, effect on Monsoon; Air-masses; Stability and instability of atmosphere.

### **Block-3**

Fronts; Cyclones; Humidity and Precipitation; Classification of climates - Koppen's and Thornthwaite's schemes

### **Block-4**

Climatic types - Equatorial or tropical rain forest climate, Monsoon and Savanna Climates; Climatic types - Taiga and Tundra climate; Climatic types - Tropical and Sub-tropical hot desert climates, Mediterranean, china, steppe, west European types.

### **References**

1. Berry and Chorley, (2000) Atmosphere, Weather and Climate. Kalyani Publications, NewDelhi
2. Critch Field, H. J., (1996) General Climatology. Prentice –Hall, New Jersey
3. Donald Ahrens, (2007) Meteorology Today. Thomson Brookes, Belmont
4. Lal, D. S., (
5. 1996) Climatology. Chaitany Publishing House, Allahabad
6. Oliver Hidore, (2003) Climatology. Pearson, New Delhi
7. Rohli, Vega, (2008) Climatology. Jones Bartlet, Sudbury, USA

## **Hard Core**

### **Course code: MGDSC - 2.2 Population Geography (Credits -4)**

#### **Block-1**

Nature, scope and evolution of Population Geography; Distribution and Density of Population in the world; Population Geography in India; Population Data, Sources of population data and problems

#### **Block-2**

Factors affecting the density of population; Population Growth in the world-trend and pattern; Theories of population growth and Demographic transition model; Components of Population Change: Fertility - Measures, determinants and world pattern

#### **Block-3**

Mortality - Measures, determinants and world pattern; Migration - meaning and types, Causes Measures, Determinants and Consequences; Population Composition – Sex ratio, Age structure, Occupation structure, Literacy rate and Rural – Urban Composition; Problems of population

#### **Block-4**

Population and Resources- population resource regions, Controlling measures, policies and Programmes; Population Policy in India; Population Policies and Projections - Nature of Population Policies, Population Policies in MDCs and LDSs.

#### **Reference:**

1. Asha A. Bhende and Tara Kanitkar, (2000) Principles of Population Studies, Himalayan Publishing House, New Delhi
2. Ashish Bose, Ashok Mitra, P. B. Deshi and J.N. Shrama, (1974) Population in India's development 1947-2000, Vikas publishing house, pvt ltd, Delhi
3. Chari R.B., (1975) Demographic trends in India, Sunlight printer's fountain, Delhi
4. Clark John, (Ed) (1984) Geography and Population: Approaches and Applications, Pergamon publishers, Oxford.
5. Gandra M.M and Narayan Das, (1984) Population Policy in India, Blacki& Sons publisher's pvt. Ltd, Bangalore
6. Goel N.P., (1994) Reading in Population Geography, Mohit publications, Delhi.
7. Hornby & Jones, (1983) An Introduction to Population Geography, Cambridge University press, London
8. John R. Weeks, (1999) Population – An introduction to concepts and issues, Wardsworth publishing company, U.S.A.
9. Majid Husain, (1994) Human Geography, Rawat Publications, Jaipur.
10. Mohammad Izhar Hassan, (2005) Population Geography, Rawat Publications, Jaipur.
11. R. C. Chadana, (1999) A Geography of Population, Kalyani Publishers, New Delhi

**Hard core**

**Course code: MGDSC - 2.3.**

**Cartograms and Weather Charts (credits -4) (Practical)**

- I. Maps – types, Isopleth, Dot method
- II. Nearest Neighbor Techniques, Rank size rule, Gravity Potential model, Location Quotient
- III. Interpretation of India Daily weather reports (charts) for any two seasons under the following heads,
  - A) Pressure distribution – Winds
  - B) Cloudiness and other weather phenomena
  - C) Weather forecasting

**References**

- 1. AshisSarka, (1997) Practical Geography – a systematic Approach, Orient Longman limited, Calcutta.
- 2. Kullar D.R, Practical Geography, Kalyani publishers, New Delhi.
- 3. L.R.Singh, Fundamentals of Practical geography, Sharadapustakbhavan, Allahabad.
- 4. R.L.Singh, (1979) Elements of Practical Geography, Kalyani Publisher, New Delhi.

## **Soft Core**

### **Course code: MGDSC - 2.4Oceanography (Credits -2)**

Formation of oceans, Relief of ocean, continental shelf, continental slope, ocean plain and ocean ridges -Atlantic, Pacific and Indian Ocean; Temperature and density of ocean water; Salinity - influencing factors on salinity, distribution; Ocean deposits - types, distribution

#### **Block-2**

Ocean Tides -determinants factors, types and theories; Ocean currents - types, factors affecting ocean currents; Currents of Atlantic, Pacific and Indian Ocean, Ocean conveyer belt; Marine resources - major threats and conservation measures; Coral reefs - types, distribution and theories

#### **Reference:**

1. Vatal and Sharma, (2008) Oceanography for Geographers. Chaitanya, Allahabad
2. Lal.D. S., (2007) Oceanography. PrayagPustak Bhavan, Allahabad
3. Paul R Pinet,(2009) Oceanography. Joes Bartlett, Sudbury
4. M. Grant Gross, (1972) Oceanography, PHI, New Jersey.

## **Soft Core**

**Course code: MGDSC - 2.5**

### **Evolution of Geographical Thought (Credits -2)**

#### **Block-1**

Evolution of Geography - Definition, nature, field and scope; Geography as a social and natural science, Evaluation of Geographic Thought; Inter –disciplinary and intra-disciplinary approaches in Geography; Pioneers and their contributions to Geography: Ancient period- Greek, Romans, Indians and Chines; Medieval Period -Arabs and Geographical Discoveries, Modern Period- Alexander von Humbolt and Carl Ritter

#### **Block-2**

Schools of thought - German, French, British, America and Russian schools of thought; Dualism and Dichotomies in Geography - Determinism, Possibilism, Neo-determinism and Social determinism; Quantitative revolution, Geographical models - need, features, types and classification, Theory building; Geographical paradigms, Areal differentiation, Regional syntheses and Spatial organization, Recent trends in Geography

#### **Reference:**

1. Adhikari, S., (2004) Fundamental of geographic thought. Concept publishers, New Delhi
2. Dikshit, (1997) Geographical thought. PHI, New Delhi
3. Dixit, R. D., (2001) Geographical Thought; A conceptual history of ideas. Prentice hall publishing company, New Delhi
4. Hartshorne, R., (2000) Perspectives on the nature of Geography. Rawat, Jaipur
5. Harvey, M. E., (2002) Theme in Geographical Thought, RK Publication and distributors, New Delhi
6. Lalitha Rana, (2008) Geographical thought, Concept, New Delhi
7. Majid Hussain, (2008) Evolution of Geographical thought. Rawat, Jaipur
8. tion of Geographical thought. Rawat, Jaipur

## **Third Semester**

**Hard core -Course code: MGDSC - 3.1.**

### **Urban Geography (Credits - 4)**

#### **Block – 1**

Definition, Nature, Scope, Significance, Approaches of Urban Geography and Recent Trends in Urban Geography; Concept, Origin and Evolution of Urban Settlements - Location and Siting factors of Urban Centres; Factors associated with the Growth of Cities, Theories of Origin of Towns (Gordon Childe, Henri Pirenne, Lewis Mumford); Concepts of Basic and Non-Basic Functions of Urban Centers, Urban Density Gradient.

#### **Block – 2**

Functional Classification of Urban Centers- Different Schemes of Classification, Hierarchy of Urban Settlements; Concept of Megacities, Metropolitan Areas, Megalopolis, Suburbanization, Conurbation, Urban Agglomeration, Satellite towns; Urban Systems: Central Place Theory of Christaller and Losch, Rank-Size Rule, Law of Primate City

#### **Block – 3**

Theories of City Structure (Burgess, Hoyt, Harris and Ullman, Mann, White); Urban Land Use, Peri-Urban Areas, Concept of City-region; Rural-Urban Fringe, Urban sprawl; Social Segregation in the City, Social Area Analysis

#### **Block – 4**

Urbanization: Definition and Factors Affecting Urbanization, World urbanization; Growth, Distribution, Patterns and Trends, Characteristics and Processes of Urbanization in Developed and Developing Countries; Urbanization: Patterns and trends, Salient features of the urbanization in India, Million cities of India; Contemporary Urban Issues: Urban Poverty, Slums, Transportation, Housing, Urban Infrastructure, Urban Finance, Environmental Pollution, Urban Crime, Sustainable Development of Cities; Concept and History of Urban Policy and Planning with special reference to India, Need of City Planning, Elements of City Planning, Master Plans of Towns (CDP), Case Studies: Bangalore, Mysore etc.

#### **Reference**

1. Carter, H., (1995) The Study of Urban Geography (4ed). Routledge. Abingdon, United Kingdom
2. Mandal, R.B., (2008) Urban Geography; A Textbook. Concept Publishing Company. New Delhi
3. Pacione, M., (2009) Urban Geography: A Global Perspective (3ed) Routledge. Abingdon, United Kingdom.
4. Ramachandran, R., (1997) Urbanization and Urban Systems in India. Oxford University Press. Noida, India.
5. Siddhartha, K. and Mukherjee, S., (2019) Cities, Urbanisation and Urban Systems (Settlement Geography). Kitab Mahal. Allahabad, India.
6. Singh, R. Y., (2002) Geography of Settlements. Rawat Publication. Jaipur, Rajasthan.
7. Tonkiss, F., (2013) Cities by Design: The Social Life of Urban Form. Polity Press. Cambridge, United Kingdom.
8. Verma, L. N., (2006) Urban Geography. Rawat Publication. Jaipur, Rajasthan.

## **Hard Core**

**Course code: MGDSC - 3.2 Introduction to Remote sensing (Credits - 4)**

### **Block-1**

Definition, History of Remote Sensing, Principles of Remote sensing; Electro Magnetic Spectrum (EMS) and Electro Magnetic Radiation (EMR); Energy system for Remote sensing- Source of energy, Energy interaction and atmospheric scattering; Process of Remote sensing

### **Block-2**

Sensors- Active and passive sensors; Platform- Airborne and space; Resolutions in Remote Sensing; Scanners and their types

### **Block-3**

Satellites - Types, Geostationary; Satellites- polar orbiting; Earth Resource satellites- Landsat, Spot, Ikonos; Indian Remote sensing program (IRS)

### **Block-4**

Micro wave Remote Sensing; RADAR, SONAR and LIDAR; .Application of Remote Sensing - Land use and Agriculture; Application of Remote Sensing - Urban planning and Coastal area management

### **Reference:**

1. Albert K.W.Yeung., (2006) Concepts and techniques of Geographic Information Systems Prentice-Hall, inc., New Jersey
2. AlexyBunkin and Konstantin Voliak, Laster, (2001) Remote Sensing of the Ocean, John Wiley and Sons, Canada
3. Burroughs, P. A., (1986) Principles of Geographical Information Systems for land Resources Assessment, Oxford University Press.
4. Chang, Kang-taung., (2002) Introduction to Geographic Information Systems. Tata McGraw-Hill, New Delhi
5. Curran P.J., (1985) Principles v of Remote sensing, Longman, Essex.
6. Gibso, P., (2000) Introductory Remote Sensing Principles and Concepts (1<sup>st</sup>ed), Routledge, London
7. Hayesem, L., (1991) Introduction to Remote Sensing and Image Interpretation, John Wiley & sons, New York
8. Haywood, Ian (2000) An introduction to Geographical Information Systems, Addition Willey, New York
9. Lillisand T.M and R.W. Kiefer (1994) Remote sensing and Image interpretation (3<sup>rd</sup>ed), John Willey & sons, New York.



10. Lillisand T.M. and Kiefer P.W. 1998 Remote sensing and Image interpretation, John Wiley & sons, New York
11. Sabins F.F., (1987) Remote Sensing: principles and Interpretation, W.H.Freemanand Co., New York.

### **Hard Core MGDSC - 3.3, Statistical Techniques in Geography (Credits -4)**

#### **(Practical)**

- I. Nature and types of Geographical data, Methods of data collection, Importance of statistics in the analysis of Geographical data
- II. Frequency distribution - Histogram, Frequency curve, Frequency Polygon, Ogive, Lorenz curve
- III. Measures of Central Tendency - Mean, Median and Mode, Merits and Demerits of these Measures
- IV. Measures of Dispersion – Mean deviation, Quartile deviation and Standard deviation, Merits and Demerits of these measures, Co-efficient of variation
- V. Measures of Dependency and Association, Correlation and Regression analysis, Applications of these techniques in Geography

#### **Reference:**

1. Aslam Mahmood, (2007) Statistical Methods in Geographical studies, Rajesh Publications, New Delhi
2. J.P.Cole and C.A.M.King (1968) Quantitative Geography, John willey& sons Ltd, London
3. R. B.Mandal (2005) Introduction to Rural Settlement, Concept Publishing Company, New Delhi
4. R. Hammand and P. Mcchllagh (1975) Quantitative Techniques in Geography, Clarendon press, Oxford.

## **Soft Core**

**Course code: MGDSC -3.4 Agricultural Geography (Credits – 2)**

### **Block-1**

Origin and diffusion of Agriculture in the world, Major Centers of Gene pools; Determinants of Agriculture - Physical, Economic, Social, Institutional and Technological factors; Agricultural Models and Regions - Isolated theory and its modifications; Whittlesey's World Agricultural Regions

### **Block-2**

Agricultural Regions of India (NRSA); Techniques of Agriculture - Statistical techniques of agricultural regionalization; Crop Concentration and Diversification, DOI's Method; Agricultural Revolution: Green revolution and its impact, White revolution; Global Food and Nutrition Problems, Programmes of Food Security

### **References:**

1. M. Hussain, (2002) Agricultural Geography, Rawat Publications, Jaipur
2. M. Shafi, (2006) Agricultural Geography, DorlinsKindersly, New Delhi
3. Noor Mohammed, (2002) Agricultural Geography Vol I & II, Concept Publications, New Delhi
4. Singh and Dillon, (2000) Agricultural Geography, Tata – Mc. Graw Hill, New Delhi
5. Singh, J., and Dhillon, S.S., (1984) Agricultural Geography, Tata McGraw Hill, New Delhi

## **Soft Core**

**Course code: MGDSC - 3.5**

### **Physical Geography of India (Credits -2)**

#### **Block-1**

Location, Extent, Geological history of India; Geographic Divisions -Physical features- Northern Mountains, North Indian plains, Peninsular Plateau, Coastal regions, Island and major Lakes

#### **Block-2**

Climate - seasons, Major Rivers system; Soils and Vegetation - types, distribution and their significance; Natural disasters and management- Seismic zones, Drought-prone areas and Floods-prone areas

#### **References:**

1. Gautam, A. (2009) Advanced Geography of India, Second Edition, SharadaPustakBhawan, Allahabad.
2. Khullar, D.R., (2006) India: A Comprehensive Geography, Kalyani Pub., New Delhi.
3. Majid Husain., (2017) Geography of India(7<sup>th</sup>ed).McGraw Hill Education, New Delhi
4. Singh R.L. (ed.) (1971) India-A Regional Geography, National Geographical Society of India, Varanasi.
5. Surender Singh &Jitender Saroha.,(2019) Geography of India (2<sup>nd</sup>ed), G.K.PUB, New Delhi
6. Tiwari, R.C., (2010) Geography of India, PrayagPustakBhawan, Allahabad.

## **Fourth Semester**

### **Hard Core**

**Course code MGDSC -4.1**

### **Regional Planning and Development (Credits - 4)**

#### **Block-1**

Concept of region and regional planning; Planning region and its characteristics; Types of Planning, Objectives and Principles of regional Planning

#### **Block-2**

Growth pole hypothesis and regional planning; Leading industry, Polarization effects and spread effects; Modified growth foci of R.P. Mishra; Growth poles in regional planning

### **Block-3**

Regional Imbalances -Indicators of measuring regional imbalance; Policies and Programs adapted to remove regional imbalance in India; Policies and Programs adapted to remove regional imbalance in Karnataka

### **Block-4**

Issues in regional planning and approach to planning - Social Issues in regional planning and approach to planning: environmental issues; District and block level planning in India; Backward and tribal area development programs

### **Reference:**

1. Jayasri Ray Chaudhuri (1998) An Introduction to Development and Regional Planning, Orient Longman Ltd, Kolkata
2. Mahesh Chan and Puri (1997) Regional Planning in India, Allied Publishers limited, New Delhi
3. Rabindranath Dubey, (1992), Population, Environment and Regional Planning, Chugh Publications, Allahabad, India
4. SudhanshuShekar (2004) Regional Planning in India, Anmol Publication, New Delhi.

## **Hard Core**

**Course code: MGDSC - 4.2**

### **Geographical Information System (Credits - 4)**

#### **Block-1**

Introduction to GIS, Definition and concepts of GIS, History of GIS, need of GIS; Components of GIS - Sources of data; Applications of GIS; GIS Data - Raster, vector and attribute data

#### **Block-2**

Co-ordinates system; Spatial, Non-spatial and continuous data collection; Map Projections  
Vector data models and Raster data models

### **Block-3**

Data Input and Editing - Transformation, Methods of data input; Re-projection and generalization; Edge attaching and Rubber sheeting; Global Positioning System – types, coordinates, surveying, importance of GPS; Data management system –Introduction, Functions and components; GIS data file management, Database models: Relational, Hierarchical and Object based data models

### **Block-4**

**Practical exercises in GIS:** Geo-referencing, Assigning suitable projections and Rectification; Structuring of spatial data, digitizing, distance measurement, Area measurement; Attribute query SQL: spatial Query; Buffer analysis - Point, Line, Polygon (Area), Surface analysis, Symbolizations and labeling, Overlay analysis, Map layout and Output; Editing - Error detection and correction, Topology building

### **Reference:**

1. Anji Reddy, M. (2001) Textbook of Remote Sensing and Geographical Information Systems. BS Publications, Hyderabad
2. Burrough, P.A., (1986) “Principles of Geographical Information Systems for Land Resources, Clarendon Press, Oxford
3. Chrisman N.R. (1997) Exploring Geographic Information Systems, Wiley, New York
4. Ian Heywood, Sarah Cornelius and Steve Carver (2000) Introduction to Geographic Information Systems, Wesley Longman Ltd, New York
5. Kang tsung Chang (2008) Introduction Geographic Information Systems, Tata Mc Graw- Hill Publishing Company, New Delhi.

## **Hard Core**

### **Course code: MGDSC - 4.3 Research methodology (Credits - 4)**

#### **Block-1**

Research - meaning, definition objectives, characteristics, types, steps involved in research; Research ethics, approaches significance; Research and scientific methods, research process, criteria of good research, Research problems faced by the researchers in India; Review of literature, need for review of literature

#### **Block-2**

Forms of Research - research problem, selecting the research problem, necessity of defining the problem; Research paper, article, workshop, seminars, conference and symposia; Research design - meaning, need important concepts relating to research design; Different research design, developing a research plan

#### **Block-3**

Research methods versus methodology, research and scientific methods, Sampling methods; Need for sampling some fundamental definitions, sampling theory; Methods of data collection; Selection of appropriate method for collection of data, case study method.

#### **Block-4**

Hypothesis in research; Research Interpretation and report writing - Meaning of interpretation, Report writing; Conclusion, findings and suggestions; Bibliography and reference, fields photographs in Research

#### **Reference**

1. Anderson, J. Durston, B.H. and Poolell, M, (1970) Thesis and Assignment Writing, Wiley Eastern Ltd, New Delhi
2. Cooray, P.G (1992) Guide to Scientific and Technical Writing, Handagala, Srilanka
3. Davis J.C. (1986) Statistics and data Analysis, John Wiley and Sons, New York
4. Fitz Gerald, B.P. Ed (1974) Science in Geography, Series 1,2,3,4,5,6. Oxford University press, London
5. Hang L.L. and Lounsbury J.F. (1971) Research Methods in Geography, Brown company Publishers, Iowa
6. Kothari, C.R. (2015) Research methodology methods and techniques, Vishwaprakshana, New Delhi.

## **Geo-4.4 Dissertation**

## INTER- DISCIPLINARY COURSE

(Open Elective) for First Semester

### ವಿಭಾಗ- ಕನ್ನಡ

ಪತ್ರಿಕೆ-೬: ಆಧುನಿಕ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಇತಿಹಾಸ EL 1.1 (ಕ್ರೆಡಿಟ್-೨)

ಬ್ಲಾಕ್-೧೯: ಆಧುನಿಕ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಮುಖ್ಯ ಘಟ್ಟಗಳು

ಘಟಕ-೨೩: ಆಧುನಿಕ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಹಿನ್ನೆಲೆ ಮತ್ತು ಪ್ರೇರಣೆಗಳು.

ಘಟಕ-೨೪: ನವೋದಯ ಪೂರ್ವ, ನವೋದಯ- ಬಿ.ಎಂ.ಶ್ರೀ., ಕುವೆಂಪು, ದ.ರಾ.ಬೇಂದ್ರೆ, ಶಿವರಾಮಕಾರಂತ, ಮಾಸ್ತಿವೆಂಕಟೇಶ್ ಅಯ್ಯಂಗಾರ್, ಕೆ.ಎಸ್. ನರಸಿಂಹಸ್ವಾಮಿ.

ಘಟಕ-೨೫: ಪ್ರಗತಿಶೀಲ ಮತ್ತು ನವ್ಯ: ಅನಕೃ, ಕಟ್ಟೇಮನಿ, ನಿರಂಜನ, ಚದುರಂಗ, ವಿ.ಕೃ. ಗೋಕಾಕ, ಅಡಿಗ, ಜಿ.ಎಸ್. ಶಿವರುದ್ರಪ್ಪ, ಶಾಂತಿನಾಥ ದೇಸಾಯಿ, ಅನಂತಮೂರ್ತಿ, ಯಶವಂತ ಚಿತ್ತಾಲ, ಲಂಕೇಶ್, ತೇಜಸ್ವಿ, ವೈದೇಹಿ, ವೀಣಾ ಶಾಂತೇಶ್ವರ, ವಿಜಯಾದಿತ್ಯ.

ಘಟಕ-೨೬: ಬಂಡಾಯ ಮತ್ತು ದಲಿತ:

ಬರಗೂರು ರಾಮಚಂದ್ರಪ್ಪ, ಬಿ.ಟಿ. ಲಲಿತಾನಾಯಕ, ಸಾರಾ ಅಬೂಬಕ್ಕರ್, ದೇವನೂರು ಮಹಾದೇವ, ಸಿದ್ಧಲಿಂಗಯ್ಯ, ಅರವಿಂದ ಮಾಲಗತ್ತಿ, ಮೊಗ್ಗಿ ಗಣೇಶ.

ಬ್ಲಾಕ್-೨೦: ಆಧುನಿಕ ಕನ್ನಡ ಕಾವ್ಯ ಮತ್ತು ಸಾಹಿತ್ಯ ಪ್ರಕಾರಗಳು

ಘಟಕ-೨೭: ಕಾವ್ಯ ಪ್ರಕಾರಗಳು: ಭಾವಗೀತೆ, ಸುನೀತ, ಶೋಕಗೀತೆ, ಪ್ರಗಾಥ.

ಘಟಕ-೨೮: ಕಥನ ಕಾವ್ಯ, ಖಂಡ ಕಾವ್ಯ, ಮಹಾಕಾವ್ಯ.

ಘಟಕ-೨೯: ಸಾಹಿತ್ಯ ಪ್ರಕಾರಗಳು: ಕಥೆ, ಕಾದಂಬರಿ, ನಾಟಕ ಜೀವನ ಚರಿತ್ರೆ.

ಘಟಕ-೩೦: ಲಲಿತ ಪ್ರಬಂಧ, ಆತ್ಮಕತೆ, ಪ್ರವಾಸ ಸಾಹಿತ್ಯ, ಸಂಪಾದನೆ, ವಿಚಾರ ಸಾಹಿತ್ಯ, ವಿಜ್ಞಾನ ಸಾಹಿತ್ಯ

### ಪರಾಮರ್ಶನ ಗ್ರಂಥಗಳು

೧. ಹೊಸಗನ್ನಡ ಸಾಹಿತ್ಯ: ಎಲ್.ಎಸ್. ಶೇಷಗಿರಿರಾವ್, ಕನ್ನಡ ಸಾಹಿತ್ಯ ಪರಿಷತ್, ಬೆಂಗಳೂರು, ೧೯೯೨

೨. ಯುಗಧರ್ಮ ಮತ್ತು ಸಾಹಿತ್ಯ ದರ್ಶನ: ಕೀರ್ತಿನಾಥ ಕುರ್ತಕೋಟಿ, ಮನೋಹರ ಗ್ರಂಥ ಮಾಲೆ, ಧಾರವಾಡ, ೧೯೯೧

೩. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಇತಿಹಾಸ: ರಂ.ಶ್ರೀ. ಮಗುಳಿ, ಗೀತಾ ಬುಕ್ ಹೌಸ್, ಮೈಸೂರು, ೨೦೧೮

೪. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಸಂಗಾತಿ: ಕೀರ್ತಿನಾಥ ಕುರ್ತಕೋಟಿ, ಕನ್ನಡ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಹಂಪಿ, ಹೊಸಪೇಟೆ, ೧೯೯೫

೫. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಸಂಗಾತಿ: (ಪ್ರ.ಸಂ) ಬರಗೂರು ರಾಮಚಂದ್ರಪ್ಪ, ಕರ್ನಾಟಕ ಸಾಹಿತ್ಯ ಅಕಾಡೆಮಿ, ೨೦೧೮

೬. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ: ತ.ಸು. ಶಾಮರಾಯ, ತಳುಕಿನ ವೆಂಕಣ್ಣಯ್ಯ ಸ್ಮಾರಕ ಗ್ರಂಥಮಾಲೆ, ಮೈಸೂರು, ೨೦೧೪

೭. ಹೊಸಗನ್ನಡ ಕಾವ್ಯ ಪ್ರಕಾರಗಳು: ಪ್ರಧಾನ ಸಂಪಾದಕರು, ಎ.ರಂಗಸ್ವಾಮಿ, ಲೇ. ಮ. ರಾಮಕೃಷ್ಣ, ಪ್ರಸಾರಂಗ, ಕರಾಮುವಿ, ಮೈಸೂರು, ೨೦೧೦



ಲ. ಅಧುನಿಕ ಸಾಹಿತ್ಯ ಪ್ರಕಾರಗಳು: ಪ್ರಧಾನ ಸಂಪಾದಕರು, ಎ. ರಂಗಸ್ವಾಮಿ, ಲೇ. ಡಾ. ಜಿ.ಆರ್. ತಿಪ್ಪೇಸ್ವಾಮಿ, ಪ್ರಸಾರಂಗ, ಕರಾಮವಿ, ಮೈಸೂರು, ೨೦೧೦

## DEPARTMENT - ENGLISH

### EL-1.1: INTER- DISCIPLINARY COURSE-I (OPEN ELECTIVE)

#### INDIAN LITERATURE-I

##### OBJECTIVES

- To help to understand the contribution of Kalidasa to Sanskrit drama as a playwright
- To create an awareness of the importance of Shakuntala and Mrichhakatika as classical Indian texts
- To evaluate Lord Macaulay and Raja Ram Mohan Roy writers of English Prose.
- To introduce the role of Autobiographies in Indian writing in English

##### BLOCK -I

**Kalidasa:** Shakuntala

**Shudraka:** Mrichhakatika

##### BLOCK -II

**Jawaharlal Nehru:** An Autobiography

**Ram Mohan Roy:** Letter to Lord Amherst

**Macaulay:** Minutes on Indian Education

**Vivekananda:** Address to the Parliament of Religions

##### Suggested Reading:

- **M.K.Naik:** Critical Essays on Indian Writing in English. Sahitya Akademi, 1969.
- **Narasimhaiah. C.D:** The Swan and the Eagle. Indian Institute of Advanced Study, 1987.
- **Meenakshi Mukherjee:** The Twice Born Fiction. Heinemann Educational Publishers, 1972.
- **Chirantan Kulshrestha.** Contemporary Indian English Verse: An Evaluation. Arnold-Heinemann, 1981.

## DEPARTMENT - HINDI

### व्यावहारिक हिंदी एवं व्याकरण

#### वर्ण विचार

- वर्ण
- स्वर और उसका वर्गीकरण

- व्यंजन और उसका वर्गीकरण
- वर्णों का उच्चारण स्थान
- संधि
- समास

## शब्द विचार

- शब्द के भेद
- अर्थ के आधार पर शब्द भेद
- व्युत्पत्ति के आधार पर शब्द भेद
- रचना के आधार पर शब्द भेद
- प्रयोग के आधार पर शब्द भेद
- विकारी और अविकारी शब्द भेद
- अव्यय
- संज्ञा और उसके भेद
- वचन- उसके भेद, वचन परिवर्तन के नियम
- लिंग- उसके भेद, लिंग परिवर्तन के नियम
- काल और उसके भेद
- कारक और विभक्ति- उसके प्रकार,
- सर्वनाम और उसके भेद
- विशेषण और उसके भेद
- क्रिया और उसके भेद
- क्रिया विशेषण और उसके भेद
- समुच्चय बोधक और उसके भेद
- संबंधबोधक और उसके भेद
- विस्मयादिबोधक और उसके भेद
- परसर्ग और उपसर्ग
- वाच्य और उसके प्रकार

## वाक्य विचार

- वाक्य का अर्थ और परिभाषा
- वाक्य के प्रकार .... आदि

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- పాఠశాల పాఠ్యపుస్తకం ప్రకారం - పాఠశాల పాఠ్యపుస్తకం, పాఠశాల పాఠ్యపుస్తకం
- పాఠశాల పాఠ్యపుస్తకం ప్రకారం - పా. పాఠశాల పాఠ్యపుస్తకం, పాఠశాల పాఠ్యపుస్తకం
- పాఠశాల పాఠ్యపుస్తకం ప్రకారం - పాఠశాల పాఠ్యపుస్తకం - పాఠశాల పాఠ్యపుస్తకం పాఠశాల పాఠ్యపుస్తకం
- పాఠశాల పాఠ్యపుస్తకం - పాఠశాల పాఠ్యపుస్తకం పాఠశాల

## DEPARTMENT - TELUGU

### E. L. 1.1 Thilak Prathyeka Adhyayanam

#### Block - 1:Thilak Kavithvam - 1

Unit - 1:Amrutham Kurisina Raathri

Unit - 2:Thilak Padhya Kavithaa Vaibhavam

Unit - 3:Thilak Abhiruchulu - Alavaatlu

Unit - 4: Thapala bantrothu

#### Block - 2: Thilak Kavithvam

Unit - 1:Thilak Sahithya Parichayam - 1

Unit - 2: Thilak Sahithya Parichayam - 2

Unit - 3:Thilak vachana kavithaa Vaibhavam - 1

Unit - 4: Thilak Vachana Kavithaa Vaibhavam – 2

## DEPARTMENT - HISTORY

### ANCIENT WORLD CIVILIZATIONS

(Egypt, Mesopotamia, Greek, Roman, Inca, Chinese)

**Objective:** The course is aims to understand major world civilizations. It is to provide a global historical perspective of ancient world which special reference to Egypt, china, Greek, Roman, Inca civilizations.

**Pedagogy:** personal contact programmes, audio video programmes, online lectures  
Assignments, etc

**Credits:** 2.

**Examination Duration:** 11/2 hours and Maximum Marks:40

#### Course outcomes:

After completing this course the students should be able to

- Discuss the Egyptian and Mesopotamian civilizations.
- Analyse the political socio economic conditions of Greek Roman civilizations.
- Evaluate the Chinese contributions to ancient world.

#### Block – I

##### Unit-1

Egyptian Civilization: Importance of the Nile, Geographical importance, Gift of Nile, Political conditions.

##### Unit-2

Social, Economic and religious conditions, Literature and learning, arts and architecture.

##### Unit-3

Mesopotamian Civilization, Sumer and Babylonian, Hammurabi's code, Society and Culture,

Economic conditions, art and literature, Assyrian Empire.

**Unit - 4**

Greek Civilization, Political Organizations, the city, State, Alexander the Great, Greek political theory, Religion, Philosophy, art and architecture, Characteristic of Hellenistic Civilization.

**Block – II**

**Unit - 5**

Roman Civilization, The Land and the people, the Government, Roman Republic, Roman Empire, Roman Republic, The Empire, The Patricians and Plebeians, Punic wars.

**Unit – 6**

Julius Caesar, his wars, fall Augustus Caesar, Social Economic Conditions, Roman art and architecture.

**Unit - 7**

Painting, Sculpture, Roman Law, Roman Religion, Philosophy, Roman literature, Decline of the Roman Empire.

**Unit - 8**

Inca Civilisation, Socio – economic Political conditions, Chinese Civilisation, Socio – economic Political conditions.

**Suggested readings:**

1. Breasted, J.H. : Ancient Times, A History of the early world.
2. Rostovzeff, M.S. : History of Ancient World
3. Schvinder, H. : The History of Civilization
4. Swain, J.E. : A History of World Civilization
5. Breasted, J.H. : History of Egypt
6. Jastrow, M. : The Civilization of Babylonia and Assyria
7. Bury, J.E. & OTHERS: The Hellenistic Age
8. Bailey, C. : The Legacy of Rome and others
9. Abot, F.F.: Society and Politics of Ancient Rome

## **DEPARTMENT – ECONOMICS**

### **EL1.1: Economic Policies of India Since 1991.**

- **Objective:** To enable the Students to understand the economic policies of India in the era of new economic policy.
- **Pedagogy:** A Combination of Lectures, Group Discussion, Assignments.
- **Credits:** 2 ; Examination Duration: 1½ and Maximum Marks: 50 (Internal Assessment Marks = 10 and Semester-end Examination = 40)

### **Course Inputs**

**BLOCK – I: India's Economic Policies**

**UNIT : 1 Economic Policies in India Since 1991**

Economic reforms in India – Economic Scenario in India during 1990-91 – Domestic Financial Crisis – Balance of Payment Crisis – Extent of External debt and debt Trap

- Problem.
- UNIT : 2      Need for Reforms**  
Measures Taken – Devaluation – Privatization – Liberalization – Globalization.
- UNIT : 3      Monetary Policy and Fiscal Policy**  
Narasimhan Committee on Banking and Financial Sector Reforms Since 1998 – Fiscal Reforms: Raja Chellaiah Committee and Tax Reform Policies – Fiscal Prudence and Policies.
- UNIT : 4      Structural Adjustments and External Sector in India**  
Foreign Trade: Trends in Exports and Imports – Balance of Payment and its Crisis – Export Import Policy – In Defence of Import Substitution – Foreign Exchange Policy.
- BLOCK : II      FDI and the Role of State**
- UNIT : 5      Foreign Direct Investment (FDI)**  
Trends in FDI – FDI Policy – Its Impact on the Domestic Economy – Labour Migration: causes and Consequences on Indian Economy – Information and Communication Revolution and India.
- UNIT : 6      Challenges to Development in India**  
Poverty – Unemployment – Poverty alleviation Programmes - urban Poverty and Problems – Income Inequality – Employment Generating Schemes.
- UNIT: 7      The Role of State**  
Parallel Economy in India – Black Money – Corruption – Slams – Redefining the Role of the State and the Markets – Balance between Economic and Socio - Political Goals.
- UNIT : 8      Administrative Reforms**  
Rights to Information – Measures Towards Good Governance – NITI Ayoga and aftermath – Digitalized India – Demonetization – GST – Make in India.

**References:**

1. Acharya Shankar, (2003) India's Economy: Some Issues and Answers, Academic Foundation, New Delhi.
2. Byres J Terence (Ed.) (1999) The Indian Economy, Major Debates since Independence, OUP, New Delhi.
3. Datt Ruddar, (2002) Economic Reforms in India - A Critique, S.Chand and Co, New Delhi.
4. Kapila Uma (Ed) (2015) Indian Economy since Independence, Academic Foundations, New Delhi.
5. Kapila Uma, (2005) Understanding the Problem of Indian Economy, Academic Foundation, New Delhi.
6. Misra S.K. & V.K. Puri, (2011) Indian Economy-Its Development Experience, Himalaya Pub., House, Mumbai.
7. NCAER, Economic and Policy Reforms in India, NCAER, New Delhi.
8. Rangarajan C, (1998) Indian Economy- Essays on Money and Finance, UBSPD, New Delhi.
9. Sachs D.Jeffrey, A.Varshney & N Bajpai (Ed)(1999) India in the Era of Economic Reforms,OUP, New Delhi.
10. Vaidyanathan A, India's Economic Reforms and Development, OUP, New Delhi

**DEPARTMENT - POLITICAL SCIENCE**  
**(OEL-I) Local Government in India**

|        |  |
|--------|--|
| Unit:1 | Meaning, Nature and Scope of Local Governments.  |
| Unit:2 | Evolution of Panchayat Raj Institution in India.<br>a) Constituent Assembly and Village Panchayat.<br>b) Balavanth Roy Mehta Committee Report<br>c) Ashok Mehta Committee Report.<br>d) G.V.K. Rao Committee Report.   |
| Unit:3 | Constitutional Amendments and Panchayat Raj Institutions:<br>a) Basis of Constitutional Amendment.<br>b) 73 <sup>rd</sup> and 74 <sup>th</sup> Constitutional Amendment.<br>c) Karnataka Panchayat Raj Act of 1983.<br>d) Karnataka Panchayat Raj Act of 1993. |
| Unit:4 | Zilla Panchayat: Structure, Functions and Sources of Revenue.  |

|        |  |
|--------|--|
| Unit:5 | Taluk Panchayat : Structure, Functions, Executive Officer, Powers and Functions.     |
| Unit:6 | Gram Panchayat: Gram Sabha, Ward Sabha: Structure, Functions and Sources of Revenue. |
| Unit:7 | Panchayat Development Officer and Secretary: Powers and Functions.                   |
| Unit:8 | Role of Panchayat Raj Institutions in Development (with Reference to Karnataka)      |
|        | a) Panchayat Raj in Rural Development.   |
|        | b) Social Change: Empowerment of the Weaker Sections.                                |

1. Verma B. M, Social justice and Panchayath Raj
2. Mutarib-M.A. and Others, Theory of Local Government,
3. Dr. Arjun darshankar, Panchayath Raj aani Nagari.
4. V. B. Patil, Pancayath Raj.
5. A.N. Kulkarni, Bharatiya Sthanik Swashasan,
6. Shantaram Bhosale, Bharatiya Sthanik Shasan,
7. Kikherji. S, Essays on Rural Development.
8. Balaramu. C. H. Administration of Anty Poverty Programmes.
9. 73<sup>rd</sup> Constitutional Amendment Act, Government of India, 1993.
10. Karnataka Panchayatraj Acts, 1985, 1995.

|          |                                    |
|----------|------------------------------------|
| UNIT – 1 | Indian Constitution.               |
| UNIT – 2 | Preamble - Meaning and Importance. |
| UNIT – 3 | Fundamental Rights and Duties.     |

UNIT – 4 Directive Principles of State Policy and Relation with Fundamental Rights.

## **BLOCK – 2**

UNIT – 5 Indian Federalism and Parliamentary system of Government.

UNIT – 6 Centre - State Relations. Legislative Administrative and Financial

UNIT – 7 Union Executive - President Elections, Powers and Positions. .

UNIT – 8 Council of Ministers and Prime Ministers - Powers and Functions

# **DEPARTMENT - SOCIOLOGY**

## **Invitation to Sociology**

( 02 Credits )

### **Course Description**

This course introduces learners to the basic concepts of sociology. It is particularly designed to orient the learners from interdisciplinary background about the essence of sociology and intends to inculcate sociological imagination.

### **Course Objectives**

- To introduce the learner to the basic concepts and processes of sociology
- to comprehend the structural and organizational aspects of society
- to examine the process of social change

### **Learning Outcomes and Competencies**

After successfully completing the course, following outcomes and competencies are possible among the learners. Learner will have/can

- Conceptual precision and clarity about the basic sociological concepts
- Develop sociological imagination and apply to analyze the contemporary events
- explain major social processes of society
- analytical view about Indian social structure
- explicate major process of social change and can conceptualize the changing aspects of Indian society

### **Course Contents**

#### **Block-1 Basic Concepts and Processes**

Unit-1 Emergence of Sociology-Factors and Early Thinkers-Sociological Imagination

Unit-2 Society, Community- Associations and Institutions- Culture and Socialization

Unit-3 Social System, Structure and Function

Unit-4 Social Processes-Cooperation, Competition, Conflict, Accommodation and Assimilation

#### **Block-2 Social Organization and Social Change**

Unit-5 Caste and Class System-Changes in Caste

Unit-6 Social Mobility and Types

Unit-7 Factors of Social Change

Unit-8 Process of Social Change in India (Sanskritization, Westernization, Modernization and Globalization)

### **References**

1. Berger, Peter L. 1978. An Invitation to Sociology, Allen and Unwin, London. Davis, Kingsley. Human Society, Macmilan, New Delhi.
2. Dumont, Louis, 1988, Homo Hierarchicus. Oxford University Press. Giddens, Anthony. 2009. Sociology. Politi Press, Malden.
3. Inkles, Alex. 2002. What is Sociology, Prentice Hall India, New Delhi. Jayaram, N, 1990, Introductory Sociology, Macmilan, New Delhi.
4. Johnson Harry M., 2011: Sociology: A Systematic Introduction: Allied Publishers, New Delhi.
5. MacIver, R.M and C.H. Page. Society - Introduction to Sociology, Macmilan, New Delhi
6. Samuel, Koenig. 1957. Sociology: An Introduction to Science of Society, Barnes & Nobel Books, London.
7. Singh, Yogendra. 1993: Social Change in India: Crisis and Resilience, Har-Anand, New Delhi.

## **DEPARTMENT – ANCIENT HISTORY AND ARCHEOLOGY**

AHA  
OE 1.1

### **World Heritage Sites of India**

#### **Block - 1**

#### **Introduction**

Unit - 1 Nature - Scope - Criteria for incorporation of World Heritage sites

Unit - 2 Types of World Heritage sites in India

#### **Block - 2**

#### **Archaeological and Cave Heritage sites**

Unit - 3 Bimbetka - Sanchi- Nalanda – Champaner - Dholavira

Unit – 4 Ajanta – Ellora - Elephant

#### **Block - 3**

#### **North Indian World Heritage Sites**

Unit – 5 Bodh Gaya — Kajuraho—Konarak—Rani kivav— Jaipur,

Unit – 6 Agra Fort – Red Fort - FatehpurSikri—Taj Mahal – Humayun’s Tomb –  
Ahamadabad, Qutub Minar

#### **Block - 4**

#### **South Indian World Heritages Sites**



Unit – 7 Mahabalipuram – Pattadakallu – Chola temples

Unit - 8 Monuments of Hampi – Churches and Convents of Old Goa – Ramappa Temple

References:

1. Marco Canneo, Jasmina: The world heritage sites of UNESCO – The Treasure of Art
2. ASI: World Heritage Sites Series
3. Individual guide: Books on respective city Individual

## **DEPARTMENT - EDUCATION**

### **IDC – 1 FOUNDATIONS OF EDUCATION**

#### **BLOCK-1 FOUNDATIONS OF EDUCATION – I**

Unit-1 Philosophical Foundations

Unit-2 Basic Concepts of Philosophy

Unit-3 Psychology as a Science

Unit-4 Basic Concept in Psychology related to Education

#### **BLOCK-2 FOUNDATIONS OF LEARNING – II**

Unit-5 Sociological bases of Education

Unit-6 Educational Issues in Indian Society

Unit-7 Cultural and Historical Foundations

Unit-8 Political and Economic bases of Education

**References:**

1. Harison and Myers (1970), Education, Manpower and Economic Growth, McGrothill, Oxfords, IBH Publishing Co., New Delhi.
2. Kamala Bhatia & Baldev Bhatia, (1974) The Philosophical and Sociological Foundations of Education, Doaba House, New Delhi.
3. Bhatia B.D, (1974), 'Theory and Principles of Education, Doaba House, Delhi'.
4. Sorokim .P, (1947) 'Society, Culture and Personality', Harper and Brothers Publishers, New York.

## **DEPARTMENT – COMMERCE**

### **EL1.1: Personal Financial Planning**

**Objective:** To enable the Students to understand about the different Investment Avenues, Saving Schemes designed by various agencies particularly for the individuals.

**Pedagogy:** A Combination of Lectures, Group Discussion, Assignments.

**Credits:** 2

**Examination Duration:** 1<sup>1</sup>/<sub>2</sub> and Maximum Marks: 50

(**Internal Assessment Marks** = 10 and Semester-end Examination =40)

## **Course Inputs**

### **Block I**

- **Unit -1: Introduction to Financial Planning:** Introduction - The Process Financial Planning – Client Interactions – Time Value of Money Applications – Personal Financial Statements – Cash Flow and Debt Management – Planning to Finance Education.
- **Unit -2: Financial Planning Process:** Introduction - Setting Goals – Informal Budget Preparation – Investment Opportunities – Financial Vs Physical Investments – Role of a Financial Planner.
- **Unit -3: Savings Plans:** Introduction - Setting Goals – Savings Instruments – Savings Plan – Tax Savings Schemes.
- **Unit -4: Investment Planning:** Introduction - Risk Return Analysis – Mutual Fund – Derivatives – Asset Allocation – Investment Strategies and Portfolio Construction and Management.

### **Block II**

- **Unit -5: Risk Analysis and Insurance Planning:** Introduction - Risk Management and Insurance Decision in Personal Financial Planning – Various Insurance Policies and Strategies for General Insurance – Life Insurance – Motor Insurance – Medical Insurance.
- **Unit -6: Retirement Planning and Benefits:** Introduction - Retirement Need Analysis Techniques – Savings and Investment Plans for Retirement –Employee Provident Fund – Public Provident Fund – Superannuation Fund – Gratuity – Annuity Plans.
- **Unit -7: Tax Planning:** Introduction - Income-tax Computation for Individuals – Companies - Trust and other bodies – Statutory Provisions Pertaining to Capital Gains and Indexation – House Property – Deduction and Allowances.
- **Unit -8:Health Financing:** Introduction - Health Financing Models – Financing of Health in India – National Rural Health Mission – Challenges of Access to Health Care and Service Quality – Health Insurance Mechanism & Financial Protection.

### **Books Recommended for Reference**

01. Khan M.Y, Financial Services, Tata MacGraw Hill.
02. Singhanar V.K, Students' Guide to Income Tax, Taxmann.
03. Ranganathan and Madhuamathi, Investment Analysis and Portfolio Management, Pearson Publications.
04. Gordon and Natarajan, Emerging Scenario of Financial Services, Himalaya Publishing House.
05. George Rejda, Principles of Risk Management and Insurance, Pearson.

# DEPARTMENT - MANAGEMENT

## COURSE: OE-1 : Disaster Management - Credit: 2

### MBAS 459: DISASTER MANAGEMENT

|            |   |
|------------|---|
| Objectives | : The course aims at familiarizing the students with the concepts of disaster management, need for disaster management and its relevance. |
| Pedagogy   | : Lectures, assignments, Industrial visits and practical exercises, discussions.  |

1. Understanding Disasters · Meaning, nature, characteristics and types of Disasters, Causes and effects, Disaster: A Global View, Disaster Profile of India, The Disaster Management cycle.
2. Geological and Mountain Area Disasters · Earthquakes · Volcanic Eruption · Landslides Snow Avalanches, Wind and Water Related Natural Disaster · Floods and Flash Floods · Droughts · Cyclones · Tsunamis, Man Made Disasters · Understanding Man-Made Disasters · Fires and Forest Fires · Nuclear, Biological and Chemical disaster · Road Accidents
3. Introduction to disaster Preparedness · Disaster Management: Prevention, Preparedness and Mitigation · Disaster Preparedness: Concept & Nature · Disaster Preparedness Plan · Disaster Preparedness for People and Infrastructure · Community based Disaster Preparedness Plan
4. Roles & Responsibilities of Different Agencies and Govt. · Roll of Information, Education, Communication & Training · Role and Responsibilities of Central, State, District and local administration. · Role and Responsibilities of Armed Forces, Police, Para Military Forces. Role and Responsibilities of International Agencies, NGO's, Community Based Org. (CBO's)
5. Technologies for Disaster Management · Role of IT in Disaster Preparedness · Remote Sensing, GIS and GPS · Use and Application of Emerging Technologies · Application of Modern Technologies for the Emergency communication. · Application and use of ICST for different disasters.
6. Disaster Mitigation · Disaster Mitigation: meaning and concept · Disaster Mitigation Strategies · Emerging Trends in Disaster Mitigation · Mitigation management · Role of Team and Coordination
7. Disaster Management in India Disaster Profile of India – Mega Disasters of India and Lessons Learnt Disaster Management Act 2005 – Institutional and Financial Mechanism National Policy on Disaster Management, National Guidelines and Plans on Disaster Management; Role of Government (local, state and national), Non-Government and Inter-Governmental Agencies. National Disaster management Authority.

#### References

1. Bryant Edwards (2005): Natural Hazards, Cambridge University Press, U.K.
2. Carter, W. Nick, 1991: Disaster Management, Asian Development Bank, Manila.
3. Central Water Commission, 1987, Flood Atlas of India, CWC, New Delhi.
4. Central Water Commission, 1989, Manual of Flood Forecasting, New Delhi.
5. Government of India, 1997, Vulnerability Atlas of India, New Delhi.
6. Sahni, Pardeep et.al. (eds.) 2002, Disaster Mitigation Experiences and Reflections, Prentice Hall of India, New Delhi.

# DEPARTMENT - BIO CHEMISTRY

## Basics of Bioinorganic and Biophysical chemistry for Biology graduates.

### Bioinorganic chemistry

Coordination Compounds: Transition metals, properties (Colour, Oxidation states, Magnetic

properties) Coordinate bond, double and complex salts– differences with examples.

Postulates of Warner's theory. Types of ligands: For examples: uni, bi, polydentate ligands. Coordination number, examples.

Porphyrin nucleus and their classification. Important metallo-porphyrins occurring in nature. Structure and biological importance of Heme, cytochrome, chlorophyll, Vitamin B<sub>12</sub>.

Nitrogen, Fixation of atmospheric nitrogen – Symbiotic and non-symbiotic. Nitrogen cycle.

Environmental pollution by nitrogen compounds. Phosphorous: Importance of Phosphorous compounds in biological system, phosphorous cycle

Oxygen, Formation of ozone in atmosphere. Role of ozone in maintenance of life on earth. Effect of environmental pollutants on ozone layer.

Sulphur and Selenium, Importance of compounds of Sulphur and Selenium in biological systems. Effect of sulphur compounds on environmental pollution.

### **Biophysical chemistry.**

Units in chemistry, Avogadro's number, Mole, Mole fraction, Molarity, Equivalent weight, Normality, Molality. Colligative Properties, Osmotic pressure and its measurements. Hypo-, Hyper- and isotonic solutions. Effect of osmotic pressure on living cells.

Donnan membrane equilibrium. Relative lowering of vapour pressure, Raoult's law. Elevation of boiling point, depression in freezing point.

Adsorption: Freundlich and Langmuir's adsorption isotherm. Applications of adsorption.

Viscosity: Definition, determination of viscosity of liquids & solutions by Ostwald's viscometer (solutions of gum and protein to be taken as examples).

Distribution law, Distribution law, partition coefficient, application of distribution law.

Acids, bases and buffers- Lewis concept of acids and bases. Ionic product of water. pH scale, buffers, Henderson- Hasselbach equation, buffer capacity Choice of buffers. Theory of acid base indicators. pH titration curve and iso-electric pH of amino acids.

### **Selected References:**

1. Basic Principles of Organic Chemistry, Roberts and Caserio, W. A. Benjamin, Inc. (1964).
2. Organic Chemistry, Morrison and Boyd, Allyn and Bacon Inc (1992).
3. Principles of Inorganic chemistry by Cotton & Wilkinson, Wiley (1999).
4. Textbook of Organic chemistry by Ahluwalia V K & Madhuri G Narosa publications (2001).
5. Physical chemistry by Castellan G W, Narosa Publications (2004).
6. Physical chemistry by Chakraborty D K, Narosa Publications (2004).

## **DEPARTMENT - BIOTECHNOLOGY**

### **MBT EL –I- Biotechnology and its Applications**

Introduction to biotechnology. Principles of biotechnology, classification.

#### **Recombinant DNA Technology**

Introduction, outline of genetic engineering procedure, restriction endonucleases, cloning & expression vectors- plasmids, cloning in plasmid, transformation and detection of transformants- lacZ, genomic and cDNA libraries, gene analysis techniques-hybridization: Southern, Northern, Western, in situ, Polymerase chain reaction.

#### **Microbial and food and environmental Biotechnology**

Basics of fermentation technology: Types of microbial culture- batch, continuous and fed-batch. Microbial

production: Use of microbes in production of vitamins, enzymes, organic acids, amino acids, polysaccharides, flavors, sweeteners, proteins and antibiotics.

Fermented food products- yogurt, cheese, tempeh, sauerkraut; beverages- wine and beer. Pre- and Pro-biotics, single cell proteins, Genetically modified foods, designer foods.

Current status of biotechnology in environment. Bioconservation, biofuels, gasohol, biogas. Bioremediation: Concepts and principles, bioremediation using microbes, in situ and ex situ bioremediation, biosorption and bioaccumulation of heavy metals.

### **Plant Biotechnology**

Landmarks in Plant tissue culture. Types of cultures- embryo, organ, callus and cell cultures, Somatic embryogenesis, Haploid Production, Androgenesis, Protoplast culture and somatic hybridization. Micropropagation- Methods and stages, applications. Synthetic seeds, somaclonal variation. Production of secondary metabolites by plant cells, Biotransformation.

Plant transformation techniques: Direct and indirect methods of gene transfer in plants. Transgenic plants and crop improvement- herbicide tolerance, disease resistance, abiotic stress tolerance, delayed ripening, improvement of nutritional quality, molecular pharming.

### **Animal Biotechnology**

Basics of animal cell culture techniques, cell lines, physical conditions for culturing animal cells, equipments required, scale-up of culture methods.

Application of animal cell culture- Hybridomas, production of therapeutic antibodies, stem cell technology, cell and tissue engineering.

Genetic engineering of animals: Methods for gene transfer in animals, microinjection, nuclear transplantation, retrovirus-mediated gene transfer, gene knockdown techniques. Transgenic- animals- sheep, pigs, cattle, chickens; applications of transgenic animals.

## **DEPARTMENT - CHEMISTRY**

| <b>Block-1</b> | <b>Title: Periodic Table and chemical Periodicity</b>  |
|----------------|--|
| <b>Unit-1</b>  | Elements, atomic structure, atomic number, atomic mass, quantum numbers, electronic configuration,   |
| <b>Unit-2</b>  | Periodic properties of elements, State of Matter, their resources. Important periodic properties of the elements, covalent radii, ionic radii, ionization potential, electron affinity and electronegativity |
| <b>Unit-3</b>  | Concepts of Acids and Bases: Review of acid base concepts. Lux-Flood and solvent system concepts. Hard-soft acids and bases. Applications.   |
| <b>Unit-4</b>  | Solutions: Concentration units, solutions of liquids in liquids, Raoult's law, ideal and non-ideal solutions.  |

| <b>Block-2</b> | <b>Title: Bonding and molecular structure</b>  |
|----------------|--|
| <b>Unit-5</b>  | Calcification of matter: (elements, compounds, substance and mixture), The three states of matter, physical and chemical properties of matter, fundamental |

|               |   |
|---------------|---|
|               | particles of atoms, atomic number, atomic mass, atomic structure of atom<br>molecular formula, empirical formula, molecular mass.   |
| <b>Unit-6</b> | acids and ionic compounds, properties of ionic compounds, formation of ionic<br>compounds, covalent compounds, properties of covalent compounds, properties<br>of covalent compounds  |
| <b>Unit-7</b> | metals, properties of metals, theory of metallic bond formation, types of metals<br>conductor, semiconductor and insulators, n-type semiconductors and p-type<br>semiconductors, alloys and superconducting materials.  |
| <b>Unit-8</b> | acids and bases, general properties of acid and bases, Acid base reactions,<br>oxidation reduction reactions, oxidation number, types of redox reactions,<br>balancing oxidation-reduction equation, exothermic and endothermic reactions<br>energy change in chemical reactions. |

## **DEPARTMENT : CLINICAL NUTRITION AND DIETETICS**

### **OEL-1: HEALTHY LIFESTYLES AND NUTRITION**

**3 Credits**

#### **BLOCK 1: INTRODUCTION TO FOOD AND NUTRITION**

**Unit 1.-** Factors affecting food habits, choices and dietary patterns – Definition of Food, Nutrition, Health, Fitness. Interrelationship between nutrition and health, concept of a desirable diet for optimum nutrition, health and fitness.

**Unit 2.-** A brief review of nutrients in general –

- Energy and macronutrients – Carbohydrates, Protein, Fat - functions, sources deficiency disorders and recommended intakes.
- Micronutrients: Minerals – calcium, Iron, Iodine, and other elements, Vitamins – Fat Soluble & Water Soluble.

**Unit 3:** Nutritional assessment- Anthropometric, biochemical, clinical, dietary and Biochemical assessments

**Unit 4:** Basic principles of planning diet –, RDA for Indians, Food groups, Dietary guides and balanced diets.

#### **BLOCK 2: PLANNING OF DIET**

**Unit 5:** Principles of planning a normal diet: characteristics of a normal diet, meeting nutrient requirements of individuals and family. Use of Dietary guidelines for Indians.

**Unit 6:** Objectives of diet therapy- Regular diet and rationale for modifications in energy and other nutrients, texture, fluid, soft diets etc.

**Unit 7:** Role of dietician in hospital- specific functions, team approach in patient care, psychological consideration, interpersonal relationship with patients. Nutrition and medical ethics.

Hospital dietary- scope and importance, types of food service, quality management.

**Unit 8:** Nutrition counseling: definition, concept, role of clinical dietician, the recipient and counseling environment and goals of counseling. An overview of systems approach to nutritional care and its components (planning, implementation and evaluation).

## REFERENCES

- Srilakshmi B (2004) Nutrition Science. New Age International (P) Ltd, Publishers.
- Kango M (2005) Normal Nutrition, Curing diseases through diet. First Edition CBS Publications. Paul S (2003) Text Book of Bio-Nutrition, Fundamental and Management. RBSA Publishers.
- Williams SR (2000) Nutrition and Diet Therapy. Sixth Edition C.V. Melskey Co.
- Mudambi SR and Rajagopal MV (1997) Fundamentals of Foods and Nutrition. New Age International (P) Ltd, Publishers.
- Swaminathan M (1999) Essential of Food and Nutrition. Vol I and II, Bappco publications, Madras.
- Corinne, H. Robinson 2010– “Normal and Therapeutic nutrition”, Oxford and IBH publishing company, Bombay.
- B. Srilakshmi – 2012 “Dietetics”, 4th edition, New age international publisher, Chennai

## DEPARTMENT - COMPUTER SCIENCE

### ELMCS-01 Mobile App Development: Credit 2

#### Block – I

**Unit-1:** Introduction to Mobile Computing: applications, a simplified reference model, Wireless Transmission:

**Unit-2:** Frequencies of radio transmission, signals, antennas, signal propagation, multiplexing, modulation, spread spectrum, cellular system.

**Unit-3** Media Access Control: motivation for a specialized MAC, SDMA, FDMA, TDMA, CDMA, and Comparisons.

**Unit-4:** GSM, DECT, Wireless LAN: Infrared vs. radio transmission, Infrastructure and ad-hoc networks, IEEE 802.11, HPERLAN, Bluetooth.

#### Block – II

**Unit-5:** Mobile Network Layer: mobile IP, dynamic host configuration protocol,

**Unit-6:** ad-hoc networks. Mobile Transport Layer: Traditional TCP, classical TCP improvements,

**Unit-7:** TCP over 2.5/3G wireless networks. File Systems, World Wide Web,

**Unit-8:** Wireless Application Protocol (WAP) and WAP 2.0.

#### Text book:

1. Jochen H. Schiller, Mobile Communications(2e)

#### Reference

1. Raj Kamal, Mobile Computing
2. Asoke K. Talukder, Roopa R. Yavagal, Mobile Computing

3. Mazliza Othman, Principles of Mobile Computing and Communications
4. Prasant Kumar Pattnaik, Rajib Mall, Fundamentals of Mobile Computing
5. Ivan Stojmenovic, Handbook of Wireless Networks and Mobile Computer
6. David Taniar, Mobile Computing Concepts, Methodologies, Tools, and Applications

## **DEPARTMENT - ENVIRONMENTAL SCIENCE**

### **ESOEL-1: Basics of Environmental Science**

#### **Block I: Ecology and Environment**

**Unit 1:** Definition, Principles and Scope. Biotic and abiotic factors of environment. Ecosystems: pond, forest, river, grassland and estuary ecosystems

**Unit 2:** Ecosystem – trophic structure, energy flow, food chain, food web, Ecological pyramids.

**Unit 3:** Population dynamics: Definition, population density, Natality, Mortality, Age structure, Growth pattern, population dispersion.

**Unit 4:** Biogeochemical cycle – types, sedimentary and gaseous cycles, N, C, S, P, O cycles. Rock and hydrological cycles.

#### **Block II: Biodiversity and Conservation**

**Unit 5:** Biodiversity, Definition, Types of Biodiversity, importance and roles.

**Unit 6:** Needs and benefits of biodiversity, Loss of biodiversity- causes and consequences, Need for conservation of biodiversity

**Unit 7:** Conservation strategies, endemic and exotic species, Red Data book, National parks, wildlife sanctuaries, biosphere reserves, biodiversity hotspots, wildlife protection act, biodiversity act, wetland conservation and management, Hotspots of biodiversity.

**Unit 8:** Project Tiger, Project elephant, Ramsar site and other conservation projects. Experts Committee Reports on Environmental conservation

## **DEPARTMENT -MATHEMATICS**

### **ELMM –01 - FUNDAMENTALS OF MATHEMATICS**

**(2 Credits)**

**Block-I:** Number Theory: Natural numbers, integers, Real numbers, GCD, LCM, Prime numbers. Surds, Indices, Logarithms, Progressions, Arithmetic Progression, Geometric Progression, Harmonic Progression,

**Block-II:** Set Theory: Operations of Union, Intersection, Complementation. Relations & Functions: Types of relations One-one, onto, Many-one functions, graphs of functions.

Mathematical Logic: Propositions, logical connectives, Methods of proofs.

#### **Books for Reference:**

1. Kolman and Busby: Discrete Mathematics, PHI.
2. S. L. Loney: The Elements of Coordinate Geometry, London Macmillan & Co.
3. B. S. Grewal: Higher Engineering Mathematics, 36<sup>th</sup> Ed., Khanna Pub.
4. S. Lipschutz and M. Lipson: Theory and Problems of Discrete Mathematics. Schaum Series. 2nd Ed. Tata McGraw Hill.



# DEPARTMENT - MICRO BIOLOGY

## Microbial World and Microbial Diversity

- i. Introduction to microbial world, Physiochemical and biological characteristics; Characteristics of Acellular microorganisms (Viruses); Baltimore classification, general structure with special reference to viroids and prions.
- ii. Binomial Nomenclature, Whittaker's five kingdom and Carl Woese's three kingdom classification systems and their utility.
- iii. Difference between prokaryotic and eukaryotic microorganisms
- i. General characteristics of Cellular microorganisms, types - archaebacteria, eubacteria, wall-less forms - MLO (mycoplasma and spheroplasts) with emphasis on distribution and occurrence, morphology, mode of reproduction and economic importance.
- ii. Structure, reproduction and economic importance of Mycoplasma.
- i. General concept of Phytoplanktons and Zooplanktons. Characteristics, occurrence, thallus organization and classification of Algae.
- ii. Cyanobacteria - occurrence, thallus organization, cell ultra structure, reproduction and economic importance. Applications of algae in agriculture, industry, environment and food.
- i. Historical developments in the field of Mycology including significant contributions of eminent mycologists.
- ii. General characteristics of fungi including habitat, distribution, nutritional requirements, fungal cell ultra- structure, thallus organization and aggregation, mode of reproduction and
- iii. Economic importance of fungi with examples in agriculture, environment, Industry, medicine and food.
- i. General characteristics, structure, mode of reproduction and economic importance of Actinomycetes with special reference to its application in medicine and industry.
- ii. General characteristics, occurrence, classification structure, reproduction and economic importance of Protozoa.

## References:

1. Singh, R.P. General Microbiology. Kalyani Publishers, New Delhi (2007).
2. Aneja, K.R. Experiments in Microbiology, Plant pathology and Biotechnology, Fourth edition, New Age International publishers.
3. Dubey, R.C. and Maheshwary, D.K. Text book of Microbiology. S. Chand and company (1999).
4. Powar, C.B. and Dagainawal, H.F. General Microbiology. Vol-I and Vol- II, Himalaya Publishing House.
5. Chakraborty P. A Textbook Of Microbiology. New central book Agency (2005).
6. Prescott, M.J., Harley, J.P. and Klein, D.A. Microbiology. 5th Edition WCB Mc Graw Hill, New York, (2002).
7. Tortora, G.J., Funke, B.R. and Case, C.L. Microbiology: An Introduction. Pearson Education, Singapore, (2004).
8. Alcom, I.E. Fundamentals of Microbiology. VI Edition, Jones and Bartlett Publishers. Sudbury. Massachusetts, (2001).
9. Black J.G. Microbiology-Principles and Explorations. John Wiley & Sons Inc. New York, (2002).
10. Pelczar, M.J. Chan ECS and Krieg NR, Microbiology McGraw-Hill.
11. Willey, Sherwood, Woolverton. Prescott, Harley, and Klein's Microbiology McGraw-Hill publication
12. Tortora, Funke, Case. Microbiology. Pearson Benjamin Cummings.
13. JACQUELYN G. BLACK. Microbiology Principles and explorations. JOHN WILEY & SONS, INC.

14. Madigan, Martinko, Bender, Buckley, Stahl. Brock Biology of Microorganisms. Pearson  
15. Tom Besty, D.C Jim Koegh. Microbiology Demystified Mc GRAW-HILL.

## DEPARTMENT -PHYSICS

### MP-EL1: Mechanics

#### BLOCK-A

- Unit-1: Laws of Motion:** Frames of reference, Newton's Laws of motion, Dynamics of a system of particles, Centre of Mass.
- Unit-2: Momentum and Energy:** Conservation of momentum, Work and energy, Conservation of energy, Motion of rockets.
- Unit-3: Rotational Motion:** Angular velocity and angular momentum, Torque, Conservation of angular momentum.
- Unit-4: Gravitation:** Kepler's Laws (statement only), Newton's Law of gravitation, motion of a particle in a central force field, satellite in circular orbit and applications, geosynchronous orbits, weightlessness, basic idea of global positioning system (GPS).

#### BLOCK-B:

- Unit-5: Oscillations:** Simple harmonic motion, differential equation of SHM and its solutions, kinetic and potential energy, total energy and their time averages, damped oscillations.
- Unit-6: Elasticity-1:** Hooke's law, stress-strain diagram, elastic moduli-relation between elastic constants, Poisson's ratio, expression for Poisson's ratio in terms of elastic constants, work done in stretching and work done in twisting a wire.
- Unit-7: Elasticity-2:** Twisting couple on a cylinder - determination of rigidity modulus by static torsion, torsional pendulum-determination of rigidity modulus and moment of inertia -  $q, \eta$  and  $\lambda$  by Searles method.
- Unit-8: Special Theory of Relativity:** constancy of speed of light, postulates of special theory of relativity, length contraction, time dilation.

## DEPARTMENT -PSYCHOLOGY

### EL-1 Introduction to Psychology 2 Credits

#### Block 1: Introduction to Psychology-I

- Unit 1:** Introducing Psychology -Definition, Scope, and goals
- Unit 2:** Branches of Psychology
- Unit 3:** Motivation
- Unit 4:** Emotions

#### Block 2: Introduction to Psychology-II

- Unit 5:** Sensation, Attention and Perception
- Unit 6:** Learning, Memory and Forgetting

**Unit 7:** Intelligence

**Unit 8:** Personality

**References:**

1. Charles G. Morris, Albert A. Maisto Psychology an Introduction , Prentice Hall. New Jersey.
2. Feldman, A. R., Understanding Psychology IV th Ed, 1996, McGraw Hill, New Delhi.
3. Morgan, King, Weisz & Schopler, Introduction to Psychology-V11 Ed, 1993, Tata McGraw Hill, New Delhi.
4. Ernest R Hilgard, Richard C Atkinson , Rita L Atkinson Introduction to Psychology Oxford Publication, New Delhi.

## **DEPARTMENT : INFORMATION TECHNOLOGY**

### **ELMIT –01: Green Computing**

**(2 Credits)**

**Course Objective:** Study the concepts related to Green IT, Green devices and hardware along with software methods, green enterprise activities, managing the green IT and various laws, standards, protocols along with outlook of green IT.

#### **BLOCK 1: Overview of Green Computing**

**Unit 1:** Green IT Introduction, Overview and issues, Initiatives and standards, Pathways of Green computing, Benefits of Green IT, Environmental Impacts of IT

**Unit 2: Green devices and hardware** Environmental issues arising from electronic devices, life cycle of electronic devices, Hazards and E-waste Recycling, Going paperless, Hardware considerations, Greening information systems, Managing Green IT, 3Rs of Green IT, Thinking About Money-Saving Efforts

**Unit 3:** Green Data Centres and Associated Energy Challenges, Data Centre IT Infrastructure, Data Centre Facility Infrastructure: Implications for Energy Efficiency, IT Infrastructure Management, Green Data Storage, Storage Media Power Characteristics,

**Unit 4:** Green network and communications, objectives and challenges of green networking, Enterprise Green IT strategy, Approaching Green IT strategies, Business drivers and dimensions for Green IT strategies, Steps in Developing a Green IT Strategy, Metrics and Measurements in Green Strategies

#### **BLOCK 2: Management of Green Computing**

**Unit 5:** Sustainable Information Systems and Green Metrics, Sustainable IT Services, Sustainable IT Roadmap, Enterprise, Green IT Readiness, Readiness and Capability

Green Enterprises and the Role of IT, Organizational and Enterprise Greening, Information Systems in Greening Enterprises, Greening the Enterprise: IT Usage and Hardware,

**Unit 6:** Managing Green IT, Strategizing Green Initiatives, Implementation of Green IT, Regulating Green IT: Laws, Standards and Protocols,

**Unit 7:** Green Cloud Computing and Environmental Sustainability, Cloud Computing and Energy Usage Model: A Typical Example, Features of Clouds Enabling Green Computing, Green Cloud Architecture

**Unit 8:** Green IT: An Outlook, Awareness to Implementation, Green IT Trends, Greening by IT, A Seven-Step Approach to Creating Green IT Strategy

**Text Books:**

1. Gangadharan, G. R., & Murugesan, S. (2012). *Harnessing Green IT: Principles and practices*. Wiley Publication, ISBN: 9788126539680.
2. Smith, B. E. (2013). *Green Computing: Tools and Techniques for Saving Energy, Money, and Resources*. CRC Press.

## **DEPARTMENT -BOTANY**

### **Plant-Microbe Interactions**

Overview of plant microbes interactions,

Introduction, beneficial microbes, Rhizobium bacterium and nitrogen fixation, mycorrhizal fungi.

Plant pathogens, Agrobacterium tumefaciens and crown gall disease,

Mechanisms of plant disease mechanism, some bacterial plant diseases,

Plant viruses and mechanism of plant against viruses attacks.

Fungal pathogen- mechanism of plant disease,

Oomycete pathogens, Fungal mediated plant.

General concept of plant immunity,

PAMP-triggered immunity (PTI) and effectors-triggered immunity (ETI).

Transcription activator like effector and their role in virulence and disease resistance.

### **References**

1. Lautenberg, B. (2015). *Principles of Plant-Microbes Interactions: Microbes for sustainable Agriculture*, Springer.
2. Stacey, G. and Keen, N. T. (1997). *Plant-Microbes Interactions*, Vol 4, . Springer.
3. Ramasamy, K, (2015). *Plant Microbes Interactions*, New India Publishing Agency.
4. Martin, F. and Kamoun, S. (2014). *Effectors in Plant-Microbes Interactions* 1st Edition, Wiley Blackwell.

## **DEPARTMENT -ZOOLOGY**

### **MZO-IE-1: Parasites, Vectors & Communicable Diseases**

#### **Introduction to parasites.**

Distribution, types, origin and evolution of parasites. Parasitism.

Types: Ecto-parasites, Endo-parasites and their adaptations.

Pathogenic micro-organisms, brief outline and classification of parasitic protozoan's: Entamoeba, Balantidium, Giardia, Trichomonus, Plasmodium, Leishmania and Trypanosoma and their diseases.

Control measures, diagnosis and therapy.

#### **Pathogenic helminthes and vectors.**

Etiology, epidemiology, pathogenesis, diagnosis, prevention and control of disease due to *Trichinella spiralis*, *Ancylostoma duodenale*, *Fasciola hepatica*, Schistosoma species.

Pathogenic Cestodes: Life cycle, treatment of diseases caused by Echinococcus, Hymenolepis and Diphyllbothrium. Scope and importance of vectors. Origin and evolution of vectors. Habitat, life cycle, pathogenicity of fleas, mites, ticks, lice's and mosquitoes.

Historical perspectives and scientists involved in the discovery of vectors and communicable Diseases.

Epidemiology, bio-ecology, life cycle of biological and mechanical Vectors. Vector-host-parasites interactions, Host-pathogen interaction, insects transmitting Bacteria and viruses.

#### **Control and management of vectors and vector borne diseases**

Control measures: cultural, chemical, biological, genetic and environmental Methods of vectors.

Management of biological and mechanical vectors during Different seasons. Integrated Vector Control and Management.

Insecticide resistance in vectors, Drug resistance in pathogens.

Importance of education, awareness among public on communicable diseases and community participation. Covid-19 pandemics. Epidemiology of corona virus and its mutants. Vaccination against corona virus in India and other parts of the world.

## **DEPARTMENT –FOOD AND NUTRITION SCIENCE**

### **ELMFNS- 01 FOOD PSYCHOLOGY**

**Credits: 2**

#### **BLOCK 1: FOOD: PREFERENCES AND CHOICES**

**Unit 1: Food:** Physiological definition and significance, meaning of food, food classification, Food as statement of self-identity, Social interaction, Cultural identity

**Unit 2: The Role of Food and Eating on Personality and Social Development:** Psychology of eating, Food and emotion regulation, Food in daily living, Food Socialization, Food and control of others

**Unit 3: Food Preferences and Fluctuations:** Developmental Models, Cognitive Models & Psychophysiological Models, Physiology of food choice, Likes and Dislikes, acquired food preferences, Attitudes towards change, Food and sensory stimulus, Factors influencing eating behavior – (biological, environmental, individual, food characteristics, culture etc., Effect of eating on food selection and preferences, Understanding of the body and self – selection of the diet.

**Unit 4: Food choices across lifespan and influence of society:** The changing role of the senses in food choice and food intake across lifespan, Food in security and health across lifespan, Influence of media and advertisements, Digital platform and influence on food choices

#### **BLOCK 2: EATING DISORDERS AND TREATMENTS**

**Unit 5: Mood, Emotions, food cravings and addictions:** relation with food preferences, Connection between mood and eating, Biological and physiological aspects of food cravings, Stress and eating behavior, Food addiction - description, neurobiology of food addiction

**Unit 6: Eating disorders and treatment:** Anorexia nervosa, Bulimia nervosa and binge eating Disorder- Definition, Symptoms, believed causes, Classification, Risk factors, Common myths of eating disorders, Treatment & dietary management

**Unit 7: Overeating, Obesity and Weight management:** Definition, Prevalence, Classification of Body Mass Index, Types & patterns, Etiology, Physiological component, Fad diets, Risk factors, Treatment - Weight management (Behavior & Cognitive), Lifestyle modifications, Dietary modification - (calorie restricted diet)

**Unit 8: You are what you eat- Approaches to change the dietary behavior:** Multidisciplinary approach, Strategies to support healthy dietary behavior: Encouraging healthy eating, Selection of food, Meal & portion size, developing education materials, Motivation & economics, Benefits of exercise, Stage classification for change, Barriers affecting the clinical outcome

## REFERENCES:

1. [Smith John L.](#) (2002 ), The Psychology of Food and Eating (English, Hardcover, Smith John , Publisher: Palgrave MacmillanL.), ISBN: 9780333800201, 0333800206.  
Alexandra W. LogueOct 2017, The Psychology of Eating and Drinking Fourth Edition.

## Annexure II

### INTER- DISCIPLINARY COURSE

(Open Elective) for Second Semester

### ವಿಭಾಗ- ಕನ್ನಡ

ಪತ್ರಿಕೆ-೬: ಪ್ರಾಚೀನ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಇತಿಹಾಸ

EL-2.1 (ಕ್ರೆಡಿಟ್-೨)

ಬ್ಲಾಕ್-೩೮: ಸಾಹಿತ್ಯ ಚರಿತ್ರೆಯ ಉಗಮ ಮತ್ತು ವಿಕಾಸ

ಘಟಕ-೧೪೯: ಸಾಹಿತ್ಯದ ಉಗಮ, ಬೆಳವಣಿಗೆ, ಉದ್ದೇಶ.

ಘಟಕ-೧೫೦: ಪ್ರಾಚೀನ ಪೂರ್ವ ಶಾಸನಸಾಹಿತ್ಯ.

ಘಟಕ-೧೫೧: ಪಂಪ ಪೂರ್ವ ಯುಗದ ಸಾಹಿತ್ಯ.

ಘಟಕ-೧೫೨: ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆಯ ವಿಭಾಗಕ್ರಮ.

ಬ್ಲಾಕ್-೩೯: ಪ್ರಾಚೀನ ಕನ್ನಡ ಸಾಹಿತ್ಯ

ಘಟಕ-೧೫೩: ಪ್ರಾಚೀನ ಕನ್ನಡ ಸಾಹಿತ್ಯ ರೂಪಗಳು; ಚಂಪೂ, ವಚನ, ರಗಳೆ, ಷಟ್ಪದಿ, ಸಾಂಗತ್ಯ ಇತ್ಯಾದಿ.

ಘಟಕ-೧೫೪: ಪ್ರಾಚೀನ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪರಿಕಲ್ಪನೆಗಳು;

ಚರಿತ್ರೆ-ಪುರಾಣ, ಧರ್ಮ-ಕಾವ್ಯಧರ್ಮ, ಹಿಂಸೆ-ಅಹಿಂಸೆ, ಮಾರ್ಗ-ದೇಶಿ, ಲೌಕಿಕ-ಆಗಮಿಕ, ವಸ್ತುಕ-ವರ್ಣಕ, ಪ್ರಭುತ್ವ-ಪ್ರತಿರೋಧ.

ಘಟಕ-೧೫೫: ಪ್ರಾಚೀನ ಕನ್ನಡ ಕವಿ-ಕೃತಿ-ಕಾಲ-ದೇಶ-ಭಾಗ ೧.

ಪಂಪ, ರನ್ನ, ಪೊನ್ನ, ೧ನೆ ಚಾವುಂಡರಾಯ, ನಾಗವರ್ಮ ೨ನೆಯ ಚಾವುಂಡರಾಯ, ನಾಗಚಂದ್ರ, ನಯಸೇನ, ದುರ್ಗಸಿಂಹ, ಬ್ರಹ್ಮಶಿವ, ಕರ್ಣಪಾರ್ಥ, ಜನ್ನ.

ಘಟಕ-೧೫೬: ಪ್ರಾಚೀನ ಕನ್ನಡ ಕವಿ-ಕೃತಿ-ಕಾಲ-ದೇಶ-ಭಾಗ ೨.

ಆಂಡಯ್ಯ, ನೇಮಿಚಂದ್ರ, ರುದ್ರಭಟ್ಟ ಪ್ರಮುಖ ವಚನಕಾರರು - ಜೇಡರ ದಾಸಿಮಯ್ಯ, ಬಸವಣ್ಣ, ಅಕ್ಕ ಮಹಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಚನ್ನಬಸವಣ್ಣ, ಹರಿಹರ, ರಾಘವಾಂಕ, ಕುಮಾರವ್ಯಾಸ, ಲಕ್ಷ್ಮೀಶ, ಪ್ರಮುಖ ಕೀರ್ತನಕಾರರು, ಚಾಮರಸ, ಕುಮಾರವಾಲ್ಮೀಕಿ, ಸರ್ವಜ್ಞ, ಷಡಕ್ಷರಿ, ಸಂಜಿ ಹೊನ್ನಮ್ಮ, ನಂಜುಂಡ, ರತ್ನಾಕರವರ್ಣಿ, ಮುದ್ದಣ, ಕೆಂಪುನಾರಾಯಣ.

### ಪರಾಮರ್ಶನ ಗ್ರಂಥಗಳು

೧. ಗತಿಬಿಂಬ : ಜಿ.ಎಸ್. ಶಿವರುದ್ರಪ್ಪ, ಬೆಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಬೆಂಗಳೂರು

೨. ಕಾವ್ಯ ವಿಹಾರ : ಕುವೆಂಪು, ಉದಯರವಿ ಪ್ರಕಾಶನ, ಮೈಸೂರು, ೧೯೬೯
೩. ಸಮಗ್ರ ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ : ಬೆಂಗಳೂರು, ವಿಶ್ವವಿದ್ಯಾನಿಲಯ ಬೆಂಗಳೂರು, ೨೦೦೨
೪. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ : ಕೆ. ವೆಂಕಟರಾಮಪ್ಪ, ಪ್ರಸಾರಾಂಗ, ಮೈಸೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಮೈಸೂರು
೫. ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ: ದೇವುಡು, ಶಾರದಾ ಪ್ರಕಾಶನ, ಮೈಸೂರು, ೧೯೩೫
೬. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಸಂಗಾತಿ : ಕೀರ್ತಿನಾಥ ಕುರ್ತಕೋಟಿ, ಮನೋಹರ ಗ್ರಂಥಮಾಲೆ, ಧಾರವಾಡ
೭. ಶೈಲಿ : ಎಸ್.ವಿ.ರಂಗಣ್ಣ, ಮೈಸೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಮೈಸೂರು, ೧೯೭೬
೮. ಶತಮಾನದ ಕನ್ನಡ ಸಾಹಿತ್ಯ : ಸಂಪಾದಕರು, ಜಿ.ಎಸ್. ನಾಯಕ, ಕನ್ನಡ ಸಾಹಿತ್ಯ ಅಕಾಡೆಮಿ, ಬೆಂಗಳೂರು
೯. ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಇತಿಹಾಸ : ರಂ. ಶ್ರೀ. ಮುಗಳಿ, ಕೇಂದ್ರ ಸಾಹಿತ್ಯ ಅಕಾಡೆಮಿ, ನವದೆಹಲಿ, ೧೯೬೩
೧೦. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ : ರಂ.ಶ್ರೀ. ಮುಗಳಿ, ಉಷಾ ಸಾಹಿತ್ಯ ಮಾಲೆ, ಮೈಸೂರು, ೧೯೭೧
೧೧. ಬಿಂಬ: ಚದುರಂಗ, ಸಂವಹನ ಪ್ರಕಾಶನ, ಮೈಸೂರು
೧೨. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ ಸಂಪುಟಗಳು : ಕುವೆಂಪು ಕನ್ನಡ ಅಧ್ಯಯನ ಸಂಸ್ಥೆ, ಮೈಸೂರು. ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಮೈಸೂರು, ೧೯೮೨
೧೩. ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಾಚೀನತೆ: ಪ್ರಧಾನ ಸಂಪಾದಕರು, ಎ. ರಂಗಸ್ವಾಮಿ, ಲೇ. ಎಚ್.ಪಿ. ಗೀತಾ, ಜನಪ್ರಿಯ ಕನ್ನಡ ಮಾಲೆ, ಕನ್ನಡ ಅಧ್ಯಯನ ಮತ್ತು ಸಂಶೋಧನಾ ವಿಭಾಗ, ಕರಾಮುವಿ, ಮೈಸೂರು, ೨೦೧೧
೧೪. ಪ್ರಾಚೀನ ಕನ್ನಡ ಕಾವ್ಯ ಸ್ಥಿರತೆ ಮತ್ತು ಚಲನ ಶೀಲತೆ : ಪ್ರಧಾನ ಸಂಪಾದಕರು, ಎ. ರಂಗಸ್ವಾಮಿ, ಲೇ. ಶಿವರಾಮಯ್ಯ, ಜನಪ್ರಿಯ ಕನ್ನಡ ಮಾಲೆ, ಕನ್ನಡ ಅಧ್ಯಯನ ಮತ್ತು ಸಂಶೋಧನಾ ವಿಭಾಗ, ಕರಾಮುವಿ, ಮೈಸೂರು, ೨೦೧೨
೧೫. ಕನ್ನಡ ಕೈಪಿಡಿ: ಸಂಪುಟ ೨, ಪ್ರಸಾರಂಗ, ಮೈಸೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಮೈಸೂರು, ೨೦೦೭

## DEPARTMENT - ENGLISH

### EL-2.1: INDIAN LITERATURE-II

#### OBJECTIVES

- To appreciate artistic values in *Hayavadana* and the use of myth
- To know the importance of Indian English historical plays
- To appreciate Sri Aurobindo as a poet and critic
- To comprehend the different theories of aesthetic experience of art

#### BLOCK -I

**Girish Karnad:** Hayavadana

**Gurucharan Das:** Larin Sahib

#### BLOCK -II

**M. Hiriyanna:** Art Experience

**Sri Aurobindo:** Selections: The Poets of the Dawn and The Poets of the Dawn 3 (The Future Poetry)

#### Suggested Reading:

- **K.R.Srinivas Iyengar:** Indian Writing in English .Macmillan, 1979.
- **M.K.Naik:** Critical Essays on Indian Writing in English.Sahitya Akademi, 1969.
- **Narasimhaiah C.D:** The Swan and the Eagle. Indian Institute of Advanced Study, 1987.
- **Meenakshi Mukherjee:** The Twice Born Fiction. Heinemann Educational Publishers, 1972.

# DEPARTMENT - HINDI

## हिंदी सिनेमा

- सिनेमा का उद्भव और विकास
- मूक चलचित्र और दादा साहब फाल्के युग
- दूसरा पढ़ाव, सवाक चलचित्र अथवा आलमआरा
- रंगीन सिनेमा का युग
- सामाजिक सिनेमा एक विवेचन
- धर्म एवं सांस्कृतिक सिनेमा एक विवेचन
- राजनैतिक सिनेमा एक विवेचन
- आर्थिक सिनेमा एक विवेचन
- हास्य एवं व्यंग्य सिनेमा एक विवेचन
- बाल सिनेमा
- सिनेमा एवं संवेदना
- सिनेमा एवं भाषा-शिल्प सिनेमा एवं गायन
- सिनेमा एवं पात्र संयोजना
- सिनेमा एवं नैतिक मूल्य
- अनूदित सिनेमा
- सिनेमा का तुलनात्मक अध्ययन
- फिल्म समीक्षा.....आदि

□□□□□□ □□□□□□

- सिनेमा साहित्य और समाज- प्रहलाद अग्रवाल, अनामिका प्रकाशन, नई दिल्ली
- कथाकार कमलेश्वर और हिंदी सिनेमा- उज्ज्वल अग्रवाल, राजकमल प्रकाशन, नई दिल्ली
- बॉलिवुड पाठ विमर्श के संदर्भ- ललित जोशी, वाणी प्रकाशन, नई दिल्ली
- फलैशबैक, प्रभुनाथ आजमी, शिल्पायन, नई दिल्ली
- नाटक के सौ बरस, हरिश्चंद्र अग्रवाल और अजित पुष्कल, शिल्पायन, नई दिल्ली

# DEPARTMENT - TELUGU

## **E. L. 2.1 TELUGU SAMSKRUTHI - SAMAJAM**

### **Block - 1: ANDHRULA CHARITHRA - SAMSKRUTHI**

Unit - 1:Samskruthi Vaisistyam

Unit - 2:Andhrula Charithra - Samskruthi Paraspara Prabhavam

Unit - 3:Andhrula kalalu

Unit - 4: Andhrula basha - samajam



## **Block - 2: ANDHRULA AACHARALU -SAMPRADHAYALU**

Unit - 1:Andhrula Pandugalu

Unit - 2: Sthrela Nomulu - Vrathalu

Unit - 3: Andhrula Sangikaacharalu

Unit - 4: Andhrula Sampradhayalu

## **DEPARTMENT - HISTORY**

### **OEL2.1 Social Reform Movements in Modern India**

**Objective:** The course is aims to trace the causes for the division of society in various sections and need for reformation. Further it explains age old social evils which crippled Indian society.

**Pedagogy:** personal contact programmes, audio video programmes, online lectures  
Assignments, etc

**Credits:** 2. **Examination Duration:** 1 1/2 hours and Maximum Marks: 40

#### **Course outcomes**

After completing this course the students should be able to

- Understanding the contributions of the Raja ram Mohan Roy Dayananda Sarawathi towards the Indian modernity
- Analyse the Jyothibai pule Savithribai Pule Ambedkar's contributions to Indian social reform movements
- Evalute the works of Sahu Maharaj and Krishna raja wadiyar IV patronage to social Justice.

#### **Block-I**

##### **Unit : 1**

Colonial Discovery of India : Orientalism, Anglicism, Evangelism-Understanding Indian Society, Meaning of Social Reform. The Concept of Modernity : Western Impact – Indian Response.

##### **Unit : 2**

Rajaram Mohan Roy and Brahmo Samaj, Dayananda Sarawathi and Arya Samaj-Nationalism and Society – Prarthana Samaj.

##### **Unit : 3**

Jyothi Ba- Phle and Savithri Ba Pule, Social and education reforms.

##### **Unit : 4**

Communalism, Eradication of Communalism, Muslim League, Wahhabi and Pan Islamism-Syed Ahmed and Aligarh Movement.

#### **Block-II**

##### **Unit : 5**

The debate over the interpretation of Shastras – Ishwar Chandra Vidya Sagar - B.M.Malabari – Vivekananda –M.G. Ranade—Bal Gangadhar Tilak.

##### **Unit :6**

Dr. B.R.Ambedkar-, His views on Society, A caste and its annihilation, Religion and Economy, M.K.Gandhi- E.V.Ramswamy Periyar and Sri.Narayangu, Ayyan kali.

##### **Unit :7**

The reformers – Kandukuri Veereshalingam – Pandit Shivanatha Shastri – Gopal Ganesh Agarkar- K.T.Telang-Maharma.

##### **Unit :8**

D.K.Karve, Maharaj Saiyyaji Rao Gaekwad of Baroda – Chatrapathi Shahu Maharaj of Kolhapur and Maharaja Krishnaraja Wodeyar IV of Mysore.

**Suggested readings:**

1. Nararajan : A Century of Social Reform in Indian.
2. Seetharam Singh : Nationalism and Social Reform in India
3. Dhananjaya Keer : Ambedkar, Life and Mission
4. Dhananjaya Keer : Mahatma Jyoti Rao Phule : Father of Social Revolution in India
5. Charless Heimsath R : Indian Nationalism and Hindu social Reform
6. A.S.Altekar : Position of Women In Hindu Civilization.
7. Gail Omvedt : Cultural Revolt in a Colonial Society – The Non – Brahmin Movements in Western India.
8. Gail Omvedt : Dalits and Democratic Revolution.
9. Ravindrakumar : Selected Documents of B.G.Tilak.
10. S. Ramkrishna : Social Reform Movements in Andhra
11. M.K.Gandhi : Women and Social Injustice.

ವಿಜಯ ಪೊಣಚ್ಚು ತಂಬಂಡ (ಸಂ), ಭಾರತ ಉಪಖಂಡದ ಆಧುನಿಕ ಪೂರ್ವ ಚರಿತ್ರೆ ವಿವಿಧ ಆಯಾಮಗಳು – ಸಂಪುಟ-03, ಪ್ರಸಾರಾಂಗ, ಕನ್ನಡ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಹಂಪಿ.

## **DEPARTMENT - ECONOMICS**

### **EL2.1: Institutions for International Development**

- **Objective:** To enable the Students to understand the need and importance of various International Institutions.
- **Pedagogy:** A Combination of Lectures, Group Discussion, Assignments.
- **Credits:** 2 ; Examination Duration: 1½ and Maximum Marks: 50 (Internal Assessment Marks = 10 and Semester-end Examination =40)

### **Course Inputs**

#### **Block – I                      Economic Issues at Global and National Level**

##### **Unit – 1                      Globalisation**

Globalisation – Forces Driving Globalisation – Income Inequality – National Integrity – Impact on Labour – Multinational corporations – Global Business Environment – National Business Environment.

##### **Unit – 2                      Legal Issues of Business at Global and National Level**

Political Risks – Legal System – Business Ethics – Centrally Planned Economy – Mixed Economy – Market Economy – Human Development

##### **Unit – 3                      International Trade**

Importance – Volume – Direction – Composition – Trends – Theories of Trade - Mercantilism – Absolute Advantage – Comparative Advantage – International Product Life Cycle – Political, Economic and Cultural Motives behind Government Intervention.

##### **Unit – 4                      GATT and WTO**

Importance – objectives – Functions - GATT and W.T.O – India and WTO.

**Block – II      Economic Integration and International Business Issues**

**Unit – 5      Regional Economic Integration**

Meaning – Effects – Integration in Europe: European Union – Integration in Americas : North American Free Trade Agreement (NAFTA) – Latin American Integration Association (LAIA) – Free Trade Area of Americas (FTAA) and Transatlantic Economic Partnership.

**Unit – 6      Integration in Asia**

Association of Southern East Asian Nations (ASEAN) - Asia Pacific Economic Cooperation (APEC) – Integration in middle East : Gulf Cooperation Council (GCC) – BRICS – SAARC.

**Unit – 7      International Financial Markets**

International capital markets – Foreign Exchange markets – Currency Convertibility – International Monetary System.

**Unit – 8      Issues in International Business**

Trade War – Balance of Payment – Terrorism – Oil Crisis – Smuggling – Dumping – Environmental Degradation – Exhibit of Nuclear power – Covid 19 and other pandemics.

**References:**

01. Apte A.N. (2011) International Financial Management, Tata McGraw Hill Pub., Co. Ltd., New Delhi.
02. Bhambari C.P, (1980) The World Bank and India, Vikas Publishing House, New Delhi.
03. International Development Association, Annual Reports.
04. International Finance Corporation, Annual Reports.
05. International Monetary Fund, Annual Reports.
06. World Bank, (1995) The Evolving Role of the World Bank in the First Half Century, Washington D.C.
07. World Bank, World Bank in India, Washington, D.C. USA
08. World Bank, World Development Reports, and Annual Reports.  
Palle Krishna Rao, (2005) WTO, Text and Cases, PSG Excel Series, New Delhi.

## **DEPARTMENT - POLITICAL SCIENCE**

### **(OEL-I) Indian Constitution**

#### **Block-I**

- Unit:1      Framing of the Indian Constitution.  
Unit:2      Preamble and Salient Features of the Indian Constitution.  
Unit:3      Fundamental Rights and Duties.  
Unit:4      Directive Principles of the State Policy.

#### **Block-II**

- Unit:5      Union Legislature : Composition, Powers and Functions.  
Unit:6      Union Executive : President and Vice-President - Election, Powers and Functions, Prime ministers and Council of Minister - Powers and Functions.  
Unit:7      State Legislature : Composition, Powers and Functions, State Executive -Governor and Chief Minister.  
Unit:8      The Judiciary : Supreme Court and High Court - Composition, Jurisdiction and Functions.

## References:

1. Andre Beteille, 1965. Caste, class, and Power. Berkley: University of California Press.
2. Appadorai, A 1968. India: Studies In Social And Political Development 1947-1967. New Delhi: Aisa Publishing House.
3. Desai, A R. 2016. Social Background of Indian Nationalism. Los Angeles: Popular Prakashan.
4. Granville Austin, 2000. The Indian Constitution: Cornerstone of a Nation. Melbourne: Oxford University Press.
5. Hanson and Douglas, 1972. India's Democracy. New York city: W W Norton & Co Inc.
6. Johari J C 1974. Indian Government and Politics. New Delhi: Vishal Publications.
7. Karunakaran, K.P 1964. Continuity and Change in Indian Politics. New Delhi: People's Pub. House.
8. Kochanek. A. 1968. The Congress Party of India: the Dynamics of a One-Party Democracy. New Jersey: Princeton University Press.
9. Morris Jones, 1967. The Government and Politics of India. London: Hutchinson University Library.
10. Myron Weiner, 1957. Party Politics in India. New Jersey: Princeton University Press.
11. Myron Weiner, 1967. Party Building in New Nation. Chicago: University of Chicago Press.
12. Palmer, N D 1971. The Indian Political System. Boston: Houghton Mifflin.
13. Partha Chatterjee, 1998. State and Politics in India. University of Michigan: Oxford University Press.
14. Pylee, M V 1960. Constitutional government in India. Bombay: Asia Pub. House.
15. Rajni Kothari, 1970. Politics in India. The University Of Michigan: Little Brown
16. Rajni Kothari, 1995. Caste in Indian Politics. Telangana: Orient Blackswan.
17. Venkatarangaiya: M Shiviah, 1975. Indian Federalism. New Delhi: Arnold-heinemann Publishers.
18. Zoya Hasan, 2000. The State in Indian Politics. London: Sage publication.

## DEPARTMENT - SOCIOLOGY

### Study of Indian Society -02 Credits

#### Course Description

Every science has its own classical theories, which stand as eternal in their explanatory power and prowess to transcend the time and region. This course intends to introduce the learners to the classical period of sociology which is not just a bundle of theories but a consistent tradition and formative period, even contemporary theories cannot eschew from being inspired. After studying this course, following learning outcomes can be expected.

#### Course Objectives

1. To appreciate the organizational framework of Indian society
2. To appreciate the aspects unity and diversity of Indian society
3. Examine the social issues in contemporary India

#### Learning Outcomes

Following outcomes are expected from the learners after successfully completing the course. Learner can/has

LOC-1: sociological insights about the social structural and organizational aspects of Indian society

LOC-2: present the changes in institutional framework of Indian society

LOC-3: recognize the causes for major social issues and present realistic remedies

#### Course Content

##### Block-1 Social Organizations

Unit-1 Unity and Diversity-Problem of Integration

Unit-2 Caste-Characteristics and Recent Changes

Unit-3 Marginalization-SC, ST, OBC and Minorities

Unit-4 Changes in Family and Concerns of the Aged

**Block-2 Social Issues in Contemporary India**

Unit-5 Environmental Sanitation and Ecological Degradation

Unit-6 Educated Unemployment and Employability

Unit-7 Social Unrest-Terrorism, Naxalism, Communalism and Corruption

Unit-8 Child Rights and Right to Education (RTE)

**References**

- Ahuja, Ram. 2002. Study of Social Problems. Jaipur & New Delhi: Rawat Publications
- Atal, Yogesh. 1979. The Changing Frontiers of Caste. National Publishing House: Delhi
- Beteille, Andre. 1971. Caste, Class and power. Berkeley: University of California.
- Beteille, Andre. 1974. Social Inequality, New Delhi: Oxford University Press.
- Beteille, Andre. 1992. Backward Classes in Contemporary India. New Delhi: Oxford University Press.
- Berreman, G.D. 1979. Caste and Other Inequalities: Essays in Inequality. Meerut: Folklore Institute.
- Dube, Leela. 1997. Women and Kinship, Comparative Perspectives on Gender Southern South Asia.
- Das, Veena. 2006. Oxford Handbook of Indian Sociology. New Delhi: Sage
- Dube, S C. 1990. Study of Indian Society. New Delhi: National Book Trust
- Jha, Hetukar. 2015. Sanitation in India. Delhi: Gyan Books.
- Karve, Iravathi. 1990. Kinship Organization in India.
- Pais, Richard. 2015. Sociology of Sanitation. Delhi: Kalpaz Publications.
- Pathak, Bindeshwar. 2015. Sociology of Sanitation. Delhi: Kalpaz Publications.
- Singer, Milton & Cohen, Bernards. 1996. Structure and change in Indian Society. Jaipur: Rawat
- Singh, Yogendra, Modernization of Indian Tradition. Jaipur & New Delhi: Rawat
- Srinivas, M N. 1995. Social Change in Modern India: Orient Blackswan
- Srinivas, M. N. 1962. Caste in Modern India and Other Essays. Asia Publishing House: Delhi

## **DEPARTMENT – ANCIENT HISTORY AND ARCHEOLOGY**

AHA  
OE 2.1

### **Cultural History of Hoysalas (OE)**

**Block - 1**

**Early Kings**

Unit - 1 Archeological and Literary Sources

Unit - 2 Theories of Origin of Hoysalas – Sala – Nripakama – Ereyanga

**Block - 2**

**Important Rulers**

Unit - 3 Vishnuvardhana - VeeraNarasimha – I

|                  |   |
|------------------|---|
| Unit - 4         | Ballala – II - Narasimha – II - Narasimha III and Ballala – III |
| <b>Block - 3</b> | <b>Cultural Contributions</b>                                   |
| Unit - 5         | Hoysala polity - Economy  |
| Unit –6          | Hoysala Society – Religion – Education - literature             |
| <b>Block - 4</b> | <b>Art and Architecture</b>                                     |
| Unit - 7         | Hoysala Architecture  |
| Unit – 8         | Hoysala Art   |

## References:

1. Epigraphia Carnatica: Relevant Volumes
2. Derrett Duncan, M.J: The Hoysalas, 1957
3. Dhakey M.A: Encyclopedia of Indian Temple Architecture
4. Desai P.B: History of Karnataka
5. Foekema Gerard: A Complete Guide to Hoysala Temples
6. Gopinatha Rao T.A: Elements of Hindu Iconography, Vols
7. Kelleeson Collyer: The Hoysala Artists – Their Identity Style
8. Krishna Murthy M.S: The Hoysala Art, Kuppam, 2007
9. Padmnabha K: Hoysala Sculptures : A cultural Study
10. Sheik Ali B (Ed): The Hoysala Dynasty , 1972
11. William Cohelo: The Hoysala Vamsha, 1950
12. Annual Reports of the Department of Archaeology, Mysore 1939 – 46
13. Settar S: Hoysala Temples
14. Marg: In Praise of Hoysala Art
15. Narasimhachar R; Lakshmidēvi Temple at Doddagaddhavalī
16. Shastri KAN: The Cholas, 17. Shastri KAN: History of South India

**DEPARTMENT - EDUCATION**

## IDC - 2 HIGHER EDUCATION

## **BLOCK - 1 HIGHER EDUCATION – ORGANIZATION AND TEACHING – LEARNING**

## Unit-1 Higher Education

Unit-2 Teaching Learning in Higher Education – I

Unit-3 Teaching-Learning in Higher Education – II

## Unit-4 Problems and Innovations in Higher Education

## **BLOCK - 2 HIGHER EDUCATION – SOCIO-PSYCHOLOGICAL AND MANAGEMENT DIMENSIONS**

## Unit-5 Socio-Psychological Background of College Students

## Unit-6 Problems of College Students

## Unit-7 Higher Education – Management Dimensions

Unit-8 Higher Education Teacher

## References:

1. Shills Edward (1989) 'The modern university Liberal Democracy'.
2. Abraham, Abu (1988) The Penguin, Book of Indian cartoons, New Delhi.
3. Chandra, Bipan (1984) Communalism Modern India, New Delhi.
4. Chauhan S.S (1989) Innovations in Teaching Learning Process, New Delhi, Vikas.
5. Srivastva A.B and Sharma K.K (1985) Elementary Statistics in Psychology and Education, New Delhi, Sterling Publishers Pvt. Ltd.,

# DEPARTMENT - COMMERCE

## Elective Course – EL2.1: Entrepreneurship Development

- **Objective:** To enable the Students to understand about the different aspects of Entrepreneurship Development.
- **Pedagogy:** A Combination of Lectures, Group Discussion, Assignments.
- **Credits:** 2 ; Examination Duration: 1½ and Maximum Marks: 50 (Internal Assessment Marks = 10 and Semester-end Examination =40)

### Course Inputs

#### Block I

- **Unit -1: Entrepreneur and Entrepreneurship:** Introduction - Evolution – Characteristics – Distinction between Entrepreneur and Manager – Functions – Types – Entrepreneur - Concept of Entrepreneurship – Growth of Entrepreneurship in India – Role of Entrepreneurship in Economic Development
- **Unit – 2: Women Entrepreneurship:** Introduction - Concept – Statistical Evidence – New Age Women – Functions – Growth - Problems – Recent trends in Development of Women Entrepreneurship.
- **Unit -3: Rural Entrepreneurship:** Introduction - Meaning – Need – Rural Industrialisation in Retrospect – Problems – Development of Rural Entrepreneurship – NGOs and Rural Entrepreneurship.
- **Unit -4: Conceptual Models of Entrepreneurship:** Introduction - Models of John Kao – Uday Pareek and Nadakarni– NISIET.

#### Block II

- **Unit – 5: Factors Affecting Entrepreneurial Growth And Competencies:** Introduction - Economic Factors – Non-Economic Factor – Government Actions - Entrepreneurial Competencies: Meaning – Major Entrepreneurial Competencies – Developing Competencies.
- **Unit -6: Entrepreneurial Motivation and Mobility:** Introduction - Motivation – Motivation Theories – Motivating Factors – Achievement Motivation – Factors Influencing Mobility – Occupational Mobility – Locational Mobility.
- **Unit – 7: Entrepreneurship Development Programmes:** Introduction - Need for EDPs - Objectives of EDPs – Course Contents and Curriculum of EDPs – Phases of EDPs – Evaluation of EDPs.
- **Unit -8: Institutional Support System for Entrepreneurship:** Introduction - DICs – SISIs – SIDCOs – NISIET – EDIT – NIESBU – TCOs- A Broad Overview of Central and State Level Financing Institutions.

### Books Recommended for Reference

- a. Vasanth Desai, The Dynamics of Entrepreneurial Development and Management, Himalaya Publishing House.

- b. A. N Desai, Entrepreneurship Management, Ashish Publishing House.
- c. Chandra Prasanna, Project Preparation, Appraisal and Implementation, Tata McGraw Hill.
- d. Khanka, S.S, Entrepreneurial Development, S. Chand Publications.
- e. Prasanna Chandra, Projects: Planning, Analysis, Selection, Implementation and Review, Tata McGraw Hill.

## **DEPARTMENT - MANAGEMENT**

### **E-COMMERCE**

**Credits: 2**

#### **Module 1: E-commerce and its Technological Aspects:**

Overview of developments in Information Technology and Defining E-Commerce: The scope of E commerce, Electronic Market, Electronic Data Interchange, Internet Commerce, Benefits and limitations of E-Commerce, Produce a generic framework for E-Commerce, Architectural framework of Electronic Commerce, Web based E Commerce Architecture.

**Module 2: Electronic Data Interchange:** Benefits of EDI, EDI technology, EDI standards, EDI communications, EDI Implementation, EDI Agreements, EDI Security. Electronic Payment Systems, Need of Electronic Payment System: Study and examine the use of Electronic Payment system and the protocols used, Study Electronic Fund Transfer and secure electronic transaction protocol for credit card payment. Digital economy: Identify the methods of payments on the net – Electronic Cash, cheques and credit cards on the Internet.

#### **References:**

1. Elias. M. Awad, " Electronic Commerce", Prentice-Hall of India Pvt Ltd.
2. Ravi Kalakota, Andrew B. Whinston, "Electronic Commerce-A Manager's guide", Addison-Wesley.
3. Efraim Turban, Jae Lee, David King, H.Michael Chung, "Electronic Commerce–A Managerial Perspective", Addison-Wesley.
4. Elias M Award, "Electronic Commerce from Vision to Fulfilment", 3rd Edition, PHI, Judy Strauss, Adel El-Ansary, Raymond Frost, "E-Marketing", 3RDEdition, Pearson Education

## **DEPARTMENT - BIO CHEMISTRY**

### **Basics of Bioorganic chemistry for Biology graduates.**

Introduction to Organic chemistry: Classification of organic compounds, unique characteristics, IUPAC nomenclature of organic compounds (including bifunctional).

Reaction mechanisms: Classification of organic reactions: substitution, addition, elimination and rearrangement with one example for each. Concepts of the following – carbon anions, carbon cations, free radicals, carbenes, nucleophiles and electrophiles.

Cycloalkanes: Reactivities and relative stability, Bayer's strain theory. Sachse-Mohr theory. Boat and chair form of cycloalkanes. Axial and equatorial bonds.

Arenes: Structure of Benzene–resonance and molecular orbital theories. Aromaticity. Mechanism of Nitration and Friedel-Craft's reaction. Electronic interpretation of the orienting influence of substituents in the electrophilic substitution of Toluene, Chlorobenzene, Nitrobenzene and Phenol. Polynuclear hydrocarbons–Resonance structures of Naphthalene, Anthracene and phenanthrene.

S<sub>N</sub>1 and S<sub>N</sub>2 reactions, mechanism with an example for each. Concept of elimination reactions. Example –n-butyl chloride.



Alcohols: Classification, monohydric, alcohols-distinguishing reactions for primary, secondary and tertiary alcohols.

Trihydric alcohols: Glycerol, Properties, (KHSO<sub>4</sub>, HNO<sub>3</sub>, Oxalic acid and HI)

Phenols: Acidity of phenols, Effect of substitution on acidity

Stereochemistry: Stereoisomerism, types, Fischer-projection formulae, asymmetric carbon atom, molecular dissymmetry, chirality, optical isomerism: ex. Glyceraldehyde, Lactic acid, Tartaric acid. Nomenclature of enantiomers. D- and L- system, Racemisation and resolution.

Heterogeneous and Homogeneous hydrogenation of oils.

### **Selected References:**

1. Basic Principles of Organic Chemistry, Roberts and Caserio, W. A. Benjamin, Inc. (1964).
2. Organic Chemistry, Morrison and Boyd, Allyn and Bacon Inc (1992).
3. Principles of Inorganic chemistry by Cotton & Wilkinson, Wiley (1999).
4. Textbook of Organic chemistry by Ahluwalia V K & Madhuri G Narosa publications (2001).
5. Physical chemistry by Castellan G W, Narosa Publications (2004).
6. Physical chemistry by Chakraborty D K, Narosa Publications (2004).

## **DEPARTMENT - BIOTECHNOLOGY**

### **MBT EL-2 FUNDAMENTAL OF BIOTECHNOLOGY**

Scope and Introduction to Biotechnology History & Introduction to Biotechnology What is Biotechnology?

Definition of Biotechnology, Traditional and Modern Biotechnology, Branches of Biotechnology

Plant, Animal Biotechnology, Marine Biotechnology, Agriculture, Healthcare, Industrial Biotechnology, Pharmaceutical Biotechnology, Environmental Biotechnology.

Applications Biotechnology Applications of Biotechnology in Agriculture : GM Food, GM Papaya, GM Tomato, Fungal and Insect Resistant Plants BT Crops, BT Cotton and BT Brinjal Pros and Cons Biotechnological applications in Crop and Livestock Improvements Modifications in Plant Quality Golden Rice, Molecular Farming, Plant Based Vaccines Ethics in Biotechnology and IPR 15 lectures

Food and Fermentation Biotechnology Food Biotechnology Biotechnological applications in enhancement of Food Quality Unit Operation in Food Processing Quality Factors in Pre processed Food Deterioration and its Control Rheology of Food Products Microbial role in food products Yeast, Bacterial and other Microorganisms based process and products Fermentation Technology Definition, Applications of Fermentation Technology Microbial Fermentations Overview of Industrial Production of Chemicals (Acetic Acid, Citric Acid and Ethanol), Antibiotics, Enzymes and Beverages

Molecular Biology - Replication DNA Replication in Prokaryotes and Eukaryotes Semi-conservative DNA replication, DNA Polymerases and its role, E.coli Chromosome Replication, Bidirectional Replication of Circular DNA molecules. Rolling Circle Replication, DNA Replication in Eukaryotes DNA Recombination – Holliday Model for Recombination Transformation

Mutation and DNA Repair Definition and Types of Mutations. Mutagenesis and Mutagens. ( Examples of Physical, Chemical and Biological Mutagens) Types of Point Mutations, DNA REPAIR Photo reversal, Base Excision Repair, Nucleotide Excision Repair, Mismatch Repair, SOS Repair and Recombination Repair.

Genetic Engineering Experimental evidences for DNA and RNA as Genetic Material. Genetic Engineering in Ecoli and other Prokaryotes, Yeast, Fungi and Mammalian Cells Cloning Vectors-Plasmids ( pBR 322, pUC) Vectors for Plant and Animal Cells, Shuttle Vectors, YAC Vectors, Expression Vectors Enzymes-DNA Polymerases, Restriction Endonucleases, Ligases, Reverse Transcriptase's, Nucleases, Terminal Transferases, Phosphatases Isolation and Purification of DNA (Genomic, Plasmid) and RNA,, Identification

## DEPARTMENT - CHEMISTRY

|                |   |
|----------------|---|
| <b>Block-1</b> | <b>Title: Physical parameters of molecules</b>  |
| <b>Unit-1</b>  | Thermodynamics: First and second laws of thermodynamics. Concept of entropy and free energy, entropy as a measure of unavailable energy. Entropy and free energy changes and spontaneity of process.  |
| <b>Unit-2</b>  | Chemical kinetics: Rate and order of reaction. Factor affecting the rate of reaction. And determination Order of reaction. Energy of activation and its determination. Brief account of collision and activated complex theories.   |
| <b>Unit-3</b>  | Acid equilibria: pH scale, buffer solutions, calculation of pH of buffer solutions, buffer capacity and buffer index, buffer mixtures.  |
| <b>Unit-4</b>  | Electrochemistry: Electrolytic conductance, specific, equivalent and molar conductance, ionic mobility and transference number, factors affecting the electrolytic conductance, Arrhenius theory of strong and weak electrolytes, assumptions of DebyeHuckel theory of strong electrolytes. |

|                |   |
|----------------|---|
| <b>Block-2</b> | <b>Title: Organic molecules</b>   |
| <b>Unit-5</b>  | Introduction to organic chemistry, atomic orbitals, sigma and pi bond formation-molecular orbital (MO) method, sp, sp <sup>2</sup> and sp <sup>3</sup> hybridization, bond length, bond dissociation energies and bond angles |
| <b>Unit-6</b>  | Electronegativity and polarity of the bonds. Classifications and reactions of organic compounds (with examples).  |
| <b>Unit-7</b>  | Biological importance of natural products: Amino acids, proteins, carbohydrates (cellulose, starch, glycogen), lipids (fats and oils, phospholipids), nucleic acids, steroids, alkaloids, vitamins, flavonoids.               |
| <b>Unit-8</b>  | Applications of synthetic products: Dyes, drugs, polymers (plastics), soaps and detergents, pesticides and pheromones.  |

## DEPARTMENT – CLINICAL NUTRITION AND DIETETICS

### OEL - 2: NUTRACEUTICALS AND HEALTH FOODS

2 Credits

#### BLOCK 1. NUTRACEUTICALS:

Unit - 1: Introduction to Nutraceutical

Unit - 2: Use of Nutraceuticals in Traditional Health Sciences

Unit – 3: Functional Foods

Unit – 4: Development of Nutraceutical and Functional Foods

#### BLOCK 2: FUNCTIONAL FOODS AND NUTRACEUTICALS OF PLANT, ANIMAL AND MICROBIAL ORIGIN

Unit - 5: Prebiotics and Probiotics

Unit - 6: Bio Active Peptides and Phyto- Chemicals

Unit - 7: Fats and Oils- Omega 3 Fatty Acids:

Unit - 8: Sugar Substitutes / Sweeteners

## REFERENCES:

- Tai Hu Guan, (2018), text book of Nutraceuticals and Health, Scitus Academics Publisher, Wilmington DE 19804, United States of America.
- Wildman REC, (2016), Handbook of Nutraceuticals and Functional Foods, 2nd edition, CRC Press publishers, Boca Raton, Florida (USA).
- Athapol Noomhorm, Imran Ahmad, Anil Kumar Anal (2014), Functional Foods and Dietary Supplements Processing, Effects and Health Benefits, first edition, published by John Wiley & Sons, Ltd. UK 111 River Street, Hoboken, NJ 07030-5774, USA
- Wildman REC, (2001) Handbook of Nutraceutical and Functional Foods, CRC Press, USA. Ghosh D et al, (2012) Innovations in Healthy and Functional Foods, CRC Press, USA. Pathak YV (2011) Handbook of nutraceuticals Volume 2, CRC Press, USA.

## DEPARTMENT - COMPUTER SCIENCE

### ELMCS- 02: E -Commerce

#### BLOCK-1

**UNIT-1:** Overview of developments in Information Technology and Defining E-Commerce: The scope of E commerce, Electronic Market, Electronic Data Interchange, Internet Commerce, Benefits and limitations of E-Commerce, Produce a generic framework for E-Commerce,

**UNIT-2:** Architectural framework of Electronic Commerce, Web based E Commerce Architecture. Consumer Oriented E Commerce E-Retailing: Traditional retailing and e retailing, Benefits of e retailing,

**UNIT-3:** Key success factors, Models of e retailing, Features of e retailing. E services: Categories of e-services, Web-enabled services, matchmaking services,

**UNIT-4:** Information-selling on the web, e entertainment, Auctions and other specialized services. Business to Business Electronic Commerce

#### BLOCK-2

**UNIT-5: Electronic Data Interchange:** Benefits of EDI, EDI technology, EDI standards, EDI communications, EDI Implementation, EDI Agreements, EDI Security. Electronic Payment Systems, Need of Electronic Payment System:

**UNIT-6:** Study and examine the use of Electronic Payment system and the protocols used, Study Electronic Fund Transfer and secure electronic transaction protocol for credit card payment. Digital economy: Identify the methods of payments on the net – Electronic Cash, cheques and credit cards on the Internet.

**UNIT-7: Security in E Commerce** Threats in Computer Systems: Virus, Cyber Crime Network Security: Encryption, Protecting Web server with a Firewall, Firewall and the Security Policy, Network Firewalls and Application Firewalls, Proxy Server. Issues in E Commerce Understanding Ethical,

**UNIT-8:** Social and Political issues in E-Commerce: A model for Organizing the issues, Basic Ethical Concepts, Analyzing Ethical Dilemmas, Candidate Ethical Principles Privacy and Information Rights: Information collected at E-Commerce Websites, The Concept of Privacy, Legal protections Intellectual Property Rights: Types of Intellectual Property protection, Governance.

#### References:

1. Elias. M. Awad, " Electronic Commerce", Prentice-Hall of India Pvt Ltd.
2. RaviKalakota, Andrew B. Whinston, "Electronic Commerce-A Manager's guide", Addison-Wesley.
3. Efraim Turban, Jae Lee, David King, H.Michael Chung, "Electronic Commerce–A ManagerialPerspective", Addison-Wesley.
4. Elias M Award, "Electronic Commerce from Vision to Fulfilment", 3rd Edition, PHI, Judy Strauss, Adel
5. El-Ansary, Raymond Frost, "E-Marketing", 3RDEdition, Pearson Education.

## DEPARTMENT - MATHEMATICS

### Combinatorics and Graph Theory (ELMM –02) 2 Credits

**Block-I:** Permutations and Combinations, Pigeon-hole principle, Principle of inclusion and exclusion.

**Block-II:** Graphs, Vertices of graphs, Walks and connectedness, Degrees, Operations on graphs, Blocks – Cutpoints, bridges, Block graphs and Cutpoint graphs. Trees - Elementary properties of trees,

#### Books for Reference:

1. C. L. Liu – Elements of Discrete Mathematics, McGraw-Hill, 1986.
2. Kenneth H. Rosen – Discrete Mathematics and its Applications, McGraw-Hill, 2002.
3. F. Harary – Graph Theory, Addition Wesley Reading Mass, 1969.
4. N. Deo – Graph Theory With Applications to Engineering and Computer Science, Prentice Hall of India, 1987.
5. K. R. Parthasarathy – Basic Graph Theory, Tata McGraw-Hill, New Delhi, 1994.
6. G. Chartand and L. Lesniak – Graphs and Diagraphs, wadsworth and Brooks, 2nd Ed.,
7. Clark and D. A. Holton – A First Look at Graph Theory, Allied publishers.
8. D. B. West – Introduction to Graph Theory, Pearson Education Inc.,2001, 2nd Ed.,
9. J. A. Bondy and U. S. R. Murthy – Graph Theory with applications, Elsevier, 1976.

## DEPARTMENT - MICROBIOLOGY

### Microbes in Sustainable Agriculture and Development

- i. Soil Microbiology: Soil as Microbial Habitat, Soil profile and properties,
- ii. Soil formation, Diversity and distribution of microorganisms in soil.
- iii. Microbial Activity in Soil and Green House Gases- Carbon dioxide, methane, nitrous oxide, nitric oxide – production and control
- i. Mineralization of Organic & Inorganic Matter in Soil: Mineralization of cellulose, hemicelluloses, lignocelluloses, lignin and humus, phosphate, nitrate, silica, potassium .
- ii. Microbial Control of Soil Borne Plant Pathogens: Biocontrol mechanisms and ways, Microorganisms used as biocontrol agents against Microbial plant pathogens, Insects, Weeds.
- iii. Biofertilization, Phytostimulation,
- iv. Bioinsecticides: Plant growth promoting bacteria, biofertilizers – symbiotic (Bradyrhizobium, Rhizobium, Frankia),
- v. Non Symbiotic (Azospirillum, Azotobacter, Mycorrhizae, MHBs, Phosphatesolubilizers,algae),
- vi. Novel combination of microbes as biofertilizers, PGPRs
- i. Secondary Agriculture Biotechnology: Biotech feed, Silage, Biomanure, biogas, biofuels – advantages and processing parameters.
- ii. GM crops: Advantages, social and environmental aspects, Bt crops, golden rice, transgenic animals.

## References:

1. Eldor A. Paul. Soil Microbiology. Ecology and Biochemistry. VI Edition: Academic Press, (2007).
2. Eugene L. Madsen. Environmental Microbiology: From Genomes to Biogeochemistry. I Edition, Wiley-Blackwell Publishing. (2008).
3. Agrios, G.N. Plant pathology. Harcourt Asia Pvt. Ltd. (2000).
4. Buchanan. B.B., Griseham, W. and Jones, R.L Biochemistry and Molecular Biology of Plants. I.K. International Pvt. Ltd. (2000).
5. Mehrotra R S and Ashok Agrawal. Plant Pathology. Tata Mc Graw Hill ,6th reprint (2006).
6. K. S. Bilgrami, H. C. Dube. A textbook of modern pathology. 6th Edition, Vani Educational Books, a division of Vikas, (1984).
7. K.R. Aneja .Experiments in Microbiology, Plant Pathology and Biotechnology . New Age Publications. 2017

# DEPARTMENT - PHYSICS

## MP-EL2: Waves and Optics

### BLOCK-A:

- Unit-1: Superposition of Two Collinear Harmonic oscillations:** linearity & superposition principle.  
(i) Oscillations having equal frequencies and (ii) oscillations having different frequencies (Beats).
- Unit-2: Waves Motion- General:** Transverse waves on a string, travelling and standing waves on a string, normal modes of a string, group velocity, phase velocity, plane waves, Spherical waves, wave intensity.
- Unit-3: Fluids:** Surface tension: synclastic and anticlastic surface - excess of pressure - application to spherical and cylindrical drops and bubbles. viscosity - rate flow of liquid in a capillary tube - Poiseuille's formula - determination of coefficient of viscosity of a liquid.
- Unit-4: Sound:** Simple harmonic motion - forced vibrations and resonance intensity and loudness of sound, intensity levels, musical notes, musical scale, acoustics of buildings: reverberation and time of reverberation, absorption coefficient, Sabine's formula - measurement of reverberation time.

### BLOCK-B:

- Unit-5: Wave Optics:** electromagnetic nature of light, definition and properties of wave front, Huygen's Principle.
- Unit-6: Interference:** Interference: division of amplitude and division of wavefront. Young's double slit experiment, interference in thin films: parallel and wedge-shaped films, Newton's Rings: measurement of wavelength and refractive index.
- Unit-7: Diffraction:** Fraunhofer diffraction- single slit and double Slit, multiple slits and diffraction grating, Fresnel diffraction: half-period zones, zone plate, Fresnel diffraction pattern of a straight edge, a slit and a wire using half-period zone analysis.
- Unit-8: Polarization:** Transverse nature of light waves, plane polarized light – production and analysis, circular and elliptical polarization.

# **DEPARTMENT -PSYCHOLOGY**

## **EL-2 Psychology in Everyday Life 2 Credits**

### **Block 1: Applications of Psychology-I**

**Unit 1:** Psychology as a Profession

**Unit 2:** Memory Improving Techniques

**Unit 3:** Stress and Emotional Management

**Unit 4:** Personality Development

### **Block 2: Applications of Psychology-II**

**Unit 5:** Psychology in Educational Settings

**Unit 6:** Psychology in Health Setting

**Unit 7:** Psychology in Organizational Setting

**Unit 8:** Adjustment to Family and Work Place

### **References:**

1. Charles G.Morris. Albert A. Maisto Psychology an Introduction , Prentice Hall. New Jersey.
2. Feldman, A. R., Understanding Psychology IV th Ed, 1996, McGraw Hill, New Delhi.
3. Morgan, King, Weisz & Schopler, Introduction to Psychology-V11 Ed, 1993, Tata McGraw Hill, New Delhi.
4. Ernest R Hilgard, Richard C Atkinson , Rita L Atkinson Introduction to Psychology Oxford Publication, New Delhi.

# **DEPARTMENT -INFORMATION TECHNOLOGY**

## **ELMIT –02 E-Commerce (2 Credits)**

### **Block 1: Fundamentals of E-commerce**

#### **Unit 1 : Introduction to E-commerce**

What Is E-commerce? The Difference Between E-commerce and E-business, Technological Building Blocks Underlying E-commerce: the Internet, Web, and Mobile Platform, Major Trends in E-commerce, Unique Features of E-commerce Technology

#### **Unit 2 : Types of E-commerce:**

Business-to-Consumer (B2C) E-commerce, Business-to-Business (B2B) E-commerce. Consumer-to-Consumer (C2C) E-commerce, Mobile E-commerce (M-commerce), Social E-commerce, Local E-commerce E-commerce: A Brief History, Understanding E-commerce: Organizing Themes, Academic Disciplines Concerned with E-commerce

#### **Unit 3 : E-Commerce Infrastructure**

The Internet, Technology Background , Internet – Key Technology concepts, TCP/IP, IP addresses, Domain names, DNS and URLs, Client Server Computing, Cloud computing model, Mobile platform

#### **Unit 4 : Internet and Web**

Hypertext, HTML, XML, Web servers and clients, Web browsers, Communication tools – E mail, messaging apps, online message boards, Internet Telephony

### **Block 2: Construction of E-commerce presence**

**Unit 5: E-commerce presence** – Building an e-commerce idea, Systematic approach, Choosing software and hardware, E-commerce site tools

**Unit 6: E-commerce security** E-commerce System environment, Security threats, Technology solutions

**Unit 7: E-commerce payment systems** : Management policies, E-commerce payment systems, Electronic billing presentment and payment

**Unit 8: E-commerce Business Strategies** : E-commerce business models, Major B2C Business models, B2B Business models,

**References:**

1. Laudon, Kenneth C., and Carol Guercio Traver. *E-Commerce 2020-2021*. Pearson, 2020.
2. Laudon, Kenneth C., and Carol Guercio Traver. *E-commerce Essentials*. Pearson, 2014

## **DEPARTMENT - BOTANY**

### **Plant Diversity and Human Welfare**

Plant Diversity and its Scope Levels of biodiversity: Genetic, Species and Ecosystem; Agrobiodiversity and cultivated plant taxa and related wild taxa.

Values and uses of Biodiversity, Methodologies for valuation, Ethical and aesthetic values, Uses of plants; Ecosystem services.

Loss of Biodiversity Loss of biodiversity- causes and implications, Hot spots of biodiversity, extinction of species, projected scenario for biodiversity loss.

Management of Plant Biodiversity Organizations associated with biodiversity management, IUCN, UNEP, WWF, UNESCO, NBPGR; Methodology for execution;

Biodiversity legislation; Information management and communication.

Conservation of Biodiversity, Role of Plants in Relation to Human Welfare Conservation of genetic, species and ecosystem diversity,

In situ and ex situ conservation strategies, India's biodiversity and its conservation Social approaches to conservation,

Biodiversity awareness programmes, Sustainable development.

Importance of forestry their utilization and commercial aspects; Avenue trees; Ornamental plants of India; Alcoholic beverages; Fruits and nuts; Wood and its uses; their commercial importance.

**References**

1. Krishnamurthy, K.V. (2004). An Advanced Text Book of Biodiversity - Principles and Practices. Oxford and IBH Publications Co. Pvt. Ltd. New Delhi
2. Singh, J.S., Singh, S.P. and Gupta, S. (2006). Ecology Environment and Resource Conservation. Anamaya Publications, New Delhi, India.
3. Reddy, K.V. and Veeraiah, S. (2010). Biodiversity and Plant Resources. Aavishkar publication, New Delhi.
4. Heywood, V. H. and Watson, R. T. (1995). Global biodiversity and Assessment. Cambridge University Press.

## **DEPARTMENT –FOOD AND NUTRITION SCIENCE**

### **OEL-2: NUTRITIONAL MANAGEMENT IN DISASTER CONDITIONS**

#### **BLOCK- I: NATURAL / MANMADE DISASTERS**

Unit-1: Emergency Situations-Famine, Drought, Flood, Earthquake, Cyclone, War, Civil and Political Emergencies.

Unit-2: Nutrition in Emergencies, Nutritional Problems and Communicable Diseases.

Unit-3: Feeding Programs during Emergencies.

Unit-4: Assessment and monitoring of Nutritional Status and relief measures during emergencies.

#### **BLOCK- I: NUTRITIONAL RELIEF AND REHABILITATION**

Unit-5: Assessment of Food needs in emergency situations, Food Distribution Strategy, Local food rehabilitation.

Unit-6: Special Foods/ Rations for Nutritional Relief, Organizations for Mass Feeding/ Food Distribution, and Supplementary Feeding.

Unit-7: Transportation, Storage, Feeding Centres, Sanitation, Hygiene and Identifying Reaching the Vulnerable Group.

Unit-8: Public Nutrition Approach to Tackle Nutritional and Health Problems in Emergencies, food security.

**REFERENCES:**

Jaspars, S. & Young, H. (1996), General Food Distribution in Emergencies: from Nutritional Needs to Political Priorities. Good Practice Review 3. 1996. Relief and Rehabilitation Network, Overseas Development Institute. London.

Young H., Jaspars S., Brown R., Frize J. & Khogali H (2001), Food Security and Assessments in Emergencies: A Livelihoods Approach. Humanitarian Practice Network, Overseas Development Institute. London