

# F. Y. B. A. – GEOGRAPHY

## New Syllabus (NEP-20 Pattern)

## (with effect from: June 2023)

## (SEMESTER I & II)

	SEMESTER - I	Credits
Major	GG-N-111: Physical Geography - I	4
Major	GG-N-112: Physical Geography of Khandesh	2
Minor	GG-N-113: Population Geography	4
(VSE / SEC)	GG-N-114: Introduction of Remote Sensing and It's Application	2
(GE / OE)	GG-N-115: Physical Geography of Maharashtra	2
	SEMESTER - II	
	GG-N-121: Physical Geography - II	4
Maion	5 615	4
Major	GG-N-122: Socio-Economic Geography of Khandesh	2
Major Minor		
	GG-N-122: Socio-Economic Geography of Khandesh	2

### NEW SYLLABUS OF F. Y. B. A. GEOGRAPHY

## SEMESTER - I

## GG-N-111: PHYSICAL GEOGRAPHY- I (LITHOSPHERE)

(With effect from June 2023)

#### **Objectives of the Curriculum:**

- To create awareness among the students about the subject geography and train them in the subject
- To make a student dynamic by studying innovative concepts and multi-disciplinary approach of the provided curriculum
- To develop interest among the students about the geography in which they can make their career

Unit No	Unit	Sub Unit	Period
		<ul> <li>A- Imaginary Lines</li> <li>i) Parallels of Latitudes – Equator, Tropic of Cancer &amp; Capricorn, Artic, Antarctica Circles and Poles.</li> </ul>	
1	Imaginary Lines and Movement of The	<ul><li>ii) Meridians of Longitudes – Prime Meridian</li><li>iii) GMT, Standard Time, Local Time</li></ul>	15
	Earth	B. Movement of The Earth	
		i) The Earth Axis	
		ii) Rotation of the earth and It's effects	
		iii) Revolution of the earth and Its effects	
2	Origin of Oceans and Continents	<ul> <li>A. Interior of the Earth and Wagener's Continental Drift Theory <ol> <li>Interior of the earth Crust, Mantle, Core and their minor details</li> <li>Salient feature of distribution of Continent and Oceans.</li> <li>Continental Drift Theory - <ol> <li>Basic Concept</li> <li>Evidences</li> <li>Criticism</li> </ol> </li> <li>B. Rocks <ol> <li>Definition, Classification and Characteristics of Rocks</li> <li>Igneous Rocks</li> <li>Sedimentary Rocks</li> <li>Metamorphic Rocks</li> </ol> </li> </ol></li></ul>	15

3	Earth Movements and Weathering	<ul> <li>A. Endogenetic and Exogenetic forces</li> <li>Earthquake <ul> <li>i. Earthquake – Causes, effects of with</li> <li>examples.</li> </ul> </li> <li>Volcanoes <ul> <li>ii. Volcanoes - Types, Causes, effects</li> </ul> </li> <li>B. Weathering <ul> <li>I) Definition</li> <li>II) Types of weathering</li> <li>i. Mechanical</li> <li>ii. Chemical</li> <li>iii. Biological</li> </ul> </li> </ul>	- 15
4	Work of Geomorphic Agents	<ul> <li>A) River <ol> <li>Erosional landforms of river -</li> <li>V shaped Valley, Pot holes, Gorge, Rapids</li> <li>Waterfall</li> <li>Depositional Landforms of river -</li> <li>Meanders, Ox-Bow lakes, Flood Plains,</li> <li>Levees, Deltas</li> </ol> </li> <li>B) Winds <ol> <li>Erosional landforms of wind -</li> <li>Blow- out or Deflation, Mushroom Rock,</li> <li>Yardangs, Zeugen, Inselburgs.</li> </ol> </li> <li>II) Depositional landforms of wind –</li> <li>Sand Dunes, Bharkhans and Loess</li> </ul>	15

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#### NEW SYLLABUS OF F. Y. B. A. GEOGRAPHY

#### SEMESTER - I

#### GG-N-112:- PHYSICAL GEOGRAPHY OF KHANDESH

(With effect from June 2023)

#### **Objective:**

- 1) Aware about physical and regional geography of Khandesh
- 2) To introduce the physical environment and setup of Khandesh

#### **Outcome:**

- 1) Students have to understand physical and regional concepts of geography
- 2) Students will have developed logical thinking about physical Environment

Unit No	Unit	Sub Unit	Period
		A) Location	
1	Geographical Personality	B) Site and Situation	10
	Personality	C) Area	
		A) Physical Divisions of Khandesh	
	Physiography	1. Northern mountainous region of Satpura	
2		2. Western hilly region	10
2		3. Southern plateau and hilly region	
		4. Central Tapi basin plain	
		B) Drainage system	
		A) Characteristics of Climate	10
3		B) Factors affecting climate	
	Climate	C) Season	10
		D) Distribution of Rainfall	

#### **Reference books:**

- 1) Geography of Maharashtra: C.D. Deshpande
- 2) Maharashtra in Maps: K. R. Dixit
- 3) Maharashtra: Prof. Sawadi and Keche
- 4) Economy of Maharashtra: S.H.Deshpande
- 5) The Economy of Maharashtra: U.G. Sahastrabudhe
- 6) 'Khandesh: A Study in Rural Settlement Geography': S.R. Chaudhari (Unpublished Thesis submitted to, Pune University)

- 7) Maharashtra: Santosh Dastane
- 8) Maharashtra Bhugol: Dr. Subhashchandra Sarange
- 9) Maharashtra Bhugol: Dr. Vijaykumar Magar

- 10) Maharashtra: A. B. Saudi
- 11) Prakutik Bhugol va Maharashtrache Prakutic Paryavarna: Dr. S. R. Chaudhari
- 12) Manvi Bhugol va Maharashtrache Manvi Paryavarn: Dr. M.B. Chavan

#### NEW SYLLABUS OF F. Y. B. A. GEOGRAPHY

#### SEMESTER - I

#### GG-N-113 MIN – 1: POPULATION GEOGRAPHY

(With effect from June 2023)

#### Objectives

To understand the components of population change

To develop skills to use population information in the planning process

To understand the impact of planning activities on population size, composition, and Distribution

#### Outcome:

- 1. To aware the students the development of any nation is depends on human resource.
- 2. To understand the recent problems of population in the world as well as nation.
- 3. To acquaint the students with different Population policies.

Unit No	Unit	Sub Unit	Period
NO		1.1 Definitions and Meaning of Population	
		Geography	
	Introduction to	1.2 Nature and Scope of Population Geography.	
1	Population Geography &	1.3 Need and Types of Population Data	10
	Population Data	1.4 Sources of Population Data :-	
		i) Census ii) National Sample Survey iii) Vital	
		Registration	
		2.1 Growth of Population in India 1951-2011. 2.4)	
		2.2 Distribution of Population – World and India	
	Distribution of Population	(2011).	
		a) Physical-	
2		i) Topography ii) Climate iii) Water iv) Soil v) Forest	20
		b) Socio-Cultural –	
		i) Religion ii) Agriculture iii) Transportation iv)	
		Education v) Government policies	
		Migration – Types, Causes, Consequences	
		3.1 Composition of Population :	
		i) Age Composition (Meaning and Factors affecting	
		age Composition, Age Pyramid )	
		ii)Sex Composition in India	
2	Composition of	iii) Decreasing Sex ratio and its impact	20
3	Population and	iv) Literacy in India (1951 to 2011)	20
	Population Theories	3.2 Population Theories :	-
		i) Demographic Transition Model	
		ii) Malthusian Theory of Population Growth	
		iii) Carl marks theory	]

	4.1 Problems of Population in India and Its remedial		
		measures	
	Population Problems in	i) Over Population	10
4	India & Population Policy	ii) Brain Drain	10
		iii) Excess Urbanization	
		4.2 National Population Policy in India - 2000	

### **Reference Books:**

- 1. Chandana, R. C. and Janjit, S. S. (1980): Introduction to Population Geography, Kalyani Publishers, New Delhi
- 2. Clarke J. I. (1977): Population Geography and Developing Countries, Robert Maxwell, MC.
- 3. Masjid Husain (1991): Anmol Publication Ltd. New Delhi
- 4. Mohammand Izhar Hussan : Population Geography, Rawat Publication
- 5. Sawant S. B. and Athawale A. S. (1994) : Population Geography, Mehata Publishing House, Pune
- 6. V. J. Patil And S. V. Dhake : Loksankhya Bhugol (Marathi Medium), Prashant Publication, Jalgaon
- 7. Ahirro, Alizad and others: Loksankhya Bhugol (Marathi Medium)
- 8. V. T. Gharpure: Loksankhya Bhugol (Marathi Medium) Pimpalapure Publication, Satara.
- 9. T. N. Goplap, Nishikant: Loksankhya Bhugol (Marathi Medium), Prashant Publication, Jalgaon
- A. B. Sawadi : Loksankhya Bhugol (Marathi Medium), The Savadi's Mega Geographical Series

#### NEW SYLLABUS OF F. Y. B. A. GEOGRAPHY

#### SEMESTER - I

#### GG-N-115OE – 1: PHYSICAL GEOGRAPHY OF MAHARASHTRA

(With effect from June 2023)

#### **Objective:**

- 1) To aware about regional geography of Maharashtra
- 2) To introduce the physical and cultural environment of Maharashtra

#### Outcome:

1) Students have to understand regional concepts of geography

2) Students will have developed logical thinking about physical and cultural environment.

Unit No	Unit	Sub Unit	Period
		A) Site	
1	Coographical Dersonality	B) Location	4
L L	Geographical Personality	C) Area	- 4
		D) Administrative Divisions	
		A) Physical Divisions of Maharashtra	
		1. Konkan Region	
		2. Sahyadri Mountain	
	Physiography	3. Maharashtra Plateau	
2		B) Drainage system	10
		1. Rivers of Konkan	
		2. Rivers of Plateau Region	
		Tapi – Purna Valley, Godavari Valley, Krishana	
		Valley, Pranhita valley	
		A) Climate	
		1. Characteristics of Climate	
3	Climate	2. Factors affecting climate of Maharashtra	10
		3. Seasons – Summer, Rainy, Winter	
		4. Distribution of Rainfall in Maharashtra	
4	Soil and Vegetation	A) Types of Soil and their distribution	6
4		B) Types of vegetation and their distribution	0

#### **Reference books**

- 1) Geography of Maharashtra: C. D. Deshpande
- 2) Maharashtra in Maps: K. R. Dixit
- 3) Maharashtra: Prof. Sawadi and Keche
- 4) Economy of Maharashtra: S. H. Deshpande

5) The Economy of Maharashtra: U. G. Sahastrabudhe

- 6) Maharashtra: Santosh Dastane
- 7) Maharashtra Bhugol: Dr. Subhashchandra Sarange
- 8) Maharashtra Bhugol: Dr. Vijaykumar Magar
- 9) Maharashtra: A. B. Saudi
- 10) Prakutik Bhugol va Maharashtrache Prakutic Paryavarna: Dr. S. R. Chaudhari
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#### NEW SYLLABUS OF F. Y. B. A. GEOGRAPHY

#### SEMESTER - I

## GG-N-114 SEC-1: INTRODUCTION OF REMOTE SENSING AND ITS APPLICATION

(With effect from June 2023)

#### **Objectives:**

- 1. To understand the principles of Remote Sensing
- 2. To acquaint the students with fundamental concepts of Remote Sensing.
- 3. To Students will be able to participate in advance technique in Remote Sensing.

### **Outcome:**

- 1. To introduce students with advance techniques for data collection.
- 2. To learn principles and applications of GPS.
- 3. To learn basics of GPS based survey

Unit No	Unit	Sub Unit	Period
		A) Introduction, Definition and Need of Remote	
	T / 1 / /	Sensing	
1	Introduction to	B) Process of Remote Sensing in brief	12
	Remote Sensing	C) Applications of Remote Sensing	
		D) Advantages and Limitations of Remote Sensing	
	Basic Principles of Remote Sensing	A) Sources of Energy and Radiation Principles	
2		B) Electromagnetic Spectrum	10
2		C) Classification Based on Energy Source -	10
		Active and Passive remote Sensing	
	656 I.I	A) Introduction and work of GPS	
3	GPS and Its	B) History of GPS	08
	Application	C) Applications of GPS	

#### **English Medium:**

Bhatta, Basudeb (2011): Remote Sensing and GIS, Oxford University Press, New Delhi
Jensen, J.R.: Remote Sensing of the Environment: An Earth resource Perspective Prentice Hall
Joseph George, 2003, Fundamentals of remote sensing. Universities Press
Lillesand, T.M., and Kieffer, R.M., 1987, Remote Sensing and Image Interpretation, John Wiley
Sabbins, F. F., 1985, Remote sensing Principles and interpretation W. H. Freeman & company
American society for Photogrammetry and Remote Sensing, 1999, Remote Sensing for the Earth
Sciences, Manual of Remote Sensing, 3rd ed., vol. 3, Wiley, New York.

## Marathi Medium:

Dr. ShrikantKarlekar (2007): BhougolicMahitiPranali" Diamond Publication, Pune Dr. Shrikant Karlekar (2007): Dursavedan" Diamond Publication, Pune Dr. D. S. Suryawanshi (2018): Geoinformatics" Prashant Publications, Jalgaon Dr. D. S. Suryawanshi and Dr. S. C. Ahira (2010): Geoinformatics. Preshant Publication, J

Dr. D. S. Suryawanshi and Dr. S. C. Ahire (2019): Geoinformatics, Prashant Publication, Jalgaon

NEW SYLLABUS OF F. Y. B. A. GEOGRAPHY

#### SEMESTER - II

## GG-N-121: PHYSICAL GEOGRAPHY-II (ATMOSPHERE AND HYDROSPHERE) (With effect from June 2023)

#### **Objective:**

- 1. To create awareness among the students about the subject geography and train them in the subject
- 2. To make a student dynamic by studying innovative concepts and multi-disciplinary approach of the provided curriculum
- 3. To develop interest among the students about the geography in which they can make their career

Unit No	Unit	Sub Unit	Period
		A) Origin and Structure of atmosphere	
		i) Introduction, Meaning of Atmosphere	
		ii) Structure of Atmosphere	
		Troposphere	
		Stratosphere	
		Ionosphere	
1	Atmosphere and	B. Insolation	15
-	Insolation	i) Definition	
		ii) Factors affecting the insolation	
		Angle of the sun rays	
		Distance between earth and sun	
		Effect of Atmosphere	
		iii) Temperature- Horizontal and Vertical	
		Distribution	
		i) Measurement of Atmospheric pressure	
		a) Definition Isobars	
		b) Formation of pressure belts	
2	Atmospheric Pressure,	c) Shifting of pressure belts and their effects	15
2	Winds	ii) Types of winds	12
		Planetary winds	
		Monsoon winds	
		Land and sea breezes	

		i) Definition and types of Humidity	
		a) Absolute Humidity	
		b) Relative Humidity	
3	Atmospheric moisture	ii) Forms of precipitation –	15
		fog, Dew, frost, hail, rain, snowfall	
		iii) Types of Rainfall -	
		Convectional, Orographic / relief, cyclonic	
		A. Submarine relief	
		i) General structure of ocean floor	
		ii) Submarine relief of Indian ocean	
4	Hydrosphere	B. Ocean Currents	15
		i) Definition	
		ii) Causes of Ocean Currents	
		iii) Ocean Currents in Atlantic Ocean	

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## PRATAP COLLEGE, AMALNER (Autonomous) NEW SYLLABUS OF F.Y.B.A. GEOGRAPHY SEMESTER – II

## GG-N-122:- SOCIO-ECONOMIC GEOGRAPHY OF KHANDESH

(With effect from June 2023)

Objective:

- 1) Aware about socio-economic geography of Khandesh
- 2) To introduce the socio-economy of Khandesh

Outcome:

- 1) Students have to understand socio-economic concepts of geography
- 2) Students will have developed logical thinking about social and economic Environment.

Sr. No.	Unit	Sub-unit	No of Periods
1	Administration & Population	<ul> <li>A) Administrative divisions <ol> <li>Jalgaon 2. Dhule 3. Nandurbar</li> </ol> </li> <li>B) Population Distribution</li> <li>C) Population Characteristics &amp; Types</li> </ul>	10
2	Distribution and Importance Agriculture	<ul> <li>A) Characteristics of Agriculture</li> <li>B) Major food crops- Jawar, Bajara, Wheat Cash Crops-cotton, sugarcane, Banana</li> <li>C) Livestock and dairy farming</li> <li>D) Irrigation- source and Pattern</li> <li>E) Agricultural Problems and challenges</li> </ul>	10
3	Transportation And Industries	<ul> <li>A) Transportation <ol> <li>Mode of Transportation-</li> <li>Roadway, Railway and Airway</li> </ol> </li> <li>B) Industries <ol> <li>Cotton Textile, Ginning, Pressing &amp; weaving Industry</li> <li>Sugar Industry</li> <li>Industrial centres in Khandesh</li> </ol> </li> </ul>	10

#### **Reference books:**

- 1) Geography of Maharashtra: C.D. Deshpande
- 2) Maharashtra in Maps: K. R. Dixit
- 3) Maharashtra: Prof. Sawadi and Keche

#### 4) Economy of Maharashtra: S.H.Deshpande

5) The Economy of Maharashtra: U.G. Sahastrabudhe

6) 'Khandesh: A Study in Rural Settlement Geography': S.R. Chaudhari (Unpublished Thesis submitted to, Pune University)

- 7) Maharashtra: Santosh Dastane
- 8) Maharashtra Bhugol: Dr. Subhashchandra Sarange
- 9) Maharashtra Bhugol: Dr. Vijaykumar Magar
- 10) Maharashtra: A. B. Saudi
- 11) Prakutik Bhugol va Maharashtrache Prakutic Paryavarna: Dr. S. R. Chaudhari
- 12) Manvi Bhugol va Maharashtrache Manvi Paryavarn: Dr. M. B. Chavan

NEW SYLLABUS OF F. Y. B. A. GEOGRAPHY

#### SEMESTER - II

#### GG-N-123 MIN – 2: AGRICULTURE GEOGRAPHY

#### (With effect from June 2023)

#### **Objective:**

1. To introduce Agricultural systems

2. To make able the student to understand an influence of different physical and cultural factors

on agriculture

3. To introduce Agricultural region and agro-climatic regions of the world

4. To provide information about the worlds agricultural types

Unit No	Unit	Sub Unit	Period
		1.1 Introduction to Agriculture Geography	
		a) Definition and Meaning of Agriculture Geography	
1	Introduction to Agriculture Geography	b) Nature and Scope of Agriculture Geography	10
	Agriculture Geography	c) Significance of Agriculture Geography	
		1.2 Approaches to Study Agriculture Geography	
		A) Physical Factors	
	Determinants of	Terrain, Climate, Wind, Soil, Water Resources	
2	Agricultural Pattern	B) Non – Physical / Cultural Factors	15
	Agricultural Pattern	Technological, Demographic, Social,	
		Infrastructural, Political	
		Agricultural Systems of the World	
		a) Subsistence Agriculture	
	Agricultural Systems of	b) Commercial Grain Farming	
3	the World	c) Mix Farming	15
		d) Plantation Farming	
		e) Dairy Farming	
		f) Truck farming	
		Agricultural Regions & Regionalization	
		a) Cropping Pattern	
4	Agricultural Regions	b) Crop Concentration / Intensity	20
	_	c) Crop Diversification	
		d) Crop Combination	

#### **Reference books**

- 1) Perspectives in Agricultural Geography Noor Mohammad
- 2) Agriculture Geography Brian W. Ilbery
- 3) Agriculture Geography Majid Husain
- 4) Agriculture Geography Jasbir Singh & S. S. Dhillon
- 5) Agriculture Geography Chohan T. S.
- 6) Reading in Agriculture Geography Laxmi Shukla
- 7) Sugam Sheti Bhoovidnyan Date & Date
- 8) Krushi Bhoovidnyan Saudi & Keche
- 9) Krushi Bhoogol Suresh Phule
- 10) Agriculture Geography Morgan & Munton
- 11) Agriculture Geography Symons
- 12) Land Use Analysis Dr. Jainendra Kumar

NEW SYLLABUS OF F. Y. B. A. GEOGRAPHY

#### SEMESTER - II

#### GG-N-125 <u>OE – 2: SOCIO - ECONOMIC GEOGRAPHY OF MAHARASHTRA</u>

(With effect from June 2023)

#### Objective:

1) To aware about socio – economic geography of Maharashtra

2) To introduce the physical and cultural environment of Maharashtra

#### Outcome:

1) Students have to understand regional concepts of geography

2) Students will have developed logical thinking about physical and cultural environment.

Unit No	Unit	Sub Unit	Period
1	Population of Maharashtra	A) Growth	
		B) Density	
		C) Distribution	- 4
		D) Population structure and its characteristics	
		A) Characteristics of Agriculture	
		B) Major food Crops of Maharashtra -	
2	Agriculture	1. Food crops - Rice, Wheat	10
		2. Cash crops – Cotton, Sugarcane, Banana	
		C) Irrigation – Source of irrigation	
	Minerals and Power Resources	A) Minerals	
		Iron – ore, Bauxite, Manganese	
		B) Power Resources	
3		1. Convectional Energy resources	10
5		Hydral and Thermal power,	
		Petroleum and Natural Gas	
		B) Non – Convectional Energy Resources	
		Wind Energy, Solar Energy	
	Transportation and Industries	A) Modes of Transportation	6
4		Road, Railway, Airway	
		Importance of Konkan Railway	
		B) Major Industries of Maharashtra	
		1. Cotton Textile	
		2) Information Technology	

3) Sugar Industry	
4) Engineering Industries	

#### **Reference books**

- 1) Geography of Maharashtra: C. D. Deshpande
- 2) Maharashtra in Maps: K. R. Dixit
- 3) Maharashtra: Prof. Sawadi and Keche
- 4) Economy of Maharashtra: S. H. Deshpande
- 5) The Economy of Maharashtra: U. G. Sahastrabudhe

- 6) Maharashtra: Santosh Dastane
- 7) Maharashtra Bhugol: Dr. Subhashchandra Sarange
- 8) Maharashtra Bhugol: Dr. Vijaykumar Magar
- 9) Maharashtra: A. B. Saudi
- 10) Prakutik Bhugol va Maharashtrache Prakutic Paryavarna: Dr. S. R. Chaudhari
- 11) Manvi Bhugol va Maharashtrache Manvi Paryavarn: Dr. M. B. Chavan

#### NEW SYLLABUS OF F. Y. B. A. GEOGRAPHY

#### SEMESTER - II

#### GG-N-124 SEC 2: INTRODUCTION OF GEOGRAPHICAL INFORMATION SYSTEM (GIS) AND IT'S APPLICATIONS (With effect from June 2023)

#### **Objectives:**

1. To introduce the fundamentals and components of Geographic Information System.

2. To develop the skill of Geographic Information System.

3. To provide details of spatial data structures and input, management and output processes.

#### **Outcome:**

1. To aware about the uses of GIS in various fields

2. To aware the students about GIS data analysis.

3. To Students will be able to know Geographic Information System

Unit No	Unit	Sub Unit	Period
	Introduction to GIS	1.1 Introduction	15
		1.2 Definition	
		1.3 History of GIS	
		1.4 Components of GIS	
		i) Hardware and Software	
		ii) Modules	
		iii) Data – Raster & Vector	
1		iv) Users - People	
		1.5 GIS operations:	
		i) Spatial data input	
		ii) Attribute data management	
		iii) Data display	
		iv) Data exploration	
		v) Data analysis	
		vi) GIS modeling	
	GIS Data Structures	2.1 Geospatial Data Types	15
2		i) Spatial Data ii) Non-Spatial Data	
		2.2 Raster Data Structure	
		i) Cells, Pixels, Grid ii) Cell size, spatial resolution	
		iii) Bands iv) Single and multiband structures	
		(BSQ, BIL, BIP)	

2.3 Vector Data Structure	
i) Point entities ii) Line entities iii) Area entities.	
2.4 Sources of Raster & Vector data	
2.5 Choice between Raster & Vector	

3	GIS Data Analysis	<ul> <li>3.1 GIS Data Inputs</li> <li>i) Keyboard Entry ii) Manual Digitizing</li> <li>iii) Scanning &amp; Automatic Digitizing</li> <li>iv) GPS Data Inputs</li> <li>3.2 Geo-Referencing</li> <li>3.3 Editing</li> <li>3.4Output and Query</li> <li>3.5 Overlays</li> </ul>	15
4	Application of GIS	<ul> <li>4.1 Land Use / Land Cover Mapping</li> <li>4.2 Urban Sprawl</li> <li>4.3 Forest Monitoring</li> <li>4.4 Disaster Management</li> <li>4.5 Defense sector</li> <li>4.6 Natural Resource Management</li> </ul>	15

## Reference Books:

- Michael N. Demers (2009): Fundamentals of Geographical Information System, John Wiley & Sons, Inc.
- Kang-tsung Chang (2008): Introduction to Geographical Information Systems, McGraw Hill Education (India) Private Limited, Chennai
- Jensen, J.R. (2000): Remote Sensing of the Environment: An Earth resource Perspective Prentice Hall
- Joseph George (2003): Fundamentals of remote sensing. Universities Press
- Lillesand, T.M. and Kieffer, R.M. (1987) :Remote Sensing and Image Interpretation, John Wiley Sabbins, F.F. (1985): Remote sensing Principles and interpretation. W. H. Freeman & company

- Dr. Shrikant Karlekar (2007): Bhougolic Mahiti Pranali, Diamond Publication, Pune
- Dr. Shrikant Karlekar (2007): Dursavedan, Diamond Publication, Pune

• Dr. D. S. Suryawanshi (2018): Geo-informatics, Prashant Publications, Jalgaon