

PART-III AGENDA ITEMS FOR THE 63TH MEETING OF THE ACADEMIC  
COUNCIL SCHEDULED ON 4TH & 5TH DECEMBER 2002

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- To be continued from 1st part Agenda. 1:1(7-8)
- 5:2 - SYLLABUS
- xix) Proposed Revised Syllabus of M.A/M.Sc in Geography. 5:2:19(1-40)
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- 5:5- EXAMINATION MATTERS
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- vi) Appointment of Joint Supervisor in respect of Ms Lapynshai Syiem. 5:8:6(1-3)
  - vii) Nomination of Three members to the Board of Under-Graduate Studies. 5:8:7(1)

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To be continued from 1st part Agenda

In continuation to item No:1, relating to confirmation of the minutes of the 67th meeting of the Academic Council held on 13th and 14th June/02, the comments received from Prof R Sharma, Head, Department of Bio-Chemistry, NEHU, Shillong is placed at Annexure-'A'.

The matter is placed before the Council for consideration.

SG

1:1(8)

Annexure 'A'

Department of Biochemistry  
North-Eastern Hill University  
Umshing SHILLONG 783 022, India

Dr.R.Sharma  
Professor and Head

No.1094

Dt.July 04,2002.

To

Mr.J.M.S.Khongwir,  
Deputy Registrar(Conference)  
North-Eastern Hill Uni.  
Shillong.

Sir,

With reference to your letter No.AC:67-3/Conf/2002/664 dated July 3,2002 wherein you have enclosed the Minutes of the 67th meeting of the Academic Council held on 13th and 14th.June/2002,I would like to point out the discrepancy in the minutes relating to item No.AC:67:2002:6:6:(i).

It was decided by the Academic Council that the Ordinance in full be made and sent to MHRD and UGC.After getting their clear reply,it shall be made effective.Till such period,the present Ordinance relating to this be kept in abeyance.

I hope that you will take a note of this and make necessary correction in the minutes

Thanking you,

Yours faithfully,  
Sd/-R.Sharma

5:2:19(1)

xix) Proposed revised syllabus of MA/M Sc in Geography

The School Board of Human and Environmental Science in its meeting held on 7.11.02 finalised the revised syllabus MA/M Sc in Geography with certain Modifications as suggested by the Board.

The syllabus is placed as Annexure-'A'

The matter is placed before the Council for consideration.

SG

5:2:19(2)

**Proposed Revised Syllabus of  
M.A./M.Sc. in Geography  
2003**

**Department of Geography  
School of Human & Environmental Sciences  
North-Eastern Hill University, Shillong**

### Background

The Department of Geography, since its inception started MA/M.Sc, M.Phil and Ph.D. programmes. Over the last 25 years, the Department has tried to fulfill the requirements of the students and the subject by revising and updating its academic programmes from time to time.

The first major revision of the courses was undertaken in 1985 and then in 1991 when the emphasis was given on M.Sc programme with practical components made intrinsic to all the III and IV Semester papers. There were changes in the graduate (BA/B.Sc) Courses in 1993, and hence MA/M.Sc syllabus was revised again in 1996 for the corresponding batch of graduate admitted in the same year to the Post-graduate programme. Due to operational difficulties, practical papers were combined and were clubbed under 5 courses of 325 marks out of a total of 1800.

The department was in the process of revising the Post-graduate as well as graduate level syllabi in the year 2002 when the model Syllabus from UGC New Delhi, was received and provided the necessary guidelines for Course revision. The faculty met time and again to revise the syllabus to discuss the structure and the contents of the proposed changes in the syllabi, keeping in mind the UGC model syllabus; changes in the geography curriculum during last two decades and the interest of the students in the region.

The proposed (Present) syllabus is thus an outcome of rigorous exercise made by all the members of the faculty to make the new syllabus far more effective and beneficial for the new generation of geography students. Inevitably, such an exercise resulted in significant modifications introduced to the existing syllabus. The major deviations from the existing syllabus are briefly presented below:

1. All the courses shall be of 4 credits (100 marks) replacing the earlier courses with 2 or 3 credits.
2. A new course on Dissertation has been introduced as an optional course replacing the earlier course on 'Project', which was linked to fieldwork.
3. Students opting for Dissertation will do so in lieu of one theory course under options in the 4<sup>th</sup> Semester to provide more time on dissertation writing.
4. Unlike the existing structure that provides core courses to be offered in 1<sup>st</sup> and 2<sup>nd</sup> semester and optional courses in combination with compulsory courses in the 3<sup>rd</sup>/4<sup>th</sup> Semester, the new proposed syllabus simplifies it by making first three semesters exclusively devoted to core courses only. The options for courses and specialization are confined only to the 4<sup>th</sup> Semester.
5. Two new courses are proposed to be introduced. These are - Geography of the Meso-region of the World/India and an independent course on Field - work, both physical and human.
6. The course on Regional Development and Planning, earlier under optional courses has been made compulsory due to its growing importance in the recent years.
7. The New Syllabus has uneven distribution of credits over the four semesters. The first and the fourth semester have load of 400 marks each while the 2<sup>nd</sup> and 3<sup>rd</sup> semester have 500 marks in each. The rationale for such uneven distribution follows from the fact that the total marks come to 1800 in all and with each paper uniformly carrying 100 marks the unevenness was inevitable. However this distribution is justified on the grounds that students coming from annual system need to be acclimatized to semester system in the 1<sup>st</sup> semester and hence the lesser load in this semester. Likewise, the 4<sup>th</sup> semester is devoted to specialization and dissertation writing which involves intensive reading and writing and hence relatively lesser load in terms of number of courses in this semester. Also in the 2<sup>nd</sup> semester out of five courses large chunk of one course (GE 205) will be covered during the vacation much.

The proposed new syllabus consists of 18 courses in all including four Practicals/techniques and one Dissertation papers. All the courses have four Units each. A large number of elective papers (optional) are included in the fourth semester and the department shall prepare combinations of such electives so as to offer them as specializations.

**COURSE OUTLINE**

<u>Course No.</u>	<u>Title of the Course</u>	Credit	<u>Mark Distribution</u>		
			Theory	Pract.	Total
<b><u>I-SEMESTER</u></b>					
GE - 101:	Geomorphology	4	100	-	100
GE - 102:	Regional Geography of India	4	100	-	100
GE - 103:	Climatology & Hydrology	4	100	-	100
GE - 104:	Advanced Cartography	4	-	100	100
		<b>16</b>	<b>300</b>	<b>100</b>	<b>400</b>

**II-SEMESTER**

GE - 201:	Economic Geography	4	100	-	100
GE - 202:	History of Geographical Thought	4	100	-	100
GE - 203:	Quantitative Techniques in Geography	4	-	100	100
GE - 204:	Ecology and Bio-geography	4	100	-	100
GE - 205:	Field Work and Study Tour	4	-	100	100
		<b>20</b>	<b>300</b>	<b>200</b>	<b>500</b>

**III-SEMESTER**

GE - 301:	Regional Planning & Development	4	100	-	100
GE - 302:	Population & Settlement Geography	4	100	-	100
GE - 303:	Regional Geography of a Meso- Region of the World/or India.	4	100	-	100
GE - 304:	Social and Cultural Geography	4	100	-	100
GE - 305:	Remote Sensing & GIS	4	-	100	100
		<b>20</b>	<b>400</b>	<b>100</b>	<b>500</b>

**IV-SEMESTER**

<u>Course No.</u>	<u>Title of the Course</u>	Credit	<u>Mark Distribution</u>		
			Theory	Pract.	Total
GE - 401:	Environmental Geography	4	100	-	100
GE - 402:	Advanced Geomorphology	4	100	-	100
GE - 403:	Tropical Geomorphology	4	100	-	100
GE - 404:	Geography and Ecosystem	4	100	-	100
GE - 405:	Bio-Geography	4	100	-	100

GE - 406:	Soil Geography	4	100	-	100
GE - 407:	Hydrology	4	100	-	100
GE - 408:	Applied Climatology	4	100	-	100
GE - 409:	Watershed Management	4	100	-	100
GE - 410:	Integrated Area Planning	4	100	-	100
GE - 411:	Geography of Central Places	4	100	-	100
GE - 412:	Agricultural Geography	4	100	-	100
GE - 413:	Urban Geography	4	100	-	100
GE - 414:	Social Geography	4	100	-	100
GE - 415:	Cultural Geography	4	100	-	100
GE - 416:	Historical Geography	4	100	-	100
GE - 417:	Political Geography	4	100	-	100
GE - 418:	Population Geography	4	100	-	100
GE - 419:	Dissertation	4	-	-	100
		16			400

N.B.: The Students will opt four courses including dissertation in this Semester

**Notes for Examination:**

- a) *Students shall answer four questions in all the papers. The duration of theory papers will be of three hours, while the duration of practical papers shall be of six hours.*
- b) *The dissertation and Field-Work papers shall be evaluated by viva-voce examination in addition to the evaluation of the report.*
- c) *The duration of examination for the paper on Quantitative Techniques in Geography (GE - 203) will be of four hours duration since it involves statistical calculations which are time consuming.*

**GE -101: Geomorphology**

Credits - 4  
Marks - 100

## Objectives:

- *To familiarize the students with geomorphology with reference to certain fundamental concepts in the development of different order of landforms.*

## Unit - I

Nature and scope of geomorphology

Fundamental concepts and modern trends in the development of geomorphology.

Earth-movements, geological structures and landforms, epirogenic, orogenic and

Cymatogenic earth movements. Forces of crystal instability, continental drift, sea floor spreading and plate tectonics; Isostasy.

## Unit- II

Origin, classification and characteristics of rocks.

Exogenic Processes, concept of gradation and processes of gradation. Agents and

Processes of erosion, types of weathering, mass wasting.

Erosional and depositional processes and resultant landforms in humid, arid

Glacial, Karst and coastal regions, concept of cycle of erosion.

## Unit - III

Multicyclic and polygenetic evolution of landforms. Interruption and movement of base level.

Erosion surfaces - techniques of identification and correlation.

Evolution of drainage patterns and river terraces.

## Unit - IV

Slope elements, characteristics and evolution of slopes; down wearing, parallel retreat and slope replacement models.

Morphometric techniques and their application.

Application of capability and land suitability classification.

**Suggested Readings**

- Bloom, A.L.: **Geomorphology – A Systematic Analysis of Late Canezoic Landforms**, Prentice Hall Englewood Cliffs N.J. 1978.
- Birkeland, P.U.: **Soils & Geomorphology**, Oxford University Press, New York, 1984.
- Chorley, R.J. & Hagget, P.: **Physical and Information Models in Geography**, Methuen, London, 1967.
- Chorley, R.J.: **Spatial Analysis in Geomorphology**, Methuen, London, 1972.
- Cooke, R.U. & Doornkamp, J.C.: **Geomorphology in Environmental Management - An Introduction**, Clarendon Press, Oxford, 1974.
- Dayal, P.: **A Text Book of Geomorphology**, Patna, 1990.
- Easterbrook, D.J.: **Principles of Geomorphology**, McGraw Hill, New York, 1969.
- King, C.A.M.: **Techniques in Geomorphology**, Arnold, London, 1968.
- Leahold, L.B. et al.: **Fluvial Processes in Geomorphology**, Eurasia Publishing House, New Delhi, 1969.
- Merriman, W.D. (ed): **Theories of Landform Development**, George Allen & Unwin, London, 1981.
- Verdine, J.E.: **Terrain Evaluation**, Longmans, London, 1973.
- Pratt, P.L.: **An Introduction to Geomorphology**, Methuen, London, 1971.
- Spencer, B.W.: **Geomorphology**, Longmans, London, 1960.
- Smith, R.J.: **The Study of Landforms**, Cambridge, 1972.
- Urquhart, S.D.: **Principles of Geomorphology**, Wiley, New York, 1990.

**GE - 102: Regional Geography of India**

Credits-4

Marks 100

*Objectives:*

- *To sensitize students about the scale and extent of diversity and related problems*
- *To sensitize students about the economic development issues, policies and impact of liberalization on socio-economic development.*

Unit- I

Physiographic regions

Climate and Indian Monsoons

Forests and soils

Unit -II

Geographical Unity and Historical basis

Geographical basis of administrative re-organisation

Population and its problems

Urbanisation

Unit- III

Agriculture and agrarian problems

Infrastructure development and industrial base

Industrial development

Planning and economic liberalisation

Unit- IV

Basis of regionalization: geo-political, climatic, agro-climatic, demographic, and socio-economic dimensions of regionalization.

**Suggested Reading**

Centre for Science and Environment: **Status of Indian Environment**, New Delhi, 1988.

Deshpande, CD, **India ; A Regional Interpretation**, ICSSR& Northern Book Centre, 1992.

Dreze, J and Amartya Sen (eds) **India-Economic Development and Social Opportunity**, OUP, Delhi.

Gopalakrishnan, R, **Geography of India**, Jawahar, Delhi, 2001.

Singh, RL, (ed) **India- A Regional Geography**, NGS, Varanasi, 1971.

Spate, OHK and AT Learmonth, **India- A General and regional Geography**, Methuen, London, 1968.

**The Hindu Survey of Indian Agriculture** Chennai, 2002

**The Hindu Survey of Indian Environment** Chennai, 2002

**The Hindu Survey of Indian Industry** Chennai, 2002

Tirtha,R and Gopal Krishna, **Emerging India**, Rawat, Jaipur, 1996.

W.E. East, C.A. Fisher et.al. : **Changing Map of Asia** Methuen, 1970.

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## GE-103: Climatology & Hydrology

Credits – 4  
Marks-100

### Objectives:

- To introduce basic concepts of climatic conditions and Hydrological cycle giving examples from the different areas of the world.

### Unit-I

Nature & Scope and its relationship with Meteorology.

Insulation, heat balance of the earth, distribution of temperature (temporal, vertical and horizontal)

Atmospheric Moisture & precipitation

Air Masses & Fronts

Atmospheric disturbances and its associated weather types (jet-streams, typhoons, tornados, Cyclone etc.)

### Unit-II

Classification of world climates according to Koppen, Thornthwaite, Trewartha.

Climates of the World: Tropical Climate, Temperate Climate, Monsoon Climate, Mediterranean Climate & Tundra Region.

Theories of Climate Changes.

### Unit-III

Nature & Scope of Hydrology, Hydrological Cycle (Precipitation, Evaporation, Evapo-transpiration and Infiltration) Water bodies of the world

### Unit - IV

Basin Hydrology, Ground Water Resources, Water as a key resource of man and its management.

## Suggested Readings

Blair, T.A. : **Climatology General and Regional**, Prentice Hall N. Y. 1942.

Chorley, R.J. : **Earth, Water and Man**, Methuen and Co., London.

Chorley, R.J. and Barry, R.G. : **Atmosphere, Weather and Climate**, Methuen Co.,Ltd., London, 1971.

Chritchfield, H.J. : **General Climatology**, Prentice Hall of India New Delhi 1993.

Crowe, P.R. : **Concept in Climatology** Longmans, London, 1971.

Raghunath, H.M. : **Hydrology**, New Age, N. Delhi, 1985.

Robinson P.J. & Henderson S.: **Contemporary Climatology**, Henlow, 1999.

Robinson P.J. & Petty A. (ed): **Applied Climatology-Principles and Practices**, Routledge, London, 1997.

Strahler, A : **Earth Science** Tokyo, 1972.

UNESCO: **Hydrological Observations**, Regional Centre, N. Delhi, 2001.

**GE - 104: Advanced Cartography**

Credits-4

Marks: 100

*Objectives:*

- To appraise the student with latest trends in the development of cartography as a tool in mapping thematic and quantitative data to facilitate spatial analysis and synthesis.
- To provide training in application of modern tools and techniques to data in a variety of topical and regional studies at local, regional and national levels.

**Unit-I: (Theory)**

Introduction to cartography- the nature, trends in the development of cartographic techniques and the scope.

**Unit-II : (Physical)**

Advanced techniques of slope measurements- calculation of gradient, determination of average slope by Wentworth and Smith's method.

Preparation of Drainage Density and Drainage Frequency maps.

Interpretation of Geological maps: unconformity, inclined, folded and faulted formations.

**Unit-III: (Socio-Economic)**

Population and Settlement: Nearest Neighbour Analysis, Rank-Size Rule, Ternary Diagram, Age Sex-Pyramid.

Agricultural data: Efficiency, Crop Combination, Intensity,

**Unit-IV: (Remote Sensing & GIS)**

Remote Sensing, GPS and GIS Technique application:

Landuse/landcover mapping using satellite Imagery and Aerial Photo.

Mapping and Digitization.

Hands on training on GIS software and hardware.

**Suggested Readings:**

- Birch, T.W.: **Maps: Topographical and Statistical**, Clarendon press, Oxford, 1949.
- Burrough P.A.: **Principles of Geographic Information Systems for Land Resource Assessment** Oxford University Press, New York, 1986.
- Campbell, J.B.: **Introduction to Remote Sensing**, the Guilford Press, New York, (Third Ed) 2002.
- Clarke, K.C., Parks, B.O., M.P. Crane., (Ed): **Geographic Information Systems and Environmental Modeling**, Prentice-Hall of India, New Delhi, 2002.
- Curran, Paul J.: **Principles of Remote Sensing**, Longman, London, 1985.
- Fraser Taylor D.R.: **Geographic Information Systems**, Pergamon Press, Oxford, 1991.
- Garnett, Alice: **Geographical Interpretation of Topographical Maps**, George Harrap and Co., London, 1945 McGraw Hill, New York, 1974.
- Hord R.M.: **Digital Image Processing of Remotely Sensed Data**, Academic, New York, 1989.
- Lillesand T. M. & R. W. Keifer: **Remote Sensing and Image Interpretation**, John Wiley & Sons, New York (Fourth Ed), 1999.
- Monkhouse: **Maps and Diagrams**, Mathuen & Co., London, New York, 2000.
- Peuquet D.J. & F. Marble, **Introductory Reading in Geographic Information Systems**, Taylor & Francis, Washington, 1990.
- Raisz, Erwin: **Principles of Cartography**, McGraw-Hill, New York, 1962.
- Rao D.P. (eds): **Remote Sensing for Earth Resources**, Association of Exploration Geophysicist, Hyderabad, 1998.
- Robinson A.H.: **Elements of Cartography**, (fifth ed) John Wiley & Sons, New York.
- Sabins, Floyd, F.: **Remote Sensing Principles and Interpretation** (Third Ed), W.H. Freeman and Company,
- Singh, R.L.: **Elements of Practical Geography**, Kalyani Publ. Delhi, 1979.
- Star J and J.Estes. **Geographic Information Systems: An Introduction**, Prentice Hall, Englewood Cliffs New Jersey, 1994.

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## GE-201-Economic Geography

Credits: 4

Marks: 100

### Objectives:

- To integrate the various aspects of economic activities to acquaint the students about dynamic aspects of the economies of the world.

### Unit - I

Nature, scope and recent trends in Economic Geography; relation of economic geography with other branches of human geography; Historical Evolution of world Economic Systems; Classification of the economics of the world-Primitive, agricultural, industrial and market; sectors of economy (primary, secondary and tertiary); theories, concepts and models of developed, developing and under-developed economies.

### Unit-II

Concept of Resources: Taxonomy of resources and identification of world resource regions. - Spatial pattern and distribution of renewable and non-renewable resources: forests, coal, petroleum, iron-ore. Sustainable Development, Resource management, planning and conservation in the developed and under-developed countries.

### Unit - III

Classification of Industries: Resource based and footloose industries; theories of industrial location-Weber & Hoover. Case studies of selected industries: Iron & Steel; Oil refining; Automobile and Textile.

### Unit -IV

Modes of transportation and transportation costs; accessibility and connectivity: international, intra and inter-regional; Typology of markets, role of market in the development of trade and commerce; international trade.

## Suggested Readings

- Agarwal & Singh: **Economics of Under Development**, Oxford New Delhi, 1978.  
Agarwal, A.N.: **Indian Economy: Problems of Development and Planning** Willey eastern Ltd, 1989.  
Alexander, J.W.: **Economic Geography**, Prentice Hall, 1974.  
Amin, S.: **Accumulation at World Scale**, Monthly Review, New York, 1978.  
Berry B.J.L, et. al: **Global Economy**, Prentice Hall Englewood Cliffs, New Jersey, 1993.  
Chorley, R. & P. Hagget, **Models in Human Geography**, 1978  
Garnier B.J. & Delobez: **A Geography of Marketing**, Longman, London, 1979.  
Haggett, Peter: **Geography: A Modern Synthesis**, Haper International, London, 1975.  
Hartshorne, T.A. & J.W Alexander: **Economic Geography** Prentice Hall of India, New Delhi, 1994.  
Isard, W.: **Location and the Space Economy**, MIT, Mass, 1950.  
Isard, W.: **Methods of Regional Analysis**, MIT, Mass, 1956.  
Mangar, V.G.: **Economic Policy & Planning** New Age international publishing, 1974.  
Meadows & Meadows: **Limit to Growth**, New York, 1974.  
Rai R.K. et.al. : **Environment, Resources and Development**, CSNEHR, New Delhi, 1981.  
Rostow, W.W.: **Stages of Economic Growth: A non-communist Manifesto**, 1960.  
Thoman & Corbin: **The Geography of Economic Activity**, Methuen Hill Books, 1974.  
Van Royen, W. & N.A. Bengaton: **Fundamentals of Economic Geography: An Introduction to Economic Resources**, Prentice Hall, New Delhi, 1973.  
Wheeler, J.O. et.al: **Economic Geography**, Bell & Sons, New York, 1955.  
Willim, T.R. et.al: **Economic Geography**, Orient Longman Ltd, N.D. 1983.  
Zimmermann, F.W.: **World Resources and Industries**, Harper & Row Publ. New York, 1977.

**GE-202: History of Geographical Thought****Credits-4****Marks-100**

Objectives:

- To introduce students to the philosophical and methodological foundations of the subject and its place in the world of knowledge
- To familiarize them with the major landmarks in development of geographic thought at different times and places

**Unit -I**

Historical Development: Contribution of major proponents in geography in ancient, medieval and modern times.

Nineteenth Century Geographies: Ritter and Humboldt; Ratzel, Semple and Huntington- Environmental determinism; Hettner and Richtofen; -Possibilist school; La Blache and Brunches, Influence of Darwin on Geography.

**Unit-II**

Early Twentieth Century Geographies: Anarchist geographers—Kropotkin and Relus; Sauer--Cultural school; Hartshorne—Regional school (areal differentiation); Dualisms—Regional Vs. systematic, Physical VS. Human; Positivism and Quantitative revolution:

**Unit-III**

Contemporary geography: Humanistic Geography; Radicalism; Neo-determinism; Behaviouralism; Neo-environmentalism; Structuralism and Post-structuralism; Post-modernism in geography

**Unit-IV**

Explanations in geography: Geography in the realm of knowledge, its relationship with other sciences and social sciences; Laws, theories and models in geography; Empiricism and geography; status of Indian Geography.

**Suggested Readings**

- Amedeo, D: **An Introduction to Scientific Reasoning in Geography**, John Wiley, USA, 1971
- Board, C et al: **Progress in Geography, Vols I-VIII**, Edward Arnold, London, 1970
- Bunge, W: **Theoretical Geography**, Lund Studies in Geography, The Royal University of Lund, Sweden, 1962
- Chorley, R.J. P Haggett: **Models in Geography**, Methuen, London, 1967
- Dikshit, R.D: **The Art and Science of Geography**, Prentice Hall India, New Delhi, 1994.
- Giddens, A: **Central Problem in Social Theory: Action, Structure and Contradiction in Social Theory**, Macmillan, London, 1979
- Gould, J.R: **An Introduction to Behavioural Geography**, Oxford, 1980
- Gregory, D: **Geographical Imaginations**, Blackwell, Cambridge, Mass, 1994
- Hartshorne, R: **Perspectives on the Nature of Geography**, Rand McNally, Chicago, 1959
- Hartshorne, R: **The Nature of Geography**, AAG, Lancaster, Penn, 1939
- Harvey, D: **Explanations in Geography**, Edward Arnold, London, 1969
- Harvey, D: **The Condition of Post modernity**, Blackwell, Oxford, 1989
- Holt-Jensen, A.: **Geography: History and Concept**, Paul Chapman, London, 2001.
- James, P.E: **All Possible Worlds: A History of Geographical Ideas**, New York, 1972
- Johnston, R.J: **The Future of Geography**, Edward Arnold, London, 1988
- Kuhn, T.S: **The Structure of Scientific Revolution**, Chicago, 1962.
- Lefebvre, H: **The Production of Space**, Blackwell, Oxford, 1991 (French edition, 1974)
- Minshull, R: **The Changing Nature of Geography**, Hutchinson, London, 1970
- Peet, R. (Ed.): **Radical Geography**, Methuen, London, 1978 (2<sup>nd</sup> Ed)
- Sauer, C.O: **Land and Life**, Univ. of California, Berkley, 1963
- Soja, Edward: **Post Modern Geographies**, Verso, London, 1989
- Woolridge, S.W: **The Spirit and Purpose of Geography**, Hutchinson, London, 1955.

**GE-203: Quantitative Techniques in Geography**

Credits : 4

Marks : 100

**Objectives:**

- To train the students in *Mathematical and Statistical techniques in Geography*

**Section - A: Mathematical Techniques****Unit - I**

Co-ordinate Geometry and Equations; Simultaneous, quadratic, polynomial and growth rates (simple, compound and exponential).

Measurement of rate of phenomenal changes through linear and non-linear differential functions.

**Unit - II**

Elementary set theory, permutation and combination, Probability theory and distribution (Normal, and Poisson).

Elementary matrix algebra, Addition, multiplication, determinants of square matrices and inversion.

**Section - B. Statistical Techniques****Unit - III**

Quantity, measures of Central Tendency, dispersion, and inequalities

(Lorenz curve, Ginni's Coefficient, Coefficient of Variation)

Sampling theory: Type and selection of sample with standard error, testing of small and large samples.

**Unit - IV**

Bivariate Analysis: Forms of relation and measuring the strength of association and relation: meaning of scatter diagram-simple linear and regression analysis, standard error, spearman's Rank and Product moment correlation Coefficients, 't' and  $X^2$  tests of significance.

**Suggested Readings**

- Amedeo, D & AG Golledge: **An Introduction to Scientific Reasoning in Geography**, John Wiley & Sons, New York, 1975.
- Blackwell, B: **Statistics in Geography** Basil Blackwell Ltd, 1988.
- David, Ulwin: **Introductory Spatial Analysis**, Methuen, London, 1981.
- Duncan, O.D. et.al: **Statistical Geography** Free Press of Glenco, New York, 1961.
- Gregory, S.: **Statistical Methods and the Geographer**, Longman's London, 1963.
- King, L.J.: **Statistical Analysis in Geography**, Prentice Hall, Englewood Cliffs, N.J.
- Lewia, Peter: **Maps and Statistics**, Methuen & Co., London, 1967.
- Mahmood, Aslam: **Statistical Methods in Geographical Studies**, Rajesh Publication, Delhi, 1997.
- Mathewa, J.A.: **Quantitative and Statistical Approaches to Geography**, Rawat, Jaipur, 1981.
- Maurice Y.: **An introduction to Quantitative Analysis in Human Geography**, McGraw Hills, New York, 1974.
- Norchiffe: **Inferential Statistics for Geographers**, B.I. Publications, Madras, 1985.
- Pal, S.K.: **Statistics for Geoscientists: Techniques and Applications** Concept Publication, New Delhi, 1999.
- Pal, S.K.: **Quantitative Geography**, Delhi, 1984.

**GE- 204 -Ecology and Bio-Geography**

Credits - 4

Marks - 100

**Objectives:**

- To understand and evaluate the relationship between biotic and abiotic phenomena of various parts the world.

**Unit-I**

Meaning and Scope of Ecology and Ecosystem; Concept of Ecosystem - habitat and biome, Ecosystem as the fundamental ecological unit food chain and food webs. Ecosystem - forms and functions- Trophic Level, Ecological Pyramids, Energy flow. Nutrients in Ecosystem, Bio-geo-chemical cycles, Carbon cycle, Nitrogen cycle, Sulphur cycle.

**Unit-II**

Pollution-Water: Air and land  
Preservation, Conservation and management of the Micro Ecosystem - land, forest and water management.  
Population Ecology.

**Unit - III**

Meaning, Scope and Development of Bio-geography; Plant and animal response to environment; Environmental control on selection of plants and animals.

**Unit - IV**

Global distribution of plants and animals: factors and Bio-regions  
Taxonomic and ecological classifications of eco-types  
Concept of Bio-diversity and its depletion through natural and human activities.

**Suggested Readings**

- Botkin, Daniel B. and Keller A. Eward: **Environmental Studies**, Charles E. Merrill Columbus, Ohio, 1982.  
C.S.E.: **The State of India's Environment: The 2<sup>nd</sup> Citizen's Report**, C S.E, New Delhi, 1984  
Cox B. C. et.al: **Bio-geography: An Ecological and Evolutionary Approach**, Black well, Oxford, 1977.  
Detwyler, J.R.: **Man's Impact on Environment**, John Wiley and Sons, New York, 1975  
Duffey, E.: **Conservation of Nature**, Collins, London, 1970  
Edington, J.M. & M.A Edington. : **Ecology and Environmental Planning**, Chapman and Hall, London, 1977  
Gleason, H.A. & A. Cronquist: **The Natural Geography of Plants**, Columbia Univ. Press, N. York, 1964.  
Groombridge, B.: **Global Bio-diversity: Status of the Earths Living Resources**, Chaptman & Hall, 1992.  
Hagget, R.J.: **Fundamentals of Bio-geography**, Routledge, USA, 1998.  
Harvey, B. and J.D. Hallet: **Environment and Society: An Introductory Analysis** Macmillan, London, 1977.  
Illies, J.: **Introduction to Zoo-geography**, Macmillan, London, 1974.  
Mani, M.S. (Ed): **Bio-geography of India**, The Hague, 1972.  
Marsh, C.P.: **Man and Nature**, Harvard, 1967  
Mathur H.S.: **Essentials of Bio-geography**, Amy Printers, Jaipur, 1998.  
Odum, E.P.: **Fundamental of Ecology** Oxford & IBH, Pub, Co, Pvt, Calcutta.  
Pears N: **Basic Bio-geography**, Education, Longman, London, 1985.  
Schimper A.f. W.: **Plant Geography**, Cramer-Weinheim New York, 1964.  
Smith G.H.: **Conservation of Natural Resources**, Wiley & Sons, London, 1962.

**GE - 205: Fieldwork (Physical and Socio-economic Survey)**

Credits - 4

Marks - 100

*Objectives:*

- To expose students to various geographical sites of any place in India.
- To train students for physical survey of topographical features and to get students acquainted with the preparation of questionnaires and data collection in the field.

**Section A: Study Tour**

The students are required to write a brief report including a field diary on the study tour of selected place(s) of geographical significance. The study tour will be for a maximum period of 25 days duration in any part of the country. The report and the Field diary shall be prepared by each student under the guidance of two teachers in charge(s) who shall accompany them during the tour.

**Section B: Fieldwork**

The students are required to visit an area within the North-Eastern Region for an intensive physical and socio-economic study of the area. The field work shall be conducted for a maximum duration of three weeks. The fieldwork shall include the following broad aspects.

- (a) Identification of landforms and geomorphic processes with the help of toposheets and satellite images.
- (b) Surveying and Leveling by Theodolite, Dumpy Level and GPS.
- (c) Mapping of specific and selected site for the geographic parameters like geomorphologic (contour and drainage), soil, landuse/landcover.
- (d) Socio-economic survey of households using questionnaire/schedule etc.
- (e) Preparation of maps, processing of data and report writing.

1. Section- A will contain 25 marks and Section - B 75 marks.
2. There will be viva-voce examination of 75 marks on both the reports.

**Suggested Readings**

- Elhance D.N.: **Fundamental of Statistics**, Kitab Mahal, Allahabad, 1972.
- Kothari, C.R.: **Research Methodology** (7<sup>th</sup> Edn 2002) Wishva Prakashan, New Delhi, 1975.
- Lillesand T. M. & R. W. Keifer: **Remote Sensing and Image Interpretation**, John Wiley & Sons, New York (Fourth Ed), 1999.
- Monkhouse: **Maps and Diagrams**, Mathuen & Co., London, New York, 2000.
- Peuquet D.J. & F. Marble, **Introductory Reading in Geographic Information Systems**, Taylor & Francis, Washington, 1990.
- Raisz, Erwin: **Principles of Cartography**, McGraw-Hill, New York, 1962.
- Rao D.P. (eds): **Remote Sensing for Earth Resources**, Association of Exploration Geophysicist, Hyderabad, 1998.
- Robinson A.H.: **Elements of Cartography**, (fifth ed) John Wiley & Sons, New York.
- Sabins, Floyd, F.: **Remote Sensing Principles and Interpretation** (Third Ed), W.H. Freeman and Company,
- Singh R.L.: **Elements of Practical Geography**, Kalyani Publ. Delhi, 1975
- Singh, R.L.: **Elements of Practical Geography**, Kalyani Publ. Delhi, 1979.
- Stoddart, R.H.: **Field Techniques and Research Methods in Geography**, Kendall Hunt Publ. Dubuque, 1982.

**GE- 301: Regional Development and Planning**

Credits - 4

Marks - 100

**Objectives:**

- *To understand the objectives and purposes of regional planning and its relevance to the students of geography.*
- *To appreciate the main principles and strategies of regional planning and the manner in which regional planning can aid regional development.*

**Unit-I:**

Concept of regions in geography; History of development of regional planning concepts, objectives and scope; Regional planning in Indian National Plans; Typology of regions: Formal, Functional, Planning Regions, Special Purpose regions and regional hierarchy.

**Unit-II:**

Approaches and methods of delineation of different types of regions and their utility in planning, principles of regionalisation; Indicators of development and data sources, measures of regional development and disparities in India; Planning processes: Sectoral and spatial planning, short, medium and perspective planning; multi-regional and multi-level planning in India.

**Unit-III:**

Principles of regional planning: Economic and Human Development; Habitability Planning; Integrated (urban-rural) planning; Regional development strategies: Export Base Theory, Divergence-Convergence Theory, Growth Poles and Growth Centres in regional development, Industrial dispersal and backward area development;

**Unit-IV:**

Physical regions, Resource regions, regions based on socio-economic criteria, special purpose regions: River Valley planning, Metropolitan Planning, hill area development plans, tribal area development planning and drought-prone area planning with special reference to India, Regional Planning in India (Macro, Meso and Micro-planning).

**Suggested Readings:**

- Chorley, RJ and, P Haggett: **Models in Geography**, Methuen, London, 1967  
 Christaller, W: **Central Places in Southern Germany**, Prentice-Hall, Englewood Cliffs, New Jersey, 1966.  
 Friedman, J and W Alonso, (Ed): **Regional Development Policy**, MIT, Mass., 1974.  
 Glikson, A: **Regional Planning**, Netherlands Universities foundation for International cooperation, London, 1955.  
 Guha P and Sdasyuk, G: **Economic Regionalisation of India**, Census of India 1961, Monograph No.7, 1968.  
 Hirschman, AO: **The Strategy of Economic Development**, Yale UP, NY, 1958.  
 Kukliniski, AR(ed.): **Growth Poles and Growth Centres in Regional Development**, Mouton, The Hague, 1972.  
 Kundu, A and M. Raza,: **Indian Economy-the Regional Dimensions**, Spectrum, New Delhi, 1982.  
 Mishra, R.P(ed.): **Regional Planning: Concepts, Tools, Techniques and Case Studies**, University of Mysore, Mysore, 1969.  
 Mishra, R.P. et al: **Multi-level Planning**, Heritage, Delhi, 1980.  
 Mitra, A: **Levels of Development in India**, Census of India 1961, Monograph No.8, 1968.  
 Nair, K.R.G.: **Regional Experience in a Developing Economy**, Wiley Eastern, New Delhi, 1982.  
 Nangia, Sudesh: **Delhi Metropolitan Region**, Rajesh, New Delhi, 1976.  
 Planning Commission, GOI: **Third Five Year Plan**, Chap.X, New Delhi, 1961.  
 Rai, R.K., A.C. Mohapatra, et al(Ed.): **Hill Area Development**, GSNEHR, Shillong, 1990.  
 Raza, M(Ed): **Regional Development**, Heritage, Delhi, 1988

**GE- 302: Population and Settlement Geography**Credits-4  
Marks - 100

## Objectives:

- *To provide an understanding of the spatial and structural dimensions of population and the emerging issues with special reference to the Indian demographic scene.*
- *To familiarize the students with the concepts and techniques of understanding spatial patterning in the distribution of rural and urban settlements.*

## Unit-I

Population Geography: Scope and Subject matter, development of Population Geography as a field of Specialization, Relation of Population Geography with Demography and other Social Sciences. Population Distribution and Growth: World Patterns and their determinants; Population distribution and growth in India. The concept of Demographic Transition.

## Unit-II

Population Composition: Age and Sex, Literacy and Urbanisation; Population Composition of India. Migration: Causes and consequences of Internal and International Migration, Population Policies.

## Unit - III

Settlement Geography: Nature and Scope of Settlement Geography, Site and Situation of settlements, factors affecting to evolution of Settlements, locational as well as distributional characteristics, Types and Patterns.

## Unit-IV

Urban Settlements: Urban growth and processes, measurements of growth, growth Patterns with special reference to India; Morphology of Indian Towns; Functional Classification of Indian Towns; Central place system, functional hierarchy and space-relations.

**Suggested Readings**

- Ahmad, A. et.al. (Ed): **Demographic Transition** Rawat, Jaipur, 1997.
- Bhende Asha, A &, Tara Karitkar: **Principles of Population Studies**, 2 Ed., Himalaya Pub, Bombay, 1982.
- Chandna, R.C. & M.S. Sidhu: **Introduction to Population Geography**, Kalyani Publishes, Ludhiana, 1980.
- Clarke, John I.: **Population Geography and Developing Countries**, Pergamon, Oxford, 1971.
- Demko, G.J. H.M Rose: **Population Geography: A Reader**, & Schnell, G.A. (editor) McGraw Hill, N.Y., 1970.
- Garnier, J.B.: **Geography of Population: World Pattern**, John Wiley, N. Y. 1969.
- Haggett, Peter: **Network Analysis in Geography, Explorations in Spatial Structure**, Edward Arnold, 1965.
- Harrison, G.A.: **The Structure of Human Populations**, Boycee, A.J. (editor) Clarendon Press Oxford, 1972.
- Hudson, F.S.: **A Geography of Settlements**, Machonold and Evans Ltd., 1970,
- Kayastha, S.L.: **Geography of Population** Rawat, Jaipur, 1998.
- Sharma, R.C.: **Settlement Geography of an Indian Desert**, K.B. Publications, 1972
- Singh, R. Y.: **Geography of Settlements** Rawat, Jaipur, 1998.
- Trewartha G.T.: **The Less Developed Realm: A Geography of its population**, John Wiley, N.Y., 1972.
- Trewartha, G.T.: **A Geography of Population: World Patterns**, John Wiley, N.Y. 1969.
- Uelko, M.J. et.al. **Man, Settlement and Urbanisation** Duckworth, 1972.
- Zelinsky W.: **A Prologue to Population Geography** Prentice Hall, New York, 1966.
- Zeniinsky W. et.al (eds): **Geography and a Crowding World**, Oxford Univ. Press, New York, 1970.

**GE - 303 (A): Regional Geography of a Meso Region  
Regional Geography of Afghanistan**

**Credits - 4  
Marks 100**

**Objectives**

- *To develop a comprehensive understanding of the problems and prospects of development of Afghanistan*
- *To understand the concept of local to regional and then to global economy as a continuum*

**Unit- I**

Location and geo-political significance  
Historical background  
Political status  
Emerging conflicts

**Unit- II**

Resource distribution and utilization  
Emerging Economy: Primitive, agricultural and industrial growth of economy and trade relations  
Problems of development

**Unit - III**

Growth and distribution of population, ethnic composition, age-sex composition, and migration

**Unit- IV**

Political instability and terrorism  
Conflicts and Conflict Resolutions  
Contemporary development and prospects

**Suggested Readings**

- Carol, Olof: **The Pathans 300 BC to AD 1957** London, 1964.  
 Daruazizi, Ali and M. Weiner (Eds): **The State, Religion and Ethnic Politics in Afghanistan, Iran and Pakistan**, Syracuse, 1986.  
 Dupree, Louis. : **Afghanistan**, Princeton, 1980.  
 Edwards, B. David.: **Heros of Age;Moral Fault lines as the Afghan Frontier**, Berekly, 1996.  
 Fraser – Tytler, W.K.: **Afghanistan** London, 1970.  
 Gopalakrishnan, R: **Geography and Politics of Afghanistan**, Concept Publ. Coy, Delhi, 1982  
 Gregarian, Varton.: **Emergence of Modern Afghanistan**, Stanford University press, 1969.  
 P. Skyes. : **A History of Afghanistan** 2 vols, London, 1940 (Reprint)  
 Poullada, Leon B.: **Reforms and Rebellion in Afghanistan**, 1972.  
 Rubins, Bernard, R.: **Fragmentation of Afghanistan**, New Haven, Yale University Press, 1995.

**GE - 303 (B): Regional Geography of a Meso Region**  
**Regional Geography of Japan**

**Marks – 100**

**Credits – 4**

*Objectives:*

- *To expose the students to the physical, cultural, economic and social patterns of life in Japan.*

**Unit – I**

General Introduction, Territory, Area, Location and Geographical Characteristics.  
 Geology, Physical features, drainage, Soil, Climate and natural Vegetation.

**Unit – II**

Population Distribution, density, religion socio-cultural characteristics of population, Population problems.

**Unit – III**

Economy: Agriculture, main Industries and their locations, Major Industrial regions.  
 Development of foreign trade.  
 Power Resources and Tourism.

**Unit – IV**

Regional Geography of the following Meso-regions of Japan (any one region)

- Hokaido
- Kwanton Plain
- Industrial Region of Kobe- Osaka.

**Suggested Readings**

- Ackerman, E.A.: **Japan Natural Resources and their Relation to Japan's Economic Future** University of Chicago Press, Chicago, 1953.
- Chongseck-Chim: **Asla**, Kuala Lumpur, Oxford Univ. Press, Hongkong, Singapore. Malaya Edn. Service, 1963.
- Kichi, Shinzo.: **Japanese Cities: A Geographical Approach** Association of Japanese Geographers, Tokyo, 1970.
- Miller, E.: **Geography of Manufacturing** Prentice Hall, Englewood Cliffs, N.J. 1962.
- Trewartha, G.T.: **Japan (A Geography)**: The University of Wisconsin Press, madison & Melwaukee, Methuen & Co., Ltd., London. 1965.
- Prue Dempster: **Japan Advances : A Geographical Studies**, Muthuen & Co., Ltd., 1971,
- Strahler, Authur. N.: **Physical Geography** Wilsey Eastern Pvt, New Delhi, 1971.
- Trewartha, G.T: **A Physical and Cultural Geography** University of Wisconsin Press, Madison, 1965.
- Trewartha, G.T: **Japan : A Geography**, The University of Wisconsin Press Madison & Malwankee, Methuen & Co, Ltd. 1971.

**GE -303 (C): Regional Geography of a Meso Region:  
Regional Structure of North - East India**

Credits - 4

Marks - 100

Objectives:

- *To familiarize the students with the physical, social, population and economic structure of the NE India and historical perspective to the cultural development.*

Unit - I

The North East: Geographical Unity and Diversity.

Physical Structure: Geomorphic features and physiographic divisions, Distribution and regional variation in Climate, Natural Vegetation and Soils.

Unit - II

Historical Set up: (a) Influence of geographical factors in the course of cultural history of the region, (b) Identification of cultural regions, Areas of attraction, Isolation and Relative isolation and the role of physical factors in the evolution of these cultures in these areas, (c) Centripetal and centrifugal forces in the emergence of unified culture in Brahmaputra Valley and diverse cultures in the hilly areas of the region. (d) Peopling of the region and racial elements.

Unit - III

Population, Settlement and Social Structure:

- (a) Distribution and Density of Population, (b) Population growth and Migration
- (c) Rural and Urban Population, (d) Type and distribution of Settlement,
- (e) Linguistic families and distribution of languages in the region, (f) Spatial distribution to tribal population in the region, (g) Religions groups and their distribution pattern.
- (h) Distributional pattern of scheduled caste population.

Unit - IV

Resource Base and Economic Structure:

- (a) Communication Network and Economic development of the region,
- (b) Agriculture with special reference to Jhum cultivation (c) Power and mineral resources, (d) Forests and development, (e) Industries and industrial development
- (f) Levels of Regional Development & (g) Problems of Economic Development.

**Suggested Readings**

Chaudhury, P.C.: **History of Civilisation of Assam**, Gauhati, 1960.

Das, H.P.: **Geography of Assam**, N.B.T., Delhi, 1972.

Gait, E.: **History of Assam**, Calcutta, 1926.

Gopalakrishnan, R. and Ali Ahmad. **Essays in Indian Geography**, Regency, Delhi, 2001

Gopalakrishnan, R. **North-East: From Geographical Expressions to Political Accommodation** Har-Anand, New Delhi, 1995

Gopalakrishnan, R. **North-East: Land, People and Economy**, Har-Anand-Vikas, New Delhi, 1991

Gopalakrishnan, R. **Socio-Political Framework of North-East India**, Vikas, New Delhi, 1996

Rai, R.K. et.al: **Environment, Resource and Development**, GSNEHR, Department of Geography, NEHU, Shillong, 2001.

Singh, R.L. (Ed): **Regional Geography of India**, NGSI, Varanasi, 1972.

Spate, O.H.K.: **India and Pakistan**, Methuen, London, 1956.

**GE - 304: Social and Cultural Geography**

Credits - 4

Marks - 100

Objectives:

- *To familiarize the concepts associated with social and cultural dimensions of the articulation of space.*

## Unit-I

Definition: Nature and Scope of Social Geography; Social Geography in the Realm of Social Sciences; Development of Social Geography in the Anglo-Saxon World.

Society and Environment, Social Evolution, Social Structure, Social Diversity and Plurality

## Unit-II

Concepts and Themes: Concept of Social Space, Social area Analysis, Segregation and Social Justice. Geography of Social Well-being, Social Pathology and Social Action

## Unit-III

Definition, scope and development of Cultural Geography

Themes and concepts in Cultural Geography: Cultural region, Cultural Diffusion, Cultural ecology, Cultural Interaction and Cultural Landscape.

## Unit-IV

Types and patterns of world Cultural Regions with special reference to the following:

a) Language b) Religion, c) Ethnicity, d) Agriculture

**Suggested Readings**

- Buttimor: **The Human Experience of Space and Place**, Crood Helm, 1980.  
 Castelles, M.: **The Urban Question**, Edward, 1977.  
 Gould, P. & White, R.: **Mental Maps**, Penguin, 1974.  
 Gregory, D.: Ideology, **Science and Human Geography**, Hutchinson, London, 1978.  
 Gritzer, Charles, F.: The Scope of Cultural Geography, **Journal of Geography**, 65, 1966.  
 Harvey, David: **Social Justice and the City**, Edward, 1978.  
 Jackson Peter & Smith, Susan, J.: **Exploring Social Geography**, George Allen and Unwin, 1986.  
 Johnston, R.J. et.al. : **Dictionary of Human Geography**, Balckwell, 1985.  
 Jones, Emrys & John Eyles, **An Introduction to Social Geography**, Oxford, 1979.  
 Jones, Emrys (Ed): **Readings in Social Geography**, Oxford, 1975.  
 Jordan, Terry, G. & Lester Rowntree, : **The Human Mosaic: A Thematic Introduction to Cultural Geography**.  
 Mitchell, D.: **Cultural Geography: A Critical Introduction** Blackwell publishers, 2000.  
 Peet, R.: **Radical Geography: Alternative View-points**, Methuen, 1977.  
 Quaini, Massimo : **Geography and Marxism**, Basil Blackwell 1982.  
 Raza Moonis : **A Survey of Research in Geography**, 1969-72 Allied, 1979  
 Smith, David M. **Where the Grass is Greener**, Pelican, 1979.  
 Stoddart, R. S. **Geography Ideology and Social Concern**, Oxford, 1981.  
 Wagner, P. L. & M.W Mikesell, (Ed): **Readings in Cultural Geography**, Chicago, 1962.  
 Waston, J.W.: The Sociological Aspects of Geography in T.G. Taylor, (Ed) **Geography in Twentieth Century**, Methuen, 1975.

**GE - 305: Remote Sensing Techniques & Geographic Information System**

Credit-4

Marks-100

*Objectives:*

- *To introduce to the students the basic principles of Remote Sensing, to understand the methods of visual and digital interpretations of satellite imagery and its application value.*

**Unit-I ( Theory )**

Introduction to Remote Sensing:

Historical development of Remote Sensing as a technology and its relevance in Geographic study.

Basic concepts, physical basis, satellite orbits, atmospheric effects, platforms and sensors.

Aerial photography:

Fundamental concepts, elements of aerial photo interpretation,

Photogrammetry- stereoscopic measurements, parallax bar and scales.

**Unit-II**

Application of Air photo and satellite Imagery in Thematic Mapping.

Indian and foreign Remote Sensing Satellites- LANDSAT, SPOT, IRS, IKONOS, NOAA

Digital Image Processing.

**Unit-III**

Fundamentals of GIS: introduction to Basic concepts, definition, history, the principles and terminology

**Unit-IV ( Practical )**

Photogrammetric Instruments and uses- 3D viewing, height calculations.

Visual interpretation techniques - Mapping of drainage networks, forestry, lineaments, landuse/landcover, settlements, crop estimation, urban sprawl and communication network.

Scale calculations.

**Suggested Readings:**American Society of Photogrammetry: **Manual of Remote Sensing**, ASP, Falls Church, V.A., 1983.Barrett E.C & L.F. Curtis: **Fundamentals of Remote Sensing and Air Photo Interpretation**, McMillan, New York, 1992.Burrough P.A.: **Principles of Geographic Information Systems for Land Resource Assessment** Oxford, New York, 1986.Campbell, J.B.: **Introduction to Remote Sensing**, the Guilford Press, New York, (Third Ed) 2002.Curran, Paul J.: **Principles of Remote Sensing**, Longman, London, 1985.Fraser Taylor D.R.: **Geographic Information Systems**, Pergamon Press, Oxford, 1991.Hord R.M.: **Digital Image Processing of Remotely Sensed Data**, Academic, New York, 1989.Lillesand T.M. & R.W Keifer: **Remote Sensing and Image Interpretation**, John Wiley & Sons, New York (Fourth Ed), 1999.Luder D.: **Aerial Photography Interpretation: Principles and Application**, McGraw Hill, New York, 1959.Maquire D.J.M.F. Goodchild & D.W. Rhind (eds), **Geographic Information Systems: Principles and Application**, Taylor & Francis, Washington, 1991.Mark S. Monmonier, **Computer-assisted Cartography**, Prentice-Hall, Englewood Cliff, New Jersey, 1982.Peuquet D.J. and D.F. Marble, **Introductory Reading in Geographic Information Systems**, Taylor & Francis, Washington, 1990.Rao D.P. (ed): **Remote Sensing for Earth Resources**, Association of Exploration Geophysicist, Hyderabad, 1998.Star J and J. Estes. **Geographic Information Systems: An Introduction**, Prentice Hall, Englewood Cliff, New Jersey, 1994.Clarke, K.C., Parks, B.O., M.P. Crane. (Ed): **Geographic Information Systems and Environmental Modeling**, Prentice-Hall of India, New Delhi, 2002.Sabins, Floyd, F.: **Remote Sensing Principles and Interpretation** (Third Ed), W.H. Freeman and Company, New York, 2000.

**GE-407: Hydrology**

Credits 4  
Marks 100

*Objectives*

- To understand the importance of water and its occurrence, movement, quality, quantity and uses

## Unit- I.

*Fundamentals:*

Water as a focus of geographical interest

Water on Earth: Hydrological cycle, quantity, equilibrium, distribution of earth's water, and unique properties of water

The water balance concept and its quantitative explanation with main equations

Human interference in the hydrological cycle

## Unit- II

*Occurrence and Assessment of Water Resources:*

Surface water hydrology: drainage basins/watersheds- input, losses, storage, output

Ground water hydrology: origin, occurrence, movement, discharge, abstraction and dynamic hydrology

Types and their utility to understand the response of drainage basin through various hydrographs.

## Unit- III

*Water Environment in India:*

Surface water resources: river nature and characteristics of basins; uneven distribution of water over time and space, and causes

Ground water resources: aquifers, potentials, discharge

Problems: scarcity and shortage (droughts), excess (floods, water logging),

Over exploitation, pollution

## Unit- IV

*Management of Water Resources:*

Uses and demands: domestic, agriculture, industry, fishery, inland transport, recreation, and hydel power generation.

Rural and urban water supply and daily water budget

Watershed management: traditional and modern- principles, objectives and techniques

Conservation of water resources of India: indigenous and modern

**Suggested Readings**

- Anonymous: **River Basin Management**, United Nations, New York, 1971.  
 Bower, H.: **Ground Water Hydrology**, McGraw Hill Book, Co., New York, 1978.  
 Chorley, R.J. (Ed): **Introduction to Geographical Hydrology**, Methuen, London, 1965.  
 Chorley, R.J. (Ed): **Water, Earth and Man**, Methun, London, 1967.  
 Gondie, A. et al. **Geomorphological Techniques**, Unwin Hyman, London, 1990.  
 Karanth, K.R.: **Groundwater Assessment: Development and Management**, Tata McGraw Hill New Delhi, 1987.  
 Murty, J.V.s.: **Watershed Management in India**, Wiley Eastern Ltd., New Delhi, 1995.  
 Narayana, V.V.D, Sastry, G, and Patnaik, U.S.: **Watershed Management**, ICAR, New Delhi, 1997.  
 Raghunath, H.M.: **Hydrology**, Wiley Eastern, Ltd., New Delhi, 1985.  
 Rao, R.L.: **India's Water Wealth**, Orient Longman, New Delhi, 1979.  
 Réddi, R.J.: **The Textbook of Hydrology**, Laxmi Publ., New Delhi, 1999.  
 Sharma R.K. and Sharma, T.K.: **Hydrology and Water Resources Engineering**, Dhanpat Rai, New Delhi, 1997.  
 Singh, R.A. and Singh, S.R.: **Water Management: Principles and Practices**, Tara Publ., Varanasi, 1979.  
 Sokolor, A.A. and Chapman, T.B. (eds): **Methods for Water Balance Computations: An International Guide for Research and practice**, The Unesco Press, Paris, 1974.

**GE-408: Applied Climatology**

Credits – 4

Marks – 100

*Objectives:*

- *To provide understanding of weather phenomena dynamics of global climates and generation of climatic information and their application.*

## Unit-I

Nature and Scope of Applied Climatology, Emergence of Applied Climatology.

Man Made Climates: Micro-Climatic conditions, radiation, Visibility, Temperature, Wind and Precipitation, Human interference in atmospheric process.

## Unit – II

Climate &amp; production process, influence of climate on Soil formation, Landform, Natural Vegetation Agriculture, House types, Health &amp; disease, Weather &amp; crop production hazards.

## Unit – III

Water Conservation: Flood &amp; Draught in India, Flood prediction &amp; forecasting.

Water policy and framework, Monsoon prediction.

Climate and Industries:- Location preference of Industries to climate,

Industrial efficiency, Air &amp; Water pollution, Climatic effects, measures &amp; management.

## Unit – IV

Weather forecasting: Short, Medium &amp; Long run Weather forecasting, Method techniques of Weather forecasting, perspective on recent development of Weather forecasting and its application, Climate – Human Comfort and acclimatization.

**Suggested Readings**Bach, W.: **Atmospheric Pollution**, McGraw Hill, New York, 1972.Barry, R. G.: **Mountain, Weather & Climate**, Methuen, London, 1981.Battan, L. J.: **Weather in Year Life**, Freeman, New York, 1983.Gates, D.M.: **Man and His Environment: Climate**, Harper & Row, New York, 1972.Griffiths, J.F.: **Applied Climatology: An Introduction**, Oxford, Univ. Press, London, 1968.Lamb, H.H.: **The Changing Climate** London, 1966.Lowry, W.P.: **Weather and Life: Introduction to bio-Meteorology**, Academic Press, New York, 1967.Mather, J.R.: **Climatology, Fundamentals and Application**, McGraw-Hill, New York 1974.Monteith, J. L.: **Vegetation and the Atmosphere, Vol. I & II**, Academic Press, London, 1976.Sutton, O.G.: **Micro-Meteorology**, McGraw Hill New York, 1952.Trewartha, G.T.: **An Introduction to Climate** New York, 1968.

**GE: 409: Watershed Management**

Credits - 4

Marks - 100

*Objectives:*

- *To introduce the basic concepts pertaining to the natural resource management in different watershed conditions of hill and mountain areas.*

## Unit-I:

Meaning and scope of watershed management, Delineation of watershed, its Elements and Approaches.

## Unit -II:

Structure and functions: Geomorphic, meteorological and hydrological

Parameters: Rainfall intensity, runoff characteristics and discharge rate,

## Unit -III:

Natural resources and human responses in watershed: soil, forest, water as natural resources and population interaction with them

## Unit - IV

Integration of watershed functions, processes and human interactions.

Its application for the resource management (soil, water and forests) in hill areas with special reference to North-Eastern Region of the country.

**Suggested Readings**

- Bevan, K.J.: **Rainfall Modeling**, John Wiley & Sons, New York, 2002.
- Biwas, A.K.: **Water: A Perspective on Global Issues and Politics**. Biswas Ed. 1980.
- Briscoe, J. & David: **Water for Rural communities**, Washington D.C. 1988.
- CWC.: **Water resource of India**, Publ. No.30/88. 1988
- Dawdy, D.R. et.al: **User's Guide for Distributing Routing Rainfall-Runoff Model**, U.S. Geological Survey, 1978.
- Elango, L. & R. Jayakumar: **Modeling in Hydrology**, UNESCO, New Delhi, 2001.
- Murty, JVS: **Watershed Management in India**, Wiley Eastern Ltd., New Delhi, 1994.
- Sen, D & A. Purandare: **Watershed Management a Viable Proposition to Develop North Eastern Region, Workshop on Watershed Management**, Shillong, Ind. NIRD Publ, 1984.
- Singh, V.P.: **Computer Models of Watershed Hydrology**, Water Resource Highlands Ranch Co, Washington, 1995.
- Wolf, E.C.: **Beyond the Green Revolution: New Approaches for Third World Agriculture**. WWI. Washington DC. Paper No. 73. 1986.

**GE - 410: Integrated Area Planning**

Credit : 4

Marks: 100

*Objectives:*

- *To expose the students towards holistic approach in area planning considering resources personality of the area.*

## Unit – I:

Meaning and scope of Integrated Area Planning, Elements of space economy, Concept of Spatio Functional Organization.

## Unit -- II :

Approaches to Area Development, Role of central places in the organization of space-economy, Decentralization of spatial system

## Unit- III:

Resource activities and their related functions, centrality and its measurements, functional hierarchies, locational behaviour and transport network

## Unit-IV:

Area Development Strategies: Spatial efficiency criteria, functional as well as locational choices, Distance-location relations, spatial interactions: mass-mobility and Distance-mobility relation Application of Integrated area approach with special reference to Hill areas and Plains of NE Region.

**Suggested Readings:**

- Baskin C.W. (translator): **Central Place Systems**, Prentice Hall Inc. New Jersey. 1966.  
 Bhat, L.S. et.al. : **Micro-Level Planning**, K.B. Publ. New Delhi, 1969.  
 Bos, H.C.: **Spatial Dispersion of Economic Activities**, Rotterdam Univ. Press, Rotterdam, 1965.  
 Gaile, G.L.: **Towards a Strategy of Growth Paths, Environment and Planning**, Vol. 55 (No.3) 1977.  
 Hanumantha Rao, C.H. & P.C. Joshi, (Ed): **Reflections on Economic Development and Social Change**, Allied Publ, New Delhi, 1979.  
 Isard, W.: **Location and Space Economy**, MIT Press, Cambridge, 1956.  
 Losch, A.: **The Economics of Location**, New Haven, Yale Press, 1954  
 Misra, R.P. & K.V Sundaram, . : **Multi-Level Planning and Integrated Rural Development in India**, Heritage Publ. New Delhi, 1980.  
 Nangia. S & T. Sukhdeo.: **Slum in a Metroplis- The Living Environment**, Shipra Publ, New Delhi, 2000.  
 Prakasha Rao, VLS: **Urbanisation in India-Spatial Dimensions**, concept Publ. New Delhi, 1983  
 Scott, A.J.: **Combinatorial Programming, Spatial Analysis and Planning**, Methuen, London, 1971.  
 Sharma, A.N.: **Spatial Approach for District Planning**, Concept Publ. New Delhi, 1981  
 United Nations Centre for Human Settlement (HABITAT): **A Urbanised World**, Oxford University Press, 1996  
 Whyt, R.O.: **The Spatial Geography of Rural Economics**, Oxford Univ. Press, New Delhi, 1982.

**GE-411: Geography of Central places**

Credits - 4

Marks - 100

*Objectives:*

- *To train students in the economies of agglomerations, their locational arrangements and role of central places in regional development.*

## Unit -I

Genesis concepts and theories of Central Places: spatio-functional organization, central place system vis-a-vis locational system, Locational arrangements of nodes, spacing, dispersion Approaches to the study of central place system role of central place system.

## Unit -II

Central place functions: Nature of Central functions and their distribution, functional hierarchy and functional characteristics at various hierarchical orders:

- (a) Rank-Size regularities and (b) population function relationship.

## Unit -III:

Measurements Centrality Measurements: Population threshold, graph theoretic technique, and centrality score measurements and activity weightages.

## Unit - IV

Central place and region: Core-periphery relations, its mechanism and individual cases from spatial organisation through metropolitan cities of India.

**Suggested Readings**

- Bird: **Centrality and Cities**, Routledge and Keagan Paul, London, 1977.
- Dogan, M. and D.K. John. (ed): **The Metropolis Era**, Vol 2 Mega Cities, Sage Publications, New Delhi, 1988.
- Haggett, P, D. Andrew. et.al. (ed.): **Locational Models** Arnold Heinemann, 1979.
- Hugh, M.: **City Form and Natural Process**, Croom Helm, London, 1984.
- King, L.J: **Central Place Theory**, Sage Publications, New Delhi, 1986.
- Lefebvre, H: **Writings on Cities**, Blackwell Publishers, U.K. 1996.
- Mishra, R.P. and K. Mishra: **Million Cities of India: Growth Dynamics, Internal Structure, Quality of Life and Planning Perspectives**, Sustainable Development Foundation, India Vol I and II, 1998.
- Mitra, A., S. Mukherjee and R. Bose.: **Indian Cities Abhinav** Publications, New Delhi, 1980.
- Nangia S. and Sukhadeo T.: **Slum in a Metropolis, The Living Environment**, Shipra, New Delhi, 2000.
- Nangia, S: **Delhi Metropolitan Region**, K.B. Publications, New Delhi, 1976.
- Prakasa Rao, V.L.S.: **Urbanization in India, Spatial Dimensions**, Concept Publishing Co, New Delhi, 1983.
- Qazi, Ahmad. : **Indian Cities, Characteristics and Correlates**, University of Chicago, U.S.A, 1965.
- Ramachandran, R: **Urbanization and Urban Systems in India**, Oxford University Press, New Delhi, 1992.
- United Nations Center for Human Settlements (HABITAT): **An Urbanizing World, Global Report on Human Settlements**, Oxford University Press for HABITAT, 1996.

**GE 412: Agricultural Geography**

Credit-4

Marks-100

*Objectives:*

- *To expose the students to the studies of physical conditions of agriculture in relation to its pattern, regional dimensions, and socio-economic factors.*

## Unit-I

Nature, Scope and Significance of Agricultural Geography.

Origin and development of agriculture, diffusion and adoption of crops and animals and genecentres.

Approaches to the study of Agricultural Geography: commodity, regional and systematic.

## Unit-II

Determinants of Agricultural Patterns:

Physical

Socio-economic and technological

Regionalization of Agricultural Patterns:

Cropping pattern, Crop Combination, diversification and specialization, degree and commercialization.

Crop intensity, efficiency and productivity patterns with special reference to India.

Green Revolution. - its impact and consequences.

## Unit-III

Agricultural Systems in the World:

Whittlesey's classification of agricultural regions and recent changes

Von Thunen's theory of agricultural location and recent modifications.

Landuse and land capability classification.

## Unit-IV

Agricultural Systems in India:

Agriculture in N.E Region

Shifting cultivation

Plantation agriculture.

**Suggested Readings**Clark, C. and M. Haswell: **The Economics of Subsistence Agriculture**, St. Martin, London, 1964Gobind, Nalini: **Regional Perspective and Agricultural Development**, Concept, Delhi, 1986.Gregor, H. P.: **Geography of Agriculture: Themes in Research**, Prentice Hall, N.Y. 1970Grigg, D.B. **The Agricultural Systems of the World**, Cambridge University Press, N.Y. 1974.Hussain, M.: **Agricultural Geography**, Inter-India Publication Delhi, 1979.Mannion, A.M: **Agriculture and Environment Change**, John Wiley, London, 1995.Morgan W B. and R.J.C Norton.: **Agricultural Geography**, Methuen, London, 1971.Sauer, Carl: **Agricultural Origins & Dispersals**, American Geographical Society (Bowman Memorial Lectures) New York, 1952.Singh, J & S.S Dhillon: **Agricultural Geography**, Tata McGraw Hill, New York, 1994.Symons, L.: **Agricultural Geography**, G. Bells and Sons, London, 1967.Tarrant, J.R.: **Agricultural Geography**, David & Charles, Newton, 1974.Wheeler, K.E., A.M. Ladley and F.G Leong: **Studies in Agricultural Geography**, Bland Educational, London, 1970.

**GE-413: Urban Geography**

Credits -4

Marks - 100

*Objectives:*

- *To understand the objects, purpose and scope of urban geography*
- *To appreciate the origin, growth and classification of cities with relevant models and theories*
- *To appreciate urbanisation as a socio-economic as well as a spatial process, an input as well as a product of modern development, especially its relation to developing countries and problems associated with urbanisation in India in the last century*
- *To understand appreciate problems and issues of urban planning and development and their relevance in the Indian context.*

## Unit-I

Nature and scope of urban geography; different approaches to the study of urban geography; recent trends.

Nature of the cities during ancient, medieval and modern times.

## Unit-II

Urban economy: Economic base, functions and functional classification; city hierarchy and rank-size relationship; urban systems.

Urban morphology and theories regarding morphology, changing city land use.

## Unit-III

Urbanisation in the Twentieth Century and predicament of developing countries; urban expansion and urbanisation in India; problems of small and medium towns; Indian metropolis.

## Unit-IV

Contemporary urban issues in India: slums and urban poor; urban infrastructure; Urban renewal; Housing; Urban environment and urban crimes. Urban planning in India.

**Suggested Readings:**

- Alam, S.M: **Hyderabad-Secunderabad Twin Cities**, Asia Publ, Bombay, 1964.
- Berry, B.J.L. & F.F. Horton: **Geographic Perspectives on Urban Systems**, Prentice-Hall, Englewood Cliffs, New Jersey, 1970
- Carter, H: **The Study of Urban Geography**, Edward Arnold, London, 1972.
- Castells, M: **The Urban Question**, Edward Arnold, London, 1975
- Dickinson, RE: **City and Region**, Routledge, London, 1964
- Dwyer, D.J: **The City as a Centre of Change in Asia**, University of Hong Kong, Hong Kong, 1971
- Gibbs, J.P(Ed): **Urban Research Methods**, Van Nostrand, Princeton, New Jersey, 1961
- GOI: **Report on Commission on Urbanisation**, MOUD, New Delhi, 1988.
- Harvey, D: **Social Justice and the City**, Edward Arnold, London, 1973.
- Harvey, D: **The Urbanisation of Capital**, Blackwell, Oxford, 1985
- Johnson, J.H: **Urban Geography: An Introductory Analysis**, Pergamon, London, 1967.
- Lefebvre, H: **The Production of Space**, Blackwell, Oxford, 1991 (French edition, 1974)
- Mayer, J.M. & C.F Kohn: (ed): **Readings in Urban Geography**, UCP, Chicago, 1959
- Mumford, L: **City in History**, Harcourt, NY, 1961.
- Murphy, RE: **The American City: An Urban Geography**, MacGraw Hill, NY, 1966
- Nangia, S: **Delhi Metropolitan Region**, Rajesh, New Delhi, 1976
- Raj Bala: **Urbanisation in India, 1901-1991**, Rawat, Jaipur, 1992.
- Ramachandran, R: **Urbanisation and Urban Systems of India**, Oxford, New Delhi, 1993.
- Rao, V.L.S: **The Structure of an Indian Metropolis**, Allied Publ, Bangalore, 1979
- Smailes, A.E: **Geography of Towns**, Hutchinson UP, London, 1953
- UN: **World Urbanisation (Report)**, UN, New York, 1995

**GE: 414 - Social Geography of India**

Credits - 4

Marks - 100

*Objectives:*

- To expose the students to the spatial patterns of social diversity in India as they have evolved over times;
- To highlight the significance of social factors and their contribution to the functioning of the Indian polity;
- To orient the students to the methodology of social geography with a view to initiating him/her to do socially relevant and meaningful research dealing with problems of Indian society.

*Unit-I Generalities*

Nature and Development of Social Geography in India  
 Social Geography in the Realm of Social Sciences  
 Social Diversity and Plurality in India and its Geographical interpretation  
 Geographical Factors behind India's History and Culture

*Unit - II Social Differentiation and Region Formation*

Transcontinental Migration and routes of early incursions into India  
 Evolution of socio-cultural regions: areas of attraction and isolation, perennial nuclear  
 Regions: evidences from *Mahajanapada* structure  
 Regional structure during the *Moguls*  
 The British ascendancy and its impact on the regional structure

*Unit-III Components of Social Diversity*

Tribe: Tribal social formation; spatial distribution of the Scheduled Tribes  
 Caste: Origins, Caste and Morphology of settlements, distribution of Scheduled Castes  
 Language: India as a linguistic area, geographic patterning of languages, historical process of language  
 diffusion, language domains, Language in tribal areas  
 Religion: spatial distribution of religious groups.

*Unit-IV Social Change*

Indian unity and diversity  
 Social transformation and change in India  
 Disparities in health care and development in education  
 Problems of national integration.

**Suggested Readings**

- Ahmad, Aijazuddin, : **Social Geography**, Rawat Publication, New Delhi, 1999.  
 Dubey, S.C. : **Indian Society**, National Book Trust, New Delhi, 1991.  
 Gregory, D. and J.Larry (eds): **Social Relations and Spatial Structures**, McMillan, 1985.  
 Maloney, Clarence: **People of South Asia**, Winston, New York, 1974.  
 Planning Commission, Government of India: **Report on Development of Tribal Areas**, 1981.  
 Rao, M.S.A.: **Urban Sociology in India**, Orient Longman, 1970..  
 Raza Moonis & A.Ahmad. : **An Atlas of Tribal India** Concept, New Delhi, 1990.  
 Schwartzberg Joseph: **An Historical Atlas of South Asia**, University of Chicago Press, Chicago, 1978.  
 Sen, Amartya & Dreze Jean, **Indian Development: Selected Regional Perspectives**, Oxford, 1996.  
 Singh, K.S.: **Tribal Situation in India** IIAS, Shimla, 1972.  
 Sopher, David. : **An Exploration of India**, Cornell University Press, 1980.  
 Srinivas, M.N.: **Caste in Modern India and Other Essays** Asia Pub House, Bombay, 1962  
 Srinivas, M.N.: **India: Social Structure** Hindustan, Delhi, 1986.  
 Subba Rao. : **Personality of India; Pre and Proto Historic Foundation of India and Pakistan**, M.S. University  
 Baroda, Vadodara, 1958.  
 Thapar, Romila: **A History of India**, Vol. 1, Hammondsworth, Penguin, 1977.

**GE- 415: Cultural Geography**

Credits-4

Marks-100

*Objectives:*

- *to understand diversity of cultures in the world as well as in India.*
- *To comprehend the diffusion of various ethnic traits and religions,*
- *To understand the relationship between cultures and pattern of living and economic development.*

## Unit-I

Introduction: Nature and scope of cultural geography; Definition, cultural element and components of culture; convergence and divergence processes; cultural changes: perception, behaviouralism and cultural relativism.

## Unit-II

Cultural Diversity: Bases of cultural diversity-race religion and language. Cultural diversity in world, cultural diversity and regionalization in India.

## Unit-III

Geography of ethnic groups and tribal groups. Religion and its diffusion; diffusion of ethnic traits in world as well as India; ethnic landscape and economy of the area; Diffusion in folk geography; cultural landscape and cultural ecology in folk geography; Religions: origin, diffusion and spatial distribution; religion and economic development.

## Unit-IV

(a) Patterns of livelihood: various economic activities and cultural adaptations; agriculture, industrialization and modernization; technological changes and their geographic implications.

(b) Human settlements: Relation to ideology, social structure and technology, social structure and technology, pattern of rural and urban society, social processes in the city, the city in the developing countries.

**Suggested Readings**

- Broek, J.C. and , J.W. Webb.: **A Geography of Mankind**, McGraw Hill, New York, 1978.
- Crang, Mike: **Cultural Geography**, Routledge Publications, London, 1998.
- Furer - Haimendorf, Christopher Von: **Tribes of India: The Struggle for Survival** Oxford, New Delhi, 1989.
- Hazra, (Ed): **Dimensions in Human Geography** Rawat Publication, Jaipur, 1997.
- Hutchinson, & D. Smith: **Ethnicity** Oxford University Press, Oxford, 1996.
- Jordon, & G. Lester: **The Human Mosaic** Harper & Row, New York, 1979.
- Massey, D & P. Jess.: **A place in the World: Places, Cultures and Globalization** Oxford, New York, 1995.
- Massey, et.al (Ed), **Human Geography Today**, Polity Press, Cambridge, 1999.
- Mukherjee, A.B. & Aijazuddin, Ahmad. **India: Culture, Society and Economy** Inter - India New Delhi, 1985.
- Schwartzberg, J.E: **Historical Atlas of South Asia** University of Chicago, 1978.
- Singh, A.K.: **Approaches to Tribal Development**, Swarup and Sona, New Delhi, 1994.
- Sopher, D.E.: **Exploration of India: Geographical Perspectives on Society & Culture**, Longman, London, 1980.
- Steve, P & .K. Michael (Ed): **Places and the Politics of Identity** Routledge, London, 1993.

**GE-416: Historical Geography**

Credits-4

Marks-100

*Objectives:*

- To familiarise the student in consulting basic source materials which may be used for the reconstruction of geography of India for different periods of Indian history.
- To acquaint them with the geography of selected periods of Indian past.

**Unit - I**

Nature and scope of Historical Geography and its relationship with history and geography. Relevance of history in geography and geography in history.

**Unit -II**

Source material for the reconstruction of historical geography with special reference to India; archaeological remains, religions texts and epics, chronicles, memoirs, travel accounts revenue records, place names, old maps, oral traditions in the form of mythology.

**Unit - III**

Geographical extent of Indus Valley Civilisation, physical and socio-economic bases of its emergence, spread, decline and fall. Geography of India during ancient period. Geographical spread of Aryans and territories of Mahajanapadas.

**Unit - IV**

Territorial organisation during Mughal period; delineation of Suba and Sarkar boundaries on the basis of Akbar Nama and Ain-i-Akbari.

Sources of information during colonial period, territorial arrangement for administration, comparative study of British Province and Princely states.

**Suggested Readings**

- Ali, S.M.: **The Geography of the Puranas**, People Publishing House, Delhi, 1966.
- Beal, S.: **Chinese Accounts of India: Travels of Hsien Tsiang**, Vols. 1-4, Calcutta, 1963.
- Cunningham, Alexander: **The Ancient Geography of India**, Bharatiya Publishing House, Varanasi, 1975.
- East, W. Gordon: **The Geography Behind History**, T. Nelson New Year, 1938.
- Habeeb, I.: **The Agrarian System of Mughal India**, Oxford University Press, London, 1963.
- Habeeb, Iran: **An Atlas of the Mughal Empire**, OUP, Delhi, 1982.
- Hartshorne, Richard: **The Nature of Geography**, Chapter on Historical Geography, AAG, Lancaster, Penn., 1939.
- Hasan, Mehdi: **The Rehla of Ibn Batuta**, Orient Institute, M.S. University, Baroda, 1953.
- Raza, M. & A. Ahmad: **Historical Geography**, A Survey of Research, Bombay 1972.
- Sastri, Nilkanth: **A History of Southy India**, OUP, Madras, 1976.
- Schwartzberg, J.: **Historical Atlas of South Asia**, Chicago University Press, Chicago, 1980.
- Sircar, D.C.: **Studies in the Geography of Ancient and Medieval India**, M.B. Das Publishing, Delhi, 1960.
- Wheeler, Mortimer: **Civilization of Indus Valley and Beyond** London, 1966.
- Wooldrige, S. W. & G. East, **Spirit and Purpose of Geography**, Hutchinson University, London, 1951.

**GE: 417 -Political Geography**

Credits - 4

Marks - 100

## Objectives:

- *To expose the students to the strategic importance of geographical parameters in Politics at global, national, regional and local levels.*
- *To sensitise the students to geopolitical dimensions and understanding of the conflicts and regional cooperation and to make them familiar with the Political Geography of the neighbouring countries.*

## Unit- I

Nature, scope and developments in Political Geography  
 Theoretical approaches in Political Geography (R.Hartshorne, S.B.Cohen and P.Taylor)  
 Geopolitical models in Political Geography (Mackinder, Spykman and D'Oriskany)  
 Interface of Political Geography and Environment

## Unit- II

Elements of State Power (Location, resource and population)  
 Frontiers and Boundaries  
 Nation and Nationalism; Federalism and other forms of Governance  
 Geography of Voting Behaviour

## Unit - III

Geopolitical significance of the Indian Ocean Area  
 Geopolitical significance of India's North-Eastern Neighbours  
 Political Geography and Regional Cooperation  
 Human Rights and its relevance.

## Unit IV

Political Geography of 21<sup>st</sup> Century India  
 Changing political map of India, centripetal and centrifugal forces,  
 Stability and instability, inter-state issues (like river disputes)  
 Conflict Resolutions, insurgency and terrorism

**Suggested Readings**

- Blij, Harm de: **Political Geography**, London, 1970.  
 Dikshit, R.D: **Political Geography, A Century of Progress**, Sage, Delhi, 1999.  
 Dikshit, R.D.: **Political Geography: A Contemporary Perspective**, Tata-Mcgraw, Delhi, 1996.  
 Fisher, C.A, et al: **Changong Map of Asia**, Methuen, London, 1968.  
 Gopalakrishnan, R: **Geography of India**, Jawahar, Delhi, 2001.  
 J. House & P.J. Taylor.: **Political Geography Recent Trend and Future Directions** London, 1991.  
 Prescott, J.R.V.: **Geography of Frontiers and Boundaries**, Aldine, Chicago, 1968.  
 Slowe, Peter: **Geography and Political Power**, Routledge, London, 1990.  
 Taylor, P.: **Political Geography**, Longman, London (Revised edition)1995.  
 Vincent, R.J.: **Human Rights and International Relations**, RIIA, Cambridge, 1991.

**GE- 418: Population Geography**

Credits - 4

Marks - 100

**Objectives:**

- To introduce the students to the complex dimensions of Population
- To understand and evaluate the association between demographic and socio-economic attributes of population and the resultant levels of social well being and economic development.
- To understand the role and relationship between population and environment in an ever changing space time continuum.

**Unit-I**

Population Geography: Scope and objectives; development of population Geography as a field of specialization, population and Demography; Sources of population data, their level of reliability, problems of mapping of population data.

**Unit-II**

Population distribution: density and growth-theoretical issues; Concept of under population and over population; Population redistribution; World patterns in population distribution and growth; Demographic Transition in India.

**Unit-III**

Population Composition: age and sex, family and households, literacy and education; rural and urban, occupational structure; Population Composition of India.

Population Dynamics: Measurement of fertility and mortality; migration: national and international; India's population dynamics.

**Unit-IV**

Population and Development: Population-resource regions, population policies in developed and developing countries; Human Development Index and its components; India's population policies; population and environment.

**Suggested Readings**

- Base, Ashish et.al.: **Population in India's Development (1947-2000)**; Vikas, New Delhi, 1974.  
 Bilasborraow, R.E and Daniel Hogon: **Population and Deforestation in Humid Tropics** IUSSP, Belgium, 1999.  
 Bogue, D.J.: **Principles in Demography** John Wiley, New York, 1969.  
 Census of India, India: **A State Profile**, 1991.  
 Chandna, R.C.: **Geography of Population: Concept, Determinants and Patterns**; Kalyani, New Delhi, 2000.  
 Clark, John, I.: **Population Geography**, Pergamon Press, Oxford, 1973.  
 Crook, Nigel: **Principles of Population and Development**, Pergamon, Press, N.Y. 1997.  
 Garnier, B.J.: **Geography of Population**, Longman, London, 1970.  
 Kosiniski & K.M. Elahi.: **Population Redistribution and Development in SE Asia**, Rawat, Jaipur, 1991.  
 Mamoria, C.B.: **India's Population Problem**, Kitab Mahal, New Delhi, 1981.  
 Mitra Ashok: **India's population: Heading Towards a Billion**, B.R. Publ. Corp. 1991.  
 Srinivasan, K. and M. Vlassoff: **Population Development Nexus in India: Challenges for the New Millenium**, Tata McGraw Hill, New Delhi, 2001.  
 Sundaram, K.V. and Sudesh Nangia (ed): **Population Geography**, Heritage, Delhi, 1986.  
 UNDP. : **Human Development Report**, Oxford University Press, Oxford, 2000.  
 Wood, R.: **Population Analysis in Geography**, Longman, London, 1979.  
 Zelinsky, Wilbur: **A Prologue to Population Geography**, Prentice Hall, 1966.

**GE: 419 -Dissertation**

**Credits - 4**  
**Marks - 100**

*Objective:*

- *To prepare the students to write research reports on specific problems.*

*The dissertation paper consists of two broad units: Research Methodology and actual report writing.*

**Section - A.**

Research Methodology consists of four weeks of theory containing the following topics.

- Identification of Research Problem
- Specification of aims and objectives
- Generating Hypothesis/Research questions
- Methods and Techniques of Data collection
- Processing and Analyzing Data
- Literature Survey, Annotation, Referencing etc.
- Report writing

**Section - B.**

The students shall identify a research problem in consultation with their respective supervisors. In order to maintain uniformity, the report should be organized into a number of chapters. There must be an introductory chapter which shall include a statement of the problem survey of literature, broad objectives of the research, Research questions, hypothesis and methodology adopted. The concluding chapter shall summarize the findings of the research in relation to the questions posed in the first chapter.

The theory component will consist of 25 marks to be evaluated internally.

The dissertation shall be evaluated by external experts with a weightage of 50 marks on the report writing and 25 marks on the viva-voce test.

**Suggested Readings**

- Archer, J.E. and T.H Dalton.: **Field Work in Geography**, E.T. Batsford Ltd., London, 1968.  
 Elhance, D.N.: **Fundamental of Statistics**, Kitab Mahal, Allahabad, 1972.  
 Gregory, S.: **Statistical Methods and the Geographer**, Longman London, 1963.  
 Jones, P.A.: **Field Work in Geography**, Longman, London, 1968.  
 Kothari C.R.: **Research Methodology in Social Sciences**, Inter India, New Delhi, 1982..  
 Stoddard, R.H.: **Field Techniques & Research Methods in Geography**, Kendall Hunt Publ. Dubuque, 1982..

**GE - 401: Environmental Geography**

Credits - 4

Marks - 100

*Objectives:*

- *To appreciate the main principles and concepts of environment in its regional dimensions.*

## Unit - I

The Nature of the environment: the land surface, the water and the atmosphere; Theory of Wegner's Continental Drift & Plate tectonics its significance, the earth's geological history.

Major components of the Environment:

- (a) The abiotic environment: Atmosphere & climate; the geologic cycle; Water, ice and wind landforms.
- (b) The biotic environment: Life forms in the biosphere; Life forms and energy supply; Global Biogeochemical cycle.

## Unit - II

(a) Ecosystems and Communities: - The nature of an ecosystem and its functions; Ecosystem and community structure; Energy in the Ecosystem; Ecosystem stability and resistance.

(b) The Human Community: - Concentration of population; Patterns of growth; Dynamics of population growth; Population concentration and environment relationship and interaction.

## Unit - III

(a) Resources for the Human Society: Definition and Significance; Air, water, minerals and their usage, Resource needs, utilization and management.

(b) Peoples and the environment: Natural hazards and man, people - environment - resource interaction, pollution and its effects, urbanization and its effects, high energy consuming life style linked to development.

## Unit - IV

(a) Environmental ethics and economics; Environmental standards, EIA; Environmental Planning.

(b) Disasters: Natural disasters, man made disasters, dimensions, management and controls, Risk in N.E., Nature of disasters and their management in N.E.

**Suggested Readings**

- Barry B.J.: **Land use Urban Form & Environment Quality**, Chicago, University of Chicago Press. 1974
- Dupont, R.R (ed): **Environmental Management: Problems & Solutions** Lewis Publishers, Boca Raton, USA, 1998
- Dutta Ray B. (ed) :**Social and Economic Profile of NE India** N.Delhi, B.R. Publish Co. 1978.
- Ehrlich P.R, et al: **Ecoscience: Population, resource, environment** San Francisco, W.H. Freeman, 1977
- Gates D.M.: **Man and his Environment: Climate** New York, Harper & Row. 1972.
- Goudie A.: **The Nature of the Environment** Oxford, Basil Blackwell, 1989
- Lindahl-Kiessling NK et.al.: **Population, Economic Development & the Environment** New York, Oxford University Press, 1994
- Moore D.M.: **Green Planet: the story of plant life on the Earth** Cambridge, Cambridge University Press. 1982.
- Rogers, J.W. et al :**People & the Earth: Basic issues in the Sustainability of Resources & Environment**, Cambridge University Press, New York. 1998
- Smith, K: **Environmental Hazards : Assessing Risk & Reducing Disaster**, Routledge, London, 2<sup>nd</sup> Ed. 1996
- Starkel L. et al (ed): **Rains, Landslides & Floods in the Darjeeling Himalayas** New Delhi, INSA. 2000
- Tarling D.H. et al:**The Continental Drift: a study of the earth's moving Surface** Harmondsworth, Penguin. 1977
- Viles H.A.: **Biogeomorphology** Oxford, Basil Blackwell. 1988
- Walter H.: **The vegetation of the earth** New York, Springer-Verlag, 1973.

**GE - 402: Advanced Geomorphology**Credits - 4  
Marks - 100**Objectives:**

- To enlighten the students about the advance techniques used in the study of landforms with citing examples from local area.

**Unit - I**

Development of geomorphic concepts, Development of geomorphology in U.S.A., Europe and Status of geomorphology in India.

Elementary knowledge of standard geological time scale.

Knowledge of Indian stratigraphy under following heads (a) Archaen rocks (b) Vindhyan rocks

(c) Gondwana rocks and (d) Tertiary rocks.

**Unit -II**

Evolution of Landforms and drainage in

(a) Domal (b) Faulted (c) folded structures.

Fundamentals of river mechanics, types of flow and variation of flow.

Drainage basin as a fundamental geomorphic unit. Drainage basin form and process, drainage basin morphometry.

**Unit - III**

The concept of terrain and its classification

The techniques of geomorphic mapping

Remote sensing and GIS application to fluvial environments.

**Unit - IV**

Applied geomorphology: (a) Mineral exploration, (b) Engineering projects,

(c) Selection of dam site and aerodrome sites, (d) Land use and Settlements,

(e) Transport and communication, (f) Urban geomorphology, (g) Environmental geomorphology, (h) Military geomorphology.

Regional geomorphology of NE Region with special reference (a) Meghalaya,

(b) Mizoram, (c) Assam and, (d) Tripura.

**Suggested Readings**

Davies, J.L.: **Landforms of cold climate**, The MJT Mak, 1969.

Easter Book, D.J.: **Principle of Geomorphology**, McGraw Hill book Co., 1969.

King C.A.M.: **Techniques in Geomorphology**, Edward Arnold, Ltd., London, 1966.

King, L.C.: **Morphology of the Earth**, Oliver and Boyd, London, 1962.

Krishnan, M.S.: **Geology of India and Burma**, Higgins and Bothams Ltd., Madras, 1962.

Leopold, L.B. et.al. : **Fluvial Processes in Geomorphology**, Asia Publ. House, New Delhi, 1969.

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Rai, R.K.: **Geomorphology of Sonar Bearma Basin**, Concept Publishing House, New Delhi, 1980.

Sharma, H.S.: **Perspectives in Geomorphology**, Vol. 1-IV, Concept Publishing House, New Delhi.

Small, R.J.: **The Study of Landforms**, Cambridge University, Press, Cambridge.

Thomas, M.F.: **Tropical Geomorphology**, Mcmillan, 1974.

Thornbury, W.D.: **Principles of Geomorphology**, John Wiley and Sons, New York, London, 1961.

Thornes, J.B., & Brunnsden, D.: **Geomorphology and Times**, London, 1977.

Tricart, J. et.al. : **Introduction to Climatic Geomorphology**, Macmillan, London, 1970.

**GE -403: Tropical Geomorphology**

Credits - 4

Marks - 100

*Objectives:*

- *To understand geomorphological processes and landform development under tropical environment.*

Unit - I:

Scope and Significance of Tropical Geomorphology; The Tropical Environment: Climatic elements and its effects, Nature of rocks and its importance, Natural Vegetation and its relevance.

Unit - II :

Geomorphic Processes:

- a) Weathering - Factors of weathering and its products, Weathering profile and depth of weathering, Duricrust and laterites – structure, morphology, profile, distribution and origin (special reference to India).
- b) Denudation – Mechanical and Chemical, Mass Movement, Slope wash and Stream erosion; Slope development and stability, Movement of materials down slope.

Unit - III:

Tropical Terrain: relief, drainage landforms and their characteristics, Landform development due to erosion and deposition.

Human activities in tropical areas: Impact of human activities, destruction of tropical forests, Role of tropical agricultural systems, Developmental efforts in tropical regions and its impact, strategies of conservation of tropical ecosystem

Unit V:

Methods and Techniques of evaluation of tropical landforms: identification and mapping, study of micro tropical landforms, environment and their utility through field visit to nearby sites; soil loss evaluation.

**Suggested Readings**

- Dikshit, K.R., Kale V.S., Kaul M.N.: **India Geomorphological Diversities**, Rawat, Jaipur, 1994.  
 Douglas, I. & Spencer, T. (eds): **Environmental Changes & Tropical Geomorphology**, George Allen & Unwin, London, 1985.  
 Faniran, A. K.: **Humid Tropical Geomorphology**, Longman Group Jije L.K. Ltd., New York, 1983.  
 Garner, H.F.: **Origin of Landscape - A Synthesis in Geomorphology**, Oxford University, Press, New York, 1974.  
 Kellman, A. and R. Tackaberry.: **Tropical Environments**, Route-ledge, London, 1997.  
 Ollier, C.D.: **Weathering**, Longman, London, 1975.  
 Thomas, Michael: **Tropical Geomorphology - A Study of Weathering and Landform Development in Warm Climates**, Macmillan, London, 1974.  
 Thoms, M.: **Geomorphology in the Tropics**, 1984.  
 Tricart, J & A. Cailleux.: **Introduction to Climatic Geomorphology**, Longman Green, London, 1972.  
 Tricart, J.: **The Landforms of the Humid Tropics, Forests and Savannas**, Longmans, London, 1972.  
 Twidale C.R.: **Analysis of Landform**, John Wiley, London, 1976.

**GE-404: Geography and Ecosystem**

Credits -4

Marks - 100

*Objectives:*

- *To appraise students with the interrelationship between man, the environment within which he lives and his linkages with other organisms.*

## Unit - I

Ecosystem concept and its components – functions, trophic levels, niches, energy and nutrients in the ecosystem, global water circulation; Geography and its relation with the ecosystem; geography as human ecology.

## Unit- II

Resource: Classification, significance and distribution. Utilisation of soil, forest, energy, water and air; Major Terrestrial ecosystems as resource base: agricultural, forest, grassland and desert ecosystems. Population growth in the different ecosystems and its effects on environment; Carrying capacity of the earth

## Unit III

Man – environment relationship: resource use & ecological imbalance; Human activities and disruption of different ecosystems; Global Food Security, Biodiversity & its conservation; Environmental Management: Principles, standards, EIA, Environmental Auditing & Quality of Life, Management of ecosystems & Sustainable development.

## Unit IV

Environmental Legislations: Background history of Environmental conferences; Govt. of India's response to environmental issues- policies & programmes. Social consequences of Pollution; Environmental Geography:

**Suggested Readings**

- Agarwal, A. and S. Sen.: **The Citizens Fifth Report**, Centre for Science and Environment New Delhi, 1999..  
 Bodkin, E.: **Environmental Studies**, George Bragiller New York, 1958.  
 Brookins, D.G.: **Earth Resources, Energy and the Environment** Columbus, Ohio, CE Mavil, 1981.  
 Chandna, R.C.: **Environmental Awareness**, Kalyani Publishers, New Delhi, 1998.  
 Chorley, R.J. **Geomorphology and General Systems Theory**, U.S.G.S. Professional Paper, 500B, 1962.  
 Cutter, S.L.: **Environmental Risks and Hazards** New Jersey, Prentice Hall, Englewood Cliffs, 1994.  
 Dupont, R.R (ed): **Environmental Management : Problems & Solutions** Lewis Publishers, Boca Raton, SA, 1998  
 Ehrlich P.R, et al: **Eco-science: Population, Resource, Environment** San Francisco, W.H. Freeman. 1977  
 Eyre, S.R. and G.R.J. Jones, (ed), **Geography as Human Ecology**, Edward Arnold, London, 1966.  
 Kumar, Arun (ed): **Environmental Problems: Protection and Control** Anmol, New Delhi, 1999.  
 Singh, S.: **Environmental Geography**, Prayag Publications, Allahabad, 1991.  
 Smith, R.L.: **Man and his Environment: An Ecosystem Approach**, Harpar & Raw, London, 1992.

**GE-405: Bio-geography**

**Credits - 4**  
**Marks - 100**

**Objectives:**

- *To familiarize the students about the importance of bio-diversity and conservation of Bio-Resources*

**Unit - I**

Nature, scope and significance and Bio-geography  
Emergence of "Bio" concept in Geography  
Concept of ecology, ecosystem, succession and ecological adaptation.  
Soil as organic medium.

**Unit - II**

Bio-geographical regions of the world: Phyto-geographical regions and zoo-geographical regions.  
Bio-geographical regions of India with reference to North East India.  
Elements of plant geography; distribution of forests and major communities.  
Aquatic environment and life: distribution of marine and freshwater flora and fauna.

**Unit - III**

Bio-diversity: Concept and significance.  
Bio-diversity and Global Climate change: Tropical ecosystem, Grassland ecosystem, wetlands, coral reefs, mangroves.

**Unit - IV**

Conservation of wildlife and forests, Soil conservation  
Afforestation, reforestry, social forestry, International and Natural Policies: Tropical Forest Action Plan, International Tropical, Timber Agreement, Forest and Environment policies in India.

**Suggested Readings**

- Bansereau, B.,M. : **Bio-geography: An Ecological perspective**, Ronald Press, N.Y.1957.  
Botkin, D.B. & E.A. Keller: **Environmental Studies**, Bell & Howell, Ohio, 1982.  
Cox Barry, C. et.al: **Bio-geography: An Ecological and Evolutionary Approach**, Black well, Oxford, 1977.  
Darlington, P.J.: **Zoo-Geography : The Geographical Distribution of Animals**, Wiley, New York, 1957  
Froman R.T.T. & Godron, M: **Landscape Ecology**, John Wiley & Sons, London, 1986.  
Gleason, H.A. & Cronquist, A.: **The Natural Geography of Plants**, Columbia Univ. Press, N. York, 1964.  
Good, R: **The Geography of Flowering Plants**, Longman, Lond, 1974.  
Groombridge, B.: **Global Bio-diversity: Status of the Earths Living Resources**, Chaptman & Hall, 1992.  
Hagget, R.J.: **Fundamentals of Bio-geography**, Rautledge, USA, 1998.  
Howard, J.A. & Mitchell C.W.: **Phyto-Geomorphology** John Wiley & Sons, 1985.  
Hyot, J.B.: **Man and the Earth**, Prentice Hall, U.S.A. 1992.  
Illies, J.: **Introduction to Zoo-geography**, Macmillan, London, 1974.  
Joy, T.: **Bio-geography: A Study of Plants in the Ecosphere** Oliver & Boyd, Edinbrough, 1977.  
Mani, M.S. (Ed): **Bio-geography of India**, The Hague, 1972.  
Martin, C.: **Plant Geography**, Methuen, London, 1975.  
Mathur H.S.: **Essentials of Bio-geography**, Amy Printers, Jaipur, 1998.  
Mc Knight Tom. L.: **Physical Geography: a Landscape Appreciation** Prentice Hall, 1993.  
Meyen, F.J.F.: **The Geography of Plants**, Aavishkar Publ. Dsitributors, Jaipur, 1986.  
Negi, S.S.: **Bio-diversity and its conservation in India**, Indus Publishing Co., New Delhi, 1993.  
Pears N: **Basic Bio-geography**, Education, Longman, London, 1985.  
Robinson, H.: **Bio-geography**, McDonald, London, 1982.  
Schimper A.f. W.: **Plant Geography**. Cramer-Weinheim New York, 1964.  
Smith G.H.: **Conservation of Natural Resources**, Wiley & Sons, London, 1962.  
Viles, H.A.: **Bio-geomorphology** Oxford, Basil Blackwell, 1988.

**GE-406: Soil Geography**Credits - 4  
Marks - 100*Objectives*

- To acquaint the students with the nature, significance and the characteristics of most vital resource of the biosphere,
- To study spatial distribution of various properties of soil and their relationship with subsurface water, fertility status and plants.

## Unit - I

*Geography and Soils:*

Nature, scope and significance of soil geography, and its relationship with environment

Soil as a dynamic medium: spatio-temporal variations in soil forming factors

Soil as a three dimensional medium: Soil forming processes

## Unit - II.

*Soil Properties, Development and Environment:*

Physical: soil texture, soil structure and porosity, soil temperature, soil air, and soil colour

Chemical: soil acidity (pH), iron, aluminium and silica, macro (NPK) and micro nutrients

Overview of soil organic matter: supply of organic matter to the soil, breakdown of organic matter in the soil and humus content

Characteristics of different Soil profiles:

## Unit - III

*Soil as a Resource:*

Soil fertility status, Land classification on the basis of soil characteristics

Soil pollution and conservation.

## Unit - IV

*Soil Survey, Analysis and Classification:*

The study of soil in field, laboratory, maps and through RS, Basis of soil Taxonomy, Soil Taxonomy given by the Russian Scientists and USDA.

**Suggested Readings**

- Ahmad, Enyat.: **Soil Erosion in India**, Asia Publ. House, Bombay, 1973.  
 Birkeland, P.W.: **Soils and Geomorphology**, Oxford University, Press, New York, 1984.  
 Biswas, T.D. and Mukherjee, S.K. : **Textbook of Soil Science**, Tata McGraw Hill, New Delhi, 1995.  
 Brady, N.C.: **The Nature and Properties of Soils**, McMillan, New York, 1990.  
 Bunting, B.T.: **The Geography of Soils**, Hutchinson, London, 1973.  
 Cruickshank, J.G.: (Third Impression), **Soil Geography**, David and Charles, Newton Abbot, 1977.  
 De, N.K.: **Soil Geography**, Sribhum Publ. Calcutta, 1993.  
 Goudie, Andres, (reprint of the II edition): **The Nature of the Environment**, Basil Blackwell, Oxford, 1990.  
 Jenny, H.: **Factors of Soil Formation**, McGraw, New York, 1941.  
 Pitty, A.P.: **Geography and Soil Properties**, Methuen and Co., Ltd., London, 1978.  
 Robinson, H.: **Bio-geography**, ELSB Macdonald and Evans Ltd., Plymouth, U.K., 1978.  
 Russell, E.J.: **The Soils of the World**, Fountana Library, Collins, 1961.  
 Strahler, A. and Strahler, A.: **Introducing Physical Geography**, John Wiley & Sons, Inc., New York, 1996.  
 Thornbury, W.D.: **Principles of Geomorphology**, Wiley Eastern Ltd., New Delhi, 1989.

5:2:20(1)

xx) Revised M A (Education) syllabus.

The School Board of Humanities and Education in its meeting held on 18th, October '02 while finalising the revised syllabus for M A Education suggested that bibliography should be added and also to try and ensure uniformity with other disciplines in the matter of number of topics as well as unitization.

The syllabus received from the Education Department is placed as Annexure-'A'

SG

Department of Education –M. A. Syllabus 2002  
NEHU, Shillong

Revised M.A(Education) Syllabus as per UGC model curriculum :

The Revised draft Syllabus for M.A(Education) as per UGC model was finalised and approved. The revised Course structure is as follows:

M. A.(Education) shall be two year programme with four semesters. There shall be 16 Courses: 12 Core Courses including Laboratory Practicals and 4 Elective( two from Category A & two courses from Category B)

Semester I

- EC: 1. Advanced Philosophy of Education.
- EC: 2. Advanced Psychology of Education
- EC: 3. Research Methodology and Statistics in Education
- EC: 4. Educational Management and change

Semester II

- EC: 5. Curriculum Development and Instruction
- EC: 6. Advanced Sociology of Education
- EC: 7. Educational Testing and Evaluation
- EC: 8. Environmental Education

Semester III

- EC: 9. Educational Technology
- EC: 10. Educational Systems in a Comparative Perspective
- EC: 11. Elective I (Category A)
- EC: 12. Elective II (Category B)

Semester IV

- EC: 13. Laboratory Practicals
- EC: 14. Higher Education in India
- EC: 15. Elective III (Category A)
- EC: 16. Elective IV (Category B)

Note: Students have to select:

2 Elective Courses from Category A and 2 Elective Courses from Category B. The choice of the two courses from Category B is restricted to any one of the four pairs of subjects.

Elective Category A:OP. A.

1. Economics of Education
2. Human Rights and Peace Education\*
3. Early Childhood Education
4. Guidance and Counseling
5. Education for Empowerment of Women
6. Education for Rural Development
7. Mental Health and Hygiene \*
8. Experimental Education.

Elective Category B:OP. B

1. Special Education
  - (i) Education for the Gifted and Creative
  - (ii) Education for Physically and Mentally Challenged \*
2. Educational Thought
  - (i) Eastern Educational Thought
  - (ii) Western Educational Thought
3. Value & Yoga Education
  - (i) Value Education
  - (ii) Yoga Education
4. Teacher Education
  - (i) Teacher Education
  - (ii) Methods of Teaching at Tertiary Level

\*The detailed Course Contents have to be developed later.

EC:1. ADVANCED PHILOSOPHY OF EDUCATIONObjectives

- (i) To help students understand about the contribution of Philosophy to the field of Education
- (ii) To understand the meaning, function and Significance of Philosophy and Educational Philosophy.
- (iii) To familiarize the students about the contribution of various Indian Schools of Philosophy to the field of Education
- (iv) To acquaint students about the concept of Social Philosophy, Nature and Source of Knowledge

Unit 1. Philosophy Of Education

- Relationship between Education and Philosophy.
- Meaning, Nature and Scope of philosophy of Education.
- Functions of philosophy of Education (speculative, normative and critical)
- Philosophical inquiries in education

Unit 2. Philosophical Bases of Educational Aims

- Aims of Education in relation to philosophy of Life.
- Aims of Education and the process of Education.
- Sources for determining aims of education.

Unit 3. Philosophical approaches in Education(A) Indian School of philosophy

- Samkhya.
- Vedanta.
- Nyaya.
- Buddhism.
- Jainism.
- Islamic Traditions with special reference to their educational implications

(B) Western School of Philosophy

- Logical Positivism, Existentialism, Marxism with special reference to their educational implications

Unit 4. Knowledge and Curriculum

- Meaning and Nature and Sources of knowledge
- Forms of knowledge
- Philosophical bases of curriculum(Logical, ethical and aesthetic)

**Unit 5. Values in Education**

- Meaning and nature of Values
- Hierarchies of values
- Education, National Values and The Constitution of India

**Unit 6. Social Philosophy of education**

- Freedom, Equality, Democracy and Responsibility

**SUGGESTED READINGS**

1. Bramel, D.T. : Patterns of Educational Policy, Hold Rinehart & Winston, New York, 1971.
2. Curtis, S.J.: Introduction to Philosophy of Education., London University, Tutorial Press, 1968.
3. Brown, L. M. : Aims of Education , Teachers College Press, New York, 1970.
4. Brubacher, R.S.: Modern Philosophies of Education, Chicago University Press, Chicago, 1955
5. Cohen, B.: Means and Ends in Education, George Allen & Unwin, London, 1983.
6. Dewey, J.: Democracy & Education and Introduction into Philosophy of Education, The Free Press, New York, 1966.
7. Fitzgibbons, R. E.: Making Educational Decision: An introduction to Philosophy of Education, Harcourt Brace Jorannovich, New York, 1981
8. Kneller, G. F.: Introduction to Philosophy of Education, John Witty & Sons, 1971.
9. Lawton, D.: Class Culture and Curriculum, Routledge & Regan Paul, London, 1975.
10. Mukherjee, R. K.: Ancient Indian Education, Motilal Banarasidas, 1974
11. McChellan, J.E. Philosophy of Education, Prentice Hall Inc, New Jersey, 1976.
12. Morris, V.: Existentialism in Education, Harper & Row, New York, 1966
13. Narareth, M. P.: Education Goals, Aims and Objectives, Vikash, New Delhi, 1984
14. O'Cunnon, D. J.: An Introduction to the Philosophy of Education, Vinod Pustak Mandir, Agra, 1963.
15. Pandey, R. S.: An Introduction to Major Philosophies of Education, Vinod Pustak Mandir, Agra, 1982.
16. Peters, R. S.: Authority, Responsibility & Education, Lon George Allen Unwin, 1963.

17. Peters, R. S.: Philosophy of Education,
18. Reid, L. A.: Philosophy and Education, Jaineman, London, 1982.
19. Peters, R. S.: Introduction to Indian philosophy, Tata McGrow Hill, New Delhi , 1971.
19. Stemmer, N.: Roots of Knowledge, Basil Blackwell, Oxford. 1983.
20. Sectharamu, A. S.: Philosophies of Education, Ashish, New Delhi, 1978.
21. White, J.: Aims of Education., Routledge and Kegan Paul, London, 1982.
22. Wimjo, M. : Philosophies of Education: An Introduction, Sterling Publishers Pvt. Ltd., New Delhi, 1975.
23. Radhakrishnan, S. and Moore.: Source Book of Indian philosophy, Allen & Uncoin.

EC: 2. ADVANCED EDUCATIONAL PSYCHOLOGY.

Objectives:

To make the students understand about:

1. Nature of growth and development
2. Definition, nature and factors influencing learning
3. The meaning and nature of Higher mental processes.
4. The meaning of adjustment of Personality
5. Concept of motivation and its relationship to learning
6. Different theories of learning and their educational implications
7. Meaning and nature of creativity and its development.

Unit 1. Educational Psychology as applied field of Psychology

- Psychology as scientific study of behaviours
- Educational Psychology as applied field
- Scope and nature of Educational Psychology

Unit 2. Growth and Development

- Meaning of growth and development
- Principles of development and their educational implications
- Erickson's theory of Psycho-social development
- Kohlberg's theory of moral development.

Unit 3. Intelligence and Creativity

- Theories of Intelligence: Guilferd's structure of Intellect, Thurstone's Group Factor theory, Cattell's Fluid and Crystallized Intelligence.
- Piaget's Theory of cognitive Development.
- Concept & Process of Creativity, creativity and Intelligence relationship
- Development of Creativity (Brain Storming & Synectics)

Unit 4. Motivation

- Meaning and factors affecting motivation
- Role of motivation in learning
- Atkinson's theory of achievement motivation
- Masloui's self-actualization theory.

**Unit 5. Learning theories and their Educational implications**

- Classical and Operant conditioning theories
- Kurt Lewin's Field theory
- Hull's reinforcement theory
- Tolman's sign Gestalt theory
- Gagne's hierarchical theory of learning

**Unit 6. Personality, Mental Health and Adjustment**

- Development and structure of Personality
- Theories of Personality: Psychoanalytical Theory (Freud, Adler and Jung)
- Carl Roger's self theory Eysenck's theory of personality
- Role of Home School and Society in promoting mental Health
- Adjustment mechanism implications for education

**SUGGESTED READINGS**

1. Atkinson, J.W. &: A theory of Achievement Motivation, Wiley Publishers, New York, 1960  
Feather, N.T
2. Calvin S.Hall &: Theories of Personality, Wiley Eastern, New Delhi, (1978).  
Gardinar Lyngzey
3. Cattell, R.B : Theories of Personality, Wiley Publishers, New York, 1978
4. Crombach, L.J.: Educational Psychology, American Book Co., New York (1978)
5. Crow, R.B. &: Educational Psychology, Eurasia Publishing house, New Delhi(1964)  
Crow, A
6. Dececee, J. P. : The Psychology of Learning & Instruction, Prentice Hall, New Delhi (1970)
7. Eysenck, H. J. : Dimensions of Personality, Kegan Paul London, (1947)
8. Gagne, R. M. : The Conditions of Learning (2nd edition) Rhinehart & Winston New York  
(1976)
9. Guilford, J.P. : The Nature of Human Intelligence, McGraw Hill, New York, (1967)
10. Hall, C. S. & : Theories of Personality (3rd Edition), John Wiley, New York, 1978  
Lindsey, G.
11. Hilgard, E.O. : Theories of Learning ( 4<sup>th</sup> Edition), Appleton-Century Crgts, New York, 1976
12. Hurlack, E.B. : Child Psychology, McGraw Hill, Tokyo,
13. Jitendra Mohan: Educational Psychology, Wiley Eastern New Delhi, 1993
14. Kakkar, S.B. : Educational Psychology and Guidance, The Associated Publishers, Ambala, 2000
15. Kuppawami, B. : Advanced Educational Psychology, Jalandhar University, Publications,  
Jalandhar, 1963

16. Maslow, A : Motivation and Personality, Harper & Raw, New York, 1954.
17. Pillai N.P. : Psychological Foundations of Education, Kalaniketan, Trivandrum, 1972.  
Pillai, K. S. &  
Nair, K. S.
18. Robert Craig, et.all: Contemporary Educational Psychology,
19. Skinner, C. E. : Essentials of Educational Psychology, Prentice Hall of India, New Delhi, 1970
20. Suchitra Deshprabhu. : Educational Psychology and Child Development, Eastern Book House, Guwahati(1998)

EC.: RESEARCH METHODOLOGY AND STATISTICS IN EDUCATION

Objectives

To enable the students to understand about the

- (i) Sources from where knowledge could be obtained
- (ii) Nature, scope and limitation of educational research
- (iii) Modalities necessary for formulating research problem
- (iv) Sources for obtaining the data, analyzing and drawing for solving an educational problem  
Major approaches that are available for conducting the educational research and preparing and communication of result-the research report.

Unit 1. Educational Research- Problem, Proposal and Report

- Methods of acquiring knowledge: tradition, experience, authority, reasoning(deductive and inductive), scientific method.
- Meaning, need and importance and scope of Educational Research
- Types of Educational Research: fundamental, applied, and Action
- Formulation of research problem, Identification, Selection, Defining and Delimitation of Problem
- Hypothesis: Characteristics, Types, formulation and Tasting
- Preparation of research proposal

Unit 2. Data Collection and Analysis

- Types of data : Qualitative and Quantitative
- Techniques and Tools of data Collection
  - (a) Documentary Sources
  - (b) Observation
  - (c) Questionnaires and Schedules
  - (d) Interview
  - (e) Rating Scales and Tests
- Reliability and Validity of tools
- Sampling
  - (a) Population and Sample
  - (b) (b) Methods:(i) Probability Sampling
    - Random, Systematic, Stratified, Cluster
  - (ii) Non-Probability Sampling
    - Purposive, Incidental

Unit 3. Methods of Research

- Historical Research
  - Need and Significance
  - Sources and Collection of data
  - Establishing validity and Interpretation of data
- Descriptive Research
  - Need and use, steps and interpretation
  - Survey studies
  - Case study.
  - Developmental studies
  - Correlation studies
- Experimental Research
  - Nature
  - Validity-Internal & External
  - Role of Control
  - Expost facto research, Laboratory Experiment,
  - Field Experiment
  - Designs-Single Group and Parallel Group

Unit 4. Probability Distribution

- Concept of probability
- Concept of Binomial distribution
- Concept of Normal distribution
- Characteristics of Normal distribution
- Kurtosis and Skewness
- Applications of Normal distribution

Unit 5. Correlation

- Coefficient of correlation by Pearson's Product Moment Method for Grouped data
- Biseial, Point-biserial, . Tetrachoric and Phi-coefficient of correlation
- Partial and Multiple correlation

Unit 6. Inferential Statistics

- (a) Parametric Statistics
  - Concept of Parameter and Statistics
  - Sampling Distribution of Mean
  - Standard Error of Mean
  - Confidence Intervals and Levels of confidence for the true mean for
    - (a) Large Sample (b) Small Sample
  - Testing the significance of the difference ( t test) between
    - (a) Means of two independent large samples
    - (b) Means of two small independent samples
    - (c) Any two correlated means
  - Concept of one-tailed and two tailed tests
  - F-Test (One way Analysis of Variance (ANOVA) )

## (b) Non-parametric Statistics

- Concept of non-parametric tests
- Use and Computation of Chi-square test

SUGGESTED READINGS

1. Best, J.W. & Kahn, J.V.: Research in Education, (6<sup>th</sup> edition) Prentice Hall of India ,Pvt. Ltd. New Delhi. 1989
2. Van Dalen, D.B & Meyer, W.J.: Understanding Educational Research, McGraw Hill C., New York, 1979
3. Kerlinger F.N.: Foundation of Behaviour Research, Surjeet Publications, Delhi, 1978
4. Sukia S. P, & Others: Elements of Educational Research, (3rd edition), Allied Publishers, Bombay, 1974
5. Sax, G.: Empirical Foundation of educational Research, Englewood Cliffs, N. J, 1968
6. Good Barr & Scales.: Methodology of Educational Research, Appletion Crofts, New york, 1962
7. Tuckman, B.W.: Analysing and Designing Educational Research, Hercourt Brace Javanovich, Inc., New York, 1978
8. Garrett,H. B.: Statistics in Psychology and Education, Vckils, Feffer & Simens Ltd, Bombay, 1988
9. Tuckman,B.W.: Conducting Educational Research(2<sup>nd</sup> edition), Hercourt Brace Javanovich, Inc., New York, 1979
10. Kurtz,A. K. & Mayo, S.T.: Statistical Methods in Education and Psychology, Narosa Publishing House, New Delhi,1980.
11. Buch, M. B.: A Survey of Research in Education, CASE, M. S. University, Baroda, 1974
12. Eaglehart Max, D.; Methods of Educational Research, Rind McNlly and Co, Chicago, 1972
13. Wilkinson, & Bhandarkar, Methodology and Techniquies of Social Research, Himalaya Publishing House, Bombay, 1994
14. Blalock,H. M. : Social Statistics, McGraw Hill, New York,1981.
15. Seigal, Sydne, Y.: Non-parametric Statistics for Behavioural Science, McGraw Hill, New Delhi, 1978
16. Singh, Arun Kumar,: Tests , Measurement & Research Methods in Behavioural Science, McGraw Hill, New Delhi, 1986
17. Guilford, J.P. & Fruchter, B.: Fundamental Statistics in Psychology & Education, McGraw Hill, New York , 1974
18. Bruce, Tuchman,: Conducting Research, Harcourt Brace. Inc. New York 1978

Fox, D. J.: The Research Process in Education, Holt Rinehart and Winston, Inc. New York, 1969

20. Koul, .: Methodology of Educational Research, Vilash Publishers, New Delhi, 1984

#### EC.4: EDUCATIONAL MANAGEMENT AND CHANGE

##### Objectives

To enable the student to understand about

- (i) The meaning, Types and Characteristics of Educational Organizations
- (ii) The Principles and Process of management of educational institutions
- (iii) Managing change in educational institutions
- (iv) The importance and Process of personal management in educational organizations
- (v) The trends and techniques of Educational Management

##### Unit 1. Organizations and their Management

- Organizations : Meaning, Types and Characteristics of educational organizations
- Educational Management : Development of Management thought and practice with special reference to the contributions Tayler and Fayol; Principles of management
- Aspects of Educational Management: Planning, organising, supervising and controlling
- Leadership in Educational Organisations: Meaning and Nature, Nature of Leadership
- Styles of Leadership and Development of leadership

##### Unit 2. Managing Change in Education

- The changing world scenario as background for change, the need towards change population growth, technological and scientific development, educational growth and diffusion of knowledge
- Planning for change: concept and objectives of planned change process
- Approaches to change: Need based, people oriented, and task oriented
- The stages of Change process: awareness, interest, conviction, evaluation, trial, acceptance and adoption ( Rogers, Ryan and Gross.)

##### Unit 3. Personal Management in Educational Organization

- Meaning and scope of personnel management in educational organizations
- Dynamics of Human Behaviour: Interpersonal; behaviour, behaviour norms: code of ethics for students, teachers and administrative staff
- Conflict management: conflict, strategy for management of intra-personal, interpersonal and organizational conflicts.
- Professional growth of Educational Personnel: concept of professional growth, factors facilitating professional growth personnel services, evaluation of professional growth

Unit 4. Resources and their management in Educational Institutions.

- The concept of systems approach in educational organizations: goals, resources activities, technology
- Resources and their types: Human Physical, financial, instructional, community, government and other agencies
- Economic dimensions of resource management: Resource allocation and their efficient use, budgeting: concept, forms, process of budgeting

Unit 5. Educational Planning

- Meaning and Nature of educational planning, goals of planning
- Approaches to Educational Planning: Social demand approach, man power approach, rate of return approach
- The planning process and procedure at central and state levels, institutional planning
- Educational planning in India: Role of National Development Council, Planning Commission and State Planning Board

Unit 6. Trends and Techniques in Educational Management

- Programme evaluation and Review Technique (PERT)
- Planning Programme budgeting system (PPBS) and their applications in educational organizations
- Management by objectives (MDO)
- Total quality management (TQM)
- Their applications in educational organizations

SUGGESTED READINGS

1. Thomas, J. Sergiovann et;al; Educational Governance and Administration, Prentice Hall, 1987.
2. NIEPA: Educational Management in India, New Delhi, NIEPA, 1986

3. Bhagia, H.M. et;al; Educational Administration in India and Other Developing Countries. New Delhi, Commonwealth Publication, 1990.
4. Singhal R.P. et;al; School Inspection System. A Modern Approach. Vikash Publishing House, 12986
5. Tanner D. & Lawrel T.: Supervision in Education Problems and Practices, New York, McMillan Pub.,Co., 1987
6. Ananda W.P. Gurunge: General Principles of Management for Educational Planners and Administrators, Paris, UNESCO. 1984.
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9. Hostrop, R.W.: Managing Education for Results, ETC Publication, 1975
10. Werral , N.: People and Decision, London Longman. 1980
11. Flippo, E. B.: Personnel Management , McGraw Hill, (7<sup>th</sup> edition.) 1984
12. Goel , S.D. : Modern Management Techniques, New Delhi, Deep and Deep, 1987
13. Wehrich & Koontz, H. : Essentials of Management, New York, McGraw Hill, 1990
14. Wehrich &.Koontz , H .: Management :A global Perspective, New York, Mc Graw Hill, 1993
15. Fred Luthens.: Organisational Behaviour, Tokyo:McGraw Hill: International Book Co., 1996
16. Henleta Telenva & Et.al. Educational Management:Innovative Global Patterns, New Delhi, 1997

## **EC. 5. CURRICULUM DEVELOPMENT**

### **Objectives**

- (i) To acquaint the students with the concept and development of curriculum as a field of study.
- (ii) To help the students to understand the bases and determinants of curriculum.
- (iii) To familiarise the students with curriculum design, process and curriculum development.
- (iv) To help the students to understand content, implementation and evaluation of curriculum.

### **Unit 1. Introduction to Curriculum Development**

- Meaning, Nature and purpose of curriculum
- Concept of curriculum development.
- History of curriculum Development
- Criteria of curriculum development: articulation, continuity, Balance

### **Unit 2. Foundation of Curriculum Development**

- Philosophical foundation
- Socio-cultural foundation
- Psycho-linguistic foundation

### **Unit 3. Curriculum Design**

- Components of Curriculum Design
- Types of Curriculum Design
- Subject-centred, Activity-cum-experience centred
- Undifferentiated and differentiated
- Core Curriculum

Unit 4. Process of Curriculum Development

- Selection of aims and objectives
- Identification of learning activities and experiences
- Organisation of learning activities and experiences
- Evaluation of learning activities and experiences

Unit 5. Instructional Materials and Curriculum Transaction

- Text book and Allied Instructional materials ; Handbook, Manual workbook
- Preparation and evaluation of Text book
- Analysis of curricular content
- Instructional Planning for effective teaching

Unit 6. Curriculum Evaluation

- Need for curriculum evaluation
- Aspects of curriculum evaluation
- Models of curriculum evaluation
- Factors influencing change in curriculum
- Curriculum research in India

SUGGESTED READINGS

1. Saylor J.Galen, William Alexander &: Curriculum planning for Better Teaching & Learning  
Arthur J. Lewis (4th edition), Hold Renhart & Winston, New York, 1980
2. Dell, Ronald C. : Curriculum Improvement : Decision Making & Process. (6th edition)  
Allyn & Bacon, Inc., London, 1986.
3. Diamond, Robert M.: Designing & Improving Courses & Curricula in Higher Education  
A systematic Approach, Jossey Bass Inc.. Publishers, California, 1989
4. Mamidi, Malla Reddey & Ravishankar(eds).: Curriculum Development & Educational  
Technology, Sterling Publishers Private Limited, New Delhi, 1984
5. Taba Hilda.: Curriculum Development: Theory and Practice, Harcourt Brace, Jovanovich Inc.,  
New York, 1962.
6. Tyler, Ralph. W.: Basic Principles of Curriculum & Instruction, The University of Chicago Press,  
Chicago, 1974.

7. Oliva, Peter F.: Developing the Curriculum(2nd Edition.), Scott, Foresman & Co, 1983.
8. Wheeler D.K. : Curriculum Process, University of London Press, 1967.
9. Verduin J. R.: Cooperative Curriculum Improvement, Prentice Hall, 1967.
10. Aggarwal. J. C.: Curriculum Reform in India: World Oversies, Doab World Education Series -3, Delhi, Doab House, Book Seller & Publishers, 1990.
11. NCERT : Curriculum & Evaluation, NCERT, New Delhi, 1984.
12. Trum J. Lyod.: Secondary School Curriculum Improvement, Prentice Hall, 1967.
13. NCERT: National Curriculum for Elementary & Secondary Education. A Frame Work, NCERT, New Delhi, 1988.
14. Dewey, John.: The Child and the Curriculum, The University of Chicago Press, Chicago, 1966.
15. Das, R..C. : Curriculum and Evaluation, NCERT, New Delhi.
16. Dellay, A.V.; Curriculum : Theory and Practice, Harper & Row Publishing Inc., New York, 1977.
17. Taylor, Ralp.: Basic Principles of Curriculum, The University of Chicago Press, Chicago.
18. UNESCO.: Curricula & Lifelong Education, Paris, UNESCO, 1981.
19. Brent, Allen.: Philosophical foundations for the Curriculum, Boston, Allen and Unwin, 1978.

**EC: 6. ADVANCED SOCIOLOGY OF EDUCATION**

**Objectives**

- (i) To Expose the students about the meaning and nature of Sociology of Education and Social Organizations.
- (ii) To familiarise the students the concept of social interaction, group dynamics social change and the contribution of education these aspects.
- (iii) To acquaint students with the meaning and concept of modernisation, industrialisation, Westernisation and social processes.

**Unit 1. Concept and Approaches**

- Meaning and Scope of sociology of education
- Sociological approaches to education and their limitations
- Sociology of Education in India-Status and trends

**Unit 2. Culture and Education**

- Concept of culture, characteristics and components of culture-cultural. change and its determinants. cultural by
- Culture as the basis of personality and social behaviour
- Influence of education on culture.

**Unit 3. Education and Socialisation**

- Process of socialisation, Bandura's theory of social learning
- Agencies of socialisation- school/college, family, peer group community and mass Media
- Development of self, self-concept and self-esteem theories(Cooley, Mead, Freud, Erick-son and Rogers)
- Socio-psychological characteristics of students

**Unit 4. Social Interactions and their educational implications**

- Social groups -process and basis of social interactions
- Typology of social groups-primary, secondary and tertiary groups; formal and informal groups, ingroups and out groups; their educational relevance
- Interpersonal relationships in classroom, classroom climate; organisational climate type, dimensions and educational effects.
- Group dynamics group cohesion, group conflicts and their relations, sociometry and Guees who techniques to study social interactions.

**Unit 5. Education as Social System**

- Education as a social sub-system.
- Education as a factor of social stratification and social mobility
- Equality of educational opportunity and education for social justice and peace.
- Concept of community, school-community relationships
- Community schools and colleges and their educational importance.

**Unit 6. Education and Social Change**

- Social Change: meaning and concept.
- Theories and factors of social change
- Forms of social change;(with reference to India) Sankritisation, industrialisation, urbanisation, modernisation, westernisation
- Role of education in modernisation and social change
- Education in relation to democracy, freedom, national integration and International understanding.

**SUGGESTED READINGS**

1. Adiseshiah, W.T.V. & Pavanasam. R.: Sociology in Theory and Practice, Santhi Publishers, New Delhi, 1974
2. Barry, H. & Johnson, L.V.: Classroom Group behaviour: Group Dynamics in Education, John Wiley & Sons, New York, 1964.
3. Blackledge, D.& Hunt, Barry.: Sociological Interpretations of Education, Groom Helm, London, 1985
4. Cook L, A & Cook,E. E.A .: Sociological Approach to Education, McGraw Hill, NeYork,1970
5. D'Souz A. A.: The Human Factor in Education, Orient Longmans, New Delhi, 1969.
6. Durkheim, E.: Education and Sociology, The free Press, New York,1966.
7. Inkeles, A. & Smith.: Becoming Modern, Hanoman New York, 1982.
8. Jayaram, : Sociology of Education, Rawat, New Delhi, 1990.
9. Mohanty, J.: Indian Education in Emergency Society, New Sterling Publishers, 1982..
10. Bajendra Pade,: Modernisation and Social Change, Criterion Publication, 1988.
11. Shukla, S. & K. Kumar.: Sociological Perspective in Education, Chanakya Publication, New Delhi, 1985.
12. UNESCO: Inequalities and Educational Development, ANIIEP Seminar, Paris, UNESCO, 1982

**EC.7 : EDUCATIONAL TESTING AND EVALUATION**

**OBJECTIES:**

To make the students understand the

- (i) Basic concepts of Testing
- (ii) Emerging Trends in Educational evaluation
- (iii) Methods of establishing test reliability validity and norms
- (iv) Procedure of test construction and standardisation
- (v) Theory of some important behaviour measuring scales, tests and inventories

**Unit 1. Educational objectives and Educational Evaluation**

- Meaning, importance, levels of Educational Objectives- cognitive, affective and psychomotor domains
- Concept of Test, Measurement and Evaluation
- Purposes of Evaluation
- Summative and Formative Evaluation, Internal assessment, grading, Question Bank

**Unit 2 Methods of Establishing Validity, Reliability and Norms of a Test**

- Validity of a Test-Different types of validation
- Reliability of a Test- Different types of Reliability
- Factors affecting reliability
- Relationship between reliability and validity
- Meaning of Significance of Norms
- Types of Norms
  - (a) Developmental Norms- age norms, grade norms, ordinal scales
  - (b) Within Group Norms -percentiles, standard scores, T.scores, O-scores, stanine

**Unit 3. Achievement Tests**

- Construction and Standardization of an Achievement test
- Learning for Mastery; criterion referenced tests and norms referenced tests

**Unit 4. Construction of attitude Scales**

- Thurstone Method.
- Likert Method

**Unit 5. Intelligence and Aptitude Tests**

- Concept of an Intelligence Test and Aptitude Test.
- A study of the following tests
  - (i) Stanford -Binet Intelligence Scale (original and revised versions.)
  - (ii) Wechsler Scales of Intelligence.
  - (iii) Differential Aptitude Test(DAT)

**Unit 6. Personality Tests and Interest Inventories**

- A study of the following tools:
  - Thematic Appreciation Test (TAT)
  - Cattell's 16 P.F.
  - Kuder Preference Record
  - Chatterji's Non-verbal Preference Record.

**SUGGESTED READINGS**

1. Anastasi A. : Psychological Testing (4th edition), McMillan Pub Co, New York, 1976.
2. Freeman F. S. : Theory and Practice of Psychological Testing , (3<sup>rd</sup> edition), Oxford & IBH Pub.Co. , New Delhi, 1976.
3. Edwards A. L.: Techniques of Attitude Scale Construction, Feffer & Simens private Ltd., Bombay, 1975.
4. Tuckman B.W.: Measuring Educational Outcome: Fundamental of Testing, Harchourt Brace, Jovanovich, New York, 1975.
5. Harper (Jr.) A. E. & Harper E.S.: Preparing objective Examination. A Handbook for Teachers, Students and Examiners, Prentice Hall of India Private Ltd., New Delhi, 1990
6. Singh (ed): Criterion – Referenced Measurement, (selected readings), NCERT, New Delhi, 1990.
7. Sax G.: Principles of Educational Measurement and Evaluation , Woodworth publishing, California, 1974.
8. Cronbach L J.: Essentials of Psychological Testing (3rd edition), Harper & Row publishers, New York, 1970.
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10. Ebel R. L. & Frisbei D. A. : Essentials of Educational Measurement, Prentice Hall, 1986.

11. Thorndike R.L. & Hagen E. P.: Measurement and Evaluation in Psychology and Education, (4<sup>th</sup> edition), John Wiley & Sons, New York, 1977.
12. Bloom B.S & Others.: Handbook of Formative and Summative Evaluation of Student Learning, McGraw Hill Book Co., New York, 1971.

### EC.8.: ENVIRONMENTAL EDUCATION

#### OBJECTIVES

To make the students to:

- (i) Understand the meaning, nature and importance of education to develop sensitivity towards environmental issues.
- (ii) Know the relationship between man and environment and understand the need for a sustainable development.
- (iii) Develop competence of environmental Education.
- (iv) Understand Environmental degradation and their proactive measures.
- (v) To familiarize with the curriculum and methods of teaching environmental Education.

#### Unit 1. Environmental Concepts

- Concept of Environment and Ecosystems.
- Natural System – Earth and bio-sphere, abiotic and biotic components, bio-diversity, degradation of resource.
- Human systems- human beings as part of environment, human adaptations to Environment, population and its effect on environmental resources.
- Technological Systems- industrial growth, scientific and technological Inventions and their impact on the environmental systems.

#### Unit 2. Environmental Degradation

- Environmental pollution; air, water, and land
- Extinction of Flora and Fauna, Deforestation, soil erosion.
- Global -environmental issues; Ozone layer depletion, Green house effect, Acid rain
- Need for conservation, preservation and protection of rich environmental heritage

**Unit 3 . Environmental Education**

- Concept, Importance, and Scope of Environmental Education
- Aims and Objectives of Environmental Education
- Distinction between Environmental Education & Environmental Science
- Guiding Principles and Foundations of Environmental Education
- Special Significance of Environmental Education for sustainable development

**Unit 4. Curriculum and Methods of Environmental Education**

- Interdisciplinary and multidisciplinary approach to environmental Education
- Curriculum of environmental Education of Primary, Secondary, and Higher Education
- Practical work on environmental Education
- Methods – discussion, Seminar, workshop, dialogue, problem solving, field surveys, project, exhibition
- Role of Media-print, films, T.V

**Unit 4. Curriculum and Methods of Environmental Education**

- Interdisciplinary and multidisciplinary approach to environmental Education.
- Curriculum of environmental Education of Primary, Secondary, and Higher Education
- Practical work on environmental Education
- Methods – discussion, Seminar, workshop, dialogue, problem solving, field surveys, project, exhibition.
- Role of Media-print, films, T.V

**Unit 5. Evaluation in Environmental Education.**

- Objectives of evaluation in environmental education; estimating awareness, understanding, and application of knowledge for protection of environment, attitudinal and value change.
- Tools and techniques; achievement and performance test attitude and value change.
- Importance of Practicals and reports

**Unit. 6. Teacher preparation and Research in environmental education**

- Role of teachers and community in environmental. Education
- Teacher preparation strategies for various levels of education
- Trend of research in environmental education in India

### SUGGESTED READINGS

1. Agarwal S. K: Automobile Pollution, Ashish Publishing House 8/81, Punjabi Bagh, New Delhi, 1991
2. Agarwal S. K : Tiwari swarnalatha:lta.Dubey P.S.: Biodiversity and Environment, APH Publishing Operation, 5, Darya Ganj, New Delhi, 1996.
3. Agarwal . P & Rana S. V.S.: Environment and Natural Resources, Jugmander Book Agency, New Delhi, 1986.
4. Botkin Daniel B & Keller Edward A.: Environmental Science, Earth a living Planet, John Wiley & Sons Inc New York, 2000
5. Chauhan I. S. & Chauhan Arun.: Environmental Degradation, Prem Rawat for Rawat Publications, Jaipur, 1998.
6. Gokulanathan pai P.P (eds):. Environmental Education, NEHU Publication, Shillong, 2000.
7. Gurcharan Singh, Agarwal S. K, Sethi Inderjee.: Degrading Environment. Commonwealth Publishers, New Delhi, 1993.
8. Dhyani S.N.: Management of Environmental hazards , Vikas Publishing House Pvt. Ltd., New Delhi, 1993.
9. Gupta Sunit.: Global Environment Current Status, Sarup & Sons, Darya Ganj, New Delhi,
10. . Hussain Zahid.: Environmental Degradation and Conservation in North East India, Omsons Publications, New Delhi, 1996.
11. Ignasimulther, S. J.: Environmental Awareness & Protection, Phaenix Publishing House Pvt. Ltd., New Delhi, 1998.
12. Rao, V. K. & Reddy R. S. Environmental Education , Commonwealth Publishers, Darya Ganj, New Delhi, 1997.

13. Ratore, M .S.:Environment and Development, Rawat Publications, Jaipur, 1996.
14. Melita Shekar, Mundle Sudipto Sankar, U.: Controlling Pollution, Saga Publications India Pvt. Ltd., New Delhi.
15. Nanda V. K.: Environmental Education, Anmol Publication Pvt.Ltd., New Dulhi, 1997.
16. Satapathy Nityananda.: Sustainable Development, Karnavati Publications, Ahmedabad.
17. Sharma, P.D.: Ecology and Environment, Published by Rakesh Kumar, Rastogi for Rastogi Pubs, Meerut, 2000
18. Sharma, R.K. Environmental Education, Surya Publication, Meerut,, 1997.
19. Sinha, P.C.: Biodiversity Depletion, Anmol Publication, Pvt.Ltd., New Dulhi, 1998.
20. Singh Rajendra & Mishra Dinesh Kumar.: Development and Environmental Change in India, APH Publishing Cooperation, New Delhi, 1996.

### EC:9. EDUCATIONAL TECHNOLOGY

#### Objectives

To make the students understand the

- (i) Various approaches to educational technology.
- (ii) the process of communication in teaching learning process.
- (iii) Various models of teaching.
- (iv) Mechanics of Programmed Learning.
- (v) Emerging trends in educational technology.

#### Unit 1. Introduction to Educational Technology

- Meaning, nature, Scope and significance of Educational Technology
- Components of Educational Technology -hardware, software
- Systems approach in Educational Technology
- Multimedia approach in Educational Technology
- Evaluation and Educational Technology.

#### Unit 2. Communication Process

- Concept of communication principles
- Classroom communication; verbal and Non-verbal communication
- Factors affecting classroom interaction communication

- Observation schedules of classroom interaction
  - (a) Flaners's Interaction Analysis Categories System (FIACS)
  - (b) Equivalent Talk Categories(ETC)
  - (c) Reciprocal Category System (RCS)

**Unit 3. Designing Instructional System**

- Difference between teaching and instruction, conditioning and training.
- Teaching at different levels-memory, understanding and reflective
- Modification of teaching behavior; microteaching, interaction Analysis systems, simulation.

**Unit 4. Designing Instructional System**

- Formulation of instructional objectives
- Task analysis
- Designing of instructional strategies, such as lecture, team teaching, discussion,
- Panel discussion, Seminars and tutorials

**Unit 5. Models of Teaching**

- Concept of Models of Teaching
- Essential elements of four families of teaching Models
  - (a) the social Interaction (Role Play)
  - (b) the information-processing (Inquiry training)
  - (c) the personal models (Non-directive teaching.)
  - (d) the behavioural systems (Learning self-control)

**Unit 6 . Programmed Learning**

- Basic Principles of programmed Learning
- Styles in programming: (a) linear
  - (b) branching
  - (c) mathematics
- Mechanics of developing programmed Learning materials
- Teaching machine
- Computer Aided Instruction

**SUGGESTED READINGS**

1. Sharma R. A. . Programmed Instruction: An Instructional Technology, International Publishing House, Meerut, 1962
2. Sharma R. A. : Technology of Teaching, International Publishing House, Meerut, 1991
3. Chauhan S.S.: A Text Book of Programmed Instruction, Sterling Publishers Pvt. Ltd., New Delhi, 1978
4. Joyce B.& Weil M.: Models of Teaching(4<sup>th</sup> edition), Prentice Hall of India Pvt. Ltd., New Delhi, 1992
5. Bloom S. S.: Taxonomy of Educational Objectives, Handbook 1, Cognitive domain, Longman Group Ltd, London, 1974
6. Skinner B. F.: The Technology of Teaching, Appleton Century Croft, New York, 1968.
7. Jose Chander N.: Management of Distance Education, Sterling Publishers Pvt. Ltd., New Delhi, 1991.
8. Flanders N.: Analysing Teaching Behaviour , Addison Wesley Pub. Co., London, 1971
9. Bajpai A. D. & Leedham J.F.: Aspects of educational Technology Part IV, Pitman Pub.Co., New Yorkk: 1970.
10. Deceeco J. P. : The Psychology of Learning and Instructional Technology , Prentice Hall of India, Pvt. Ltd., New Delhi, 1970
11. Sampeth K : Instruction to educational Technology, (3<sup>rd</sup> revised Edition) , Sterling Publishers Pvt. Ltd., New Delhi, 1992.

**EC.10. Educational System in a Comparative Perspective**

**Objective**

- (i) To acquaint the students with educational systems in developed and Third World Countries.
- (ii) To help the students to use the results of assessment made by various countries and to know the role of UNO and its various bodies for the promotion of Indian education
- (iii) To create a perspective in the students about the implications of education for solving the problems of education in India

**Unit 1. Education and Development**

- Importance of the study of educational systems in a Comparative perspective
- Education for economic, social and cultural development
- Factors determining the educational systems of a country

**Unit 2. Systems of education in developed countries**

- Structure and Distinctive features of the systems of education in U.K., U. S .A., Japan

**Unit 3. Systems of education in Third World Counties**

- Structure and distinctive features of the systems of Education in China, Pakistan,

Sri Lanka, India

Unit 4. Education for Peace and Global Consciousness

- Educational programmes for global consciousness and development, peace, security and environment protection

Unit 5. Education for Human Welfare

- Role played by UNO, UNESCO, UNICEFF, ACEID, SAARC

Unit 6. Problems prevailing in developing countries with special reference to India, their cause and solution through education

- Poverty and population explosion
- Illiteracy
- Equalisation of educational opportunities.
- Political instability and role of education
- Economic instability and role of education

SUGGESTED READINGS

1. John Francis Grammer & George Stephenson Brown., Contemporary Education: A Comprehensive Study of National Systems, 1965
2. Kalil Gozel.: Educational Comparative and International Perspective, Holt Rinehart & Winston, Inc. New York., 1971
3. Philip, E., H. John.: Comparative Education, Purpose and Methods, University of Greenland Press, Australia 1971
4. Kandel, R. L. : Studies in Comparative Education, George G. Harrap and Co. Ltd., 1933
5. Hans, Nicholas.: Comparative Education, American View of Educational Research, 1936.
6. Harris Collin( ed) World Perspective, Allied Publishers, 1974
7. UNESCO, Growth and Change : Perspectives of Education in Asia, Sterling Publishers . 1973.
8. UNESCO, International Year Book of education: Vol. XXXIII, 1981 and XXXV, 1983.

9. UNESCO. World Problem in Education: A brief Analytical Survey, 1975.
10. Sharma. A. P.: Contemporary problem of Education, New Delhi, 1972.
11. Gorge, Z. F. Bereday.: Comparative methods in Education
12. Sheodore L. Repler & Edger L. Merphet.: Comparative Educational Administration,  
Prentice Hall. Inc., Engwood Cliffs, London,, 1962.
13. Smith, W.O.L. : Education in Great Britain , Oxford University Press
14. Ward.H.: The Education System of England and Wales and Its Recent History,
15. Kenneth, R. K.: Education in U.S.A ,Alwen Ltd., London, 1956.
16. Russel, J.D. & Judd C.H. : The American Educational System.
17. Department of Education. : General Survey of Education in Japan, Tokyo, 1937.
18. Keenkysiel, H.L.& Thomas, A. P. : History of Japanese Education and Present, educational System.

#### EC:13 LABORATORY PRACTICAS

Minimum of 6 experiments and 6 tests to be completed:

<u>Experiments</u>	<u>Tests</u>
1. Learning	Creativity
2. Reaction Time	Intelligence
3. Attention time	Interest
4. Concept Formation	Adjustment
5. Memory	Motivation
6. Association	Personality
7. Classroom Association	Aptitude
8. Sociometry	Attitude
9. Psycho-physical	Reading Comprehension
10. Sensation and Perception	Aspiration

#### Evaluation Scheme

Sessional = 25

Semester Exam = 75 (30 for Experiment & 30 for Test , 15 Viva Voce)

Suggested Readings

1. McGuigan . : Experimental Psychology, Prentice Hall of India, New Delhi, 1990
2. Parameswaran. : Experimental Psychology. Allied Publishers. Bombay, 1984.
3. Choube. : Experimental Psychology.
4. Collins Mary & Drever James: Experimental Psychology, Gayatri Offset Press, New Delhi, 1976.
5. Postman Leo & Egan J.P. Experimental Psychology, Kalyani Publishers, Ludhiana, 1949

EC:14. HIGHER EDUCATION IN INDIA

Objectives

To enable the students to understand about the

- (1) growth and development of Indian Higher Education in a historical perspective.
- (2) The role played by various bodies in the development of Indian Higher Education
- (3) The social role played by higher education in India
- (4) Problems confronting Indian Higher Education

1 . Introduction to Higher Education in India

- Meaning and goals; structure of higher education; constitutional provision regarding higher education
- Policy perspectives and emerging trends in higher education.

2. Higher Education in a historical perspective

- Higher education in India- Vedic period, Buddhistic period and Muslim periods.
- Modern higher education in India- the despatch 1854 and subsequent development during the British period
- Development of Indian Higher Education in free India, commission and committee reports.
- National policy of education in 1986
- Higher Education through various five year plans.

3. Planning and Management of Higher Education

- Bodies involved; Ministry of Education at the centre and in the states, planning commission and planning bodies, UGC.

- Association of Indian Universities
- IGNOU and its role in open education
- National Assessment and Accreditation Council
- Managing and Institution of Higher Learning
- Financing of Higher Education – sources, management of finances- issues in financing higher education

4. Curriculum in Higher Education

- Curriculum Planning
- Curriculum Development
- Curriculum Transaction
- Curriculum Evaluation

5. Higher Education in India

- Higher Education and Socio-economic development
- Quality Vs Quantity higher education- considerations
- Autonomy in higher education
- Innovations in higher education

6. Emerging Social Role of Higher Education

- Emergence of contemporary Indian Society- role of higher education
- The Emerging professional role of teachers in higher education institutions
- Role of research in development – issues.

SUGGESTED READINGS

1. Moonis Raza (ed) : Higher education in India, retrospect and Prospect, New Delhi; Association of Indian Universities, 1991.
2. Philip Altbach. : Comparative Perspective on the Academic Profession, New York, Praeger, 1985
3. Ravi Mathai. : The rural University, New Delhi, Popular, 1985.
4. UGC : Development of Indian Higher Education in India, New Delhi, 1982
5. Amrit Lal Vohra. : Management of Higher Education in India, New Delhi, Anmol Publications, 1990  
&  
S.R. Sharma:
6. P. Singh. : Financing University Education, New Delhi, 1982.
7. R. S. Sharma : Higher Education, Scope & Development. 1995, Commonwealth publishers.

8. G. Ram Reddy. : Higher Education in India, Sterling Publishers, 1995.
9. S. R. Dongerkery.: University autonomy in India. Bombay, 1967.
10. J. N. Kaul. : Higher Education, Social Change and National Development, Shimla, 1975
11. Dahiya, B. S.: Higher Education in India, Some Reflections. New Delhi, 1996.
12. Ralph G. Lewis & : Total Quality in Higher Education, Vanity book, International, New Delhi,  
Douglas H. Smith 1998.
13. Garg, V. P.: Financing Higher Education, Scope & its Limits, Radha Publication, New Delhi,  
1976.
14. Amrik Singh & : The Higher Learning in India, Vikash Publishing Home Pvt., Ltd., Delhi,  
Philip G. Altbac 1974.
15. Mathur , M. V. & Others: Indian Universities System Revitalization and Reference, 1994.
16. Dongerkery, S. R.: University Autonomy in India, Lalxani, Bombay, 1967.
17. Dongerkery, S. R.: University Education in India, Manaktabs, Bombay, 1967
18. Naik, J. P. : Educational Planning in India, Allied Publishers, Bombay, 1965.
19. Naruallah Syeed & : A student History of Education in India, MacMillan, Bombay, 1972.  
Naik, J.P.
20. Mulcherji, S. N.: Education of Teachers in India ( 2 Volumes), S. Chand, Delhi, 1968.

Elective Category 'A'

OPA 1. : ECONOMICS OF EDUCATION

Objectives

To make the students understand the

- (i) Concept and Scope of Economics of Education
- (ii) Economic thought of on Education
- (iii) Concept of human Capital and Human Resource Development
- (iv) Concept of cost and benefits of Education
- (v) Concept of productivity and efficiency of Education

Unit 1. Introductory of Concepts

- Concept, Need & Significance, Scope of Economics of Education, Education & Economic Relationship
- Education as an economic good, Education as consumption and investment
- Economic thoughts on Educational: Classical, Neo-Classical and Modern
- Education as Industry: A critical analysis

Unit 2. Education and Human Capital

- Concept and importance of Human Capital, Peculiarities of Human Capital as Compared to Physical Capital, Schulz's Human Capital Theory of Education and its criticism
- Concept and importance of Human Resources Development . Harbison & Meyer's study of

composit HRD Index. Process of Human capital formation

- Strategies for developing Human Resource with reference to developing countries Problems hindering the development Human resources.
- Education as a factor of affecting employment

### Unit 3. Education and Economic Development

- Concept of Economic growth & Development
- Educational Pre-requisition for Economic growth
- Contribution of Education to economic growth : Critical and Empirical Analysis
- Relative significance of different levels/types of Education in Economic development( with special reference to India)

### Unit 4. Cost & Benefits of Education

- Social and private cost, opportunity cost, Unit cost
- Average and Marginal cost, Problems in measuring educational cost.
- Direct(Social & Private) and Indirect benefits of Education( spill-over and externalities)
- Approaches to Measuring the benefits of Education: Correlation approach, Residential Approach
- Rate of Return Approach i.e( Cost Benefit Analysis), Their critical Evaluation.

### Unit 5. Productivity and Efficiency of Education

- Input- Process – Output Model of Educational Production System
- Productivity of Educational System, Internal and External Productivity, Productivity of Agricultural Education and Vocational Education
- Efficiency of Educational System- Integral and External Efficiency
- Educational Strategy for Productivity, efficiency and development
- Cost-Effectiveness Analysis in Education

### Unit 6. Educational Planning and Financing

- Approaches to Educational Planning: (a) Social Demand Approach (b) Manpower requirement approach (c) Rate of Return approach
- Techniques of manpower forecasting: (a) Employer's Opinion Method (b) Goldstein Past Trend Analysis (c) Density Ratio Method (d) Parne's Man Power Dut-Put Ratio Method (e) International Comparison Method
- Financing of Education: Need, importance & Principles criteria for Educational Investment Decisions
- Modernization and effective utilization of resources for education.

SUGGESTED READINGS

1. Blaug, M.: Economics of Education. Vol -I & II, FIBS & Penguin
2. Blaug, M.: An Introduction to Economics of Education, Penguin
3. .Baljeet Singh: Education as Investment ( Economics of Indian Education), Meenakshi Prakashan, Meerut.
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5. Harbison & Myers: Education, Manpower and Economics growth, Oxford & IBH.
6. Pandit, H. N.: Measurement of cost Productivity & Efficiency of Education, NCERT, New Delhi.
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8. Pscharoculos, G. & Woodhall, M.: Education for Development- An Analysis of Investment choices
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**Elective OPA.3: EARLY CHILDHOOD EDUCATION**

**OBJECTIVES**

- (i) To help the students understand the need and importance of early Childhood Education
- (ii) To familiarise the students about the contribution of great Educationists in the field of Early Childhood Education
- (iii) To acquaint the students with the different programmes and methods used in the Early Childhood Education.

**Unit 1. Introduction to Early Childhood Education**

- Need, Importance and Objectives
- Methods of Child Study
- Significance Child rearing practices & learning
- Development of Pre-School Education in India

**Unit 2. Contributions of Philosophers and Educationists to Pre-School Education**

- Jean Jacques Rousseau
- Frederich Wilhelm August Froebel

- Maria Montessori
- Mahatma Gandhi
- Tarabai Modak

**Unit 3. Different Aspects of Child Development**

- Physical Development
- Emotional Development
- Social Development/Processes
- Cognitive Development
- Language Development

**Unit 4. Pre-School Education**

- Activities and Programmes for Pre-School Education
- Characteristics of a balanced Pre-School Curriculum
- Planning of Pre-School Curriculum
- Evaluation of Pre-School Curriculum and its activities

**Unit 5. Methods and Programmes of Early Childhood Education**

- Nursery, Balawadi, Anganwadi and Day care programmes and activities
- Nursery, Balawadi, Anganwadi and Day care programmes and activities
- Basic Principles underlying the methods of Early Childhood Education  
Agencies conducting Pre-Schools and their management(Central Social Welfare Board, Social Welfare Board, Meghalaya, Indian Council for Child's Welfare etc.)

**Unit 6. Teacher Preparation for Pre-school Education in India**

- Trend and researches of Early Childhood Education

**SUGGESTED READINGS**

1. Aggarwal, J.C.: Methods and materials of Nursery Education, Doba House, Delhi, 1990
2. Grewl, J.S. : Early Childhood Education, National Psychological Corporation, Agra, 1984
3. Pankajam: Pre-School Education in India,
4. Day Barbara: Early Childhood Education: Organising Learning Activities, McMillan, New York, 1983
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6. Travers, J.E: The Growing Child. Introduction to Child Development, Johnm Kluey, New York, 1977
7. Winch, F.R.: The Modern Family, New York: Holt, Rinehart and Winston Inc., 1971.
8. Burgers, E & Locke, H.J.: The Family, New York: American Book Co., 1953.

9. Sebald ,H.: Adolescence – A social Psychological analysis, London: The McMillan Company, 1970.
10. English, H.B.:Dynamics of Child Development, New York, Holt, Rinehart and Winston, 1961.
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14. Hurlock, E.B. : Developmental Psychology, Bombay, Tata McGraw Hill Publishing Co., 1968.
15. Nedinnus ,G.R & Johnson, R.C. :Child Development and Personality, New York, Harper and Row Publishers, 1974.
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Elective Category A. OPA(4)

GUIDANCE AND COUNSELLING

OBJECTIVES

To help the students to understand about

- (i) the scope and importance of guidance
- (ii) the various type of guidance
- (iii) the nature, principles of and approaches to counseling
- (iv) the various techniques of guidance
- (v) the trends of research in guidance and counseling

Unit 1. Introduction to guidance

- Meaning, nature and scope of guidance, Need for guidance
- Principles of guidance
- Historical development of guidance & counseling movement with special reference to India
- Nature scope and functions of each of the following:- Educational guidance, Vocational guidance, personal guidance, Social guidance

Unit 2. Counseling

- Nature and principles of counseling
- Approaches to counseling – directive, non-directive, eclectic, characteristics, Role and Functions of Counselor, carrier master
- Professional education of the Counselor

**Unit 3. Techniques of collecting information for guidance**

- Testing Techniques- types of tests used in guidance
- Tests of intelligence, aptitude, interest, achievement and personality
- Uses and limitations of testing techniques in guidance
- Non-testing techniques – observation, questionnaire, rating scale, interview anecdotal cumulative record, case study

**Unit 4. Group Guidance**

- Need and scope of group guidance, Activities or organising group guidance services in educational institutions

**Unit 5. Guidance Service**

- Organisation of guidance services in schools and colleges, types of organisation- centralised form, decentralised form, mixed form
- Individual information service- types of data to be collected about the individual student, source of information
- Occupational information service- types of information materials, sources, methods of classifying and disseminating occupational information
- Placement service- educational placement, vocational placement
- Evaluation of guidance programme, Follow-up Service

**Unit 6. Trends in Guidance and Counseling**

- Guidance for special groups
- Trends of researches in guidance and counselling in India

**SUGGESTED READINGS**

1. Brenard, H. W. & Fuller, D. W.: Principles of Guidance, A basic text (Indian Education), Allied Publishers Pvt.Ltd, New Delhi
2. Bhattacharya: Guidance In Education, Asian Publishing House, 1964, Bombay
3. Crow, L.D. & Crow, A.: An Introduction to Guidance, American Book, Co., New York, 1951
4. Fuster, J.M.: Psychological Councelling in India, McMillan and Co., Ltd., Bombay, 1964
5. Mathewson, Robert, H.: Guidance Policy and Practice, Harper and Row, New York, 1962.
6. Kechhar, S.K. :Guidance in Indian Education, New Delhi, Sterling Publishers Pvt.Ltd., 1979.
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13. Jayaswal S. Guidance and Counselling, Lucknow, Prakashan, Kendra, 12981,
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Elective Category 'A'

OPA No.5: EDUCATION FOR EMPOWERMENT OF WOMEN

Objectives:

- (i) To know the expected roles (political, social and economic) of Indian Women in developing countries including India.
- (ii) To acquaint with the types and modes of preparation needed for them in playing such roles effectively and efficiently in tune with the constitutional directive.
- (iii) To be aware of the concept of women as change agents for the transformation of third world countries.

Unit 1. Problems of women face in developing countries including India – high rate of Population growth – literacy percentage of women inadequate nutrition and technology, existing prejudices, against women

Unit 2. Sub-culture of men and women in all countries including India.

Unit 3. A retrospective profile in a tradition bound society and a prospective profile in the changing Indian Society; major areas to be tapped Aspiration of Indian Society for sustainable

Unit 4. Achieving quality of life, equality of opportunities, equity, social and empowerment.

Unit 5. Needs of girls education – poverty, prejudice and population explosion, minimum level of

learning in scientific literacy and computer literacy -focus on teacher preparation in gender sensitivity

Unit 6. Needed direction in educational research: Access to education, and retention, apathy at home, child labour, early child marriage continuance of out/dated laws, positive attitude towards girls' education.

#### SUGGESTED READINGS

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3. Dakshi, S.R.: Welfare and Development of Women, Deep & Deep Publications Pvt., Ltd., F-159, Rajouri Gardeb, New Delhi, 1999.
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5. Gupta Mukta.: Women and Educational Development, DVS Publishyers, H.B. Road, Pan Bazar, Guwahati 2000.
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12. Suresh Dutt.: Women and Education, Anmol Publications, Pvt. Ltd., 4374/4, Ansari Road, New Delhi, 2000

Elective OPA 6. EDUCATION FOR RURAL DEVELOPMENT

Objectives

To enable the students to understand:

- (i) the importance, types and programmes of education for rural development.
- (ii) The role of educational institutions and other agencies in rural development
- (iii) To familiarise the students with training and strategies for rural development through education

Unit 1. Rural Education and Rural Development

- Concept, need, importance and objective of rural education
- Types of Rural Education
- Programmes for rural development

Unit 2. Educational Programmes for Rural Development

Basic Education

- Work Experience, socially usefull productive Work(SUPW)
- Vocational education for rural areas
- Integrated Rural Development programme(IRDP)
- Adult education programme

Unit 3. Role of Educational Institutions in Rural Development

- Schools, College and Universities
- Availability and accessibility of Schools in rural community
- Types of Schools ( single teacher, two/three teacher Schools)
- Primary and Secondary level- quality of education
- Nature of rural school curriculum
- Co-curricular activities and its problems
- Schools as a community centre
- Community and School relationships

Unit 4. Role of other agencies in Rural Development

- Role of voluntary organisation
- Role of local bodies in education
- Non-formal education programmes for rural areas
- Role of the various Mass-media promoting education in rural areas; T. V., Radio, Movies, Theatre, Clubs, Exhibition, Newspapers, Periodicals and Magazines etc.

Unit 5. Leadership Training for Rural Education

- Need for leadership training; local leaders
- Identification of leaders in rural areas
- School teachers as rural leaders.
- Leadership training programme such as workshop forum, discussion, field trips.

Unit 6. Aspects of Rural Development

- Education as an investment in Human Resource Development
- Equality of Educational opportunities
- Education as an instrument of change in rural areas
- Economic and Non-economic factors affecting rural development

SUGGESTED READINGS

1. Sharma, B. D.: Planning for Rural Development, 1979
2. Heshier Singh.: Rural Development in India, New Delhi
3. Tandhyalaya & Tilak, B. G. : Education and Rational Development, New Delhi, 1986,
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5. Moois Raza.: Schooling and Rural Transformation, NIEPA, New Delhi, 1990
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New Delhi, 1985
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John C. Dornkamp London, 1985(Reprint)
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Adult Education Association, New Delhi, 1973

Elective Category 'A'. EXPERIMENTAL EDUCATIONObjectives

To make the student understand the

- (i) Concept and scope of Experimental Education
- (ii) Methods of Experimental Inquiry
- (iii) Purpose and Principles of Experimental Designs
- (iv) Different types of Experimental Designs
- (i) Statistical techniques to analyse the experimental designs.

Unit 1. Basic Concepts

- Meaning of an experiment in education, Law of single variable (cause & effect relationship.)
- Kinds of Variables: dependant, Independent, Intervening, extraneous, controlling extraneous variables
- Mill's Experimental Inquiry: Method of Agreement, Difference, Residue Concomitant variation & Joint method
- Scope of Experimental Education

Unit 2. Experimental Designs

- Meaning and purpose of experimental Design
- Essential characteristics of a good experimental design
- Basic Principles of Experimental Design (Manipulation, Randomization, Replication and control.)
- Experimental Errors (S-type, G-type and R-type.)
- Controlling Error Variance: Maximize Experimental Variance, Minimize error variance, controlling extraneous variance ((Max-Min-Con).
- Criteria for selecting an experimental Design (Appropriateness, adequacy of control, internal & External validity.)

Unit 3. Types of Experimental Designs

- Pre-Experimental Designs
- One group Pre-test post test design
- Two group post test only comparison design
- Post test only Equivalent group Design
- Pretest Post test Equivalent group Design
- Quasi – Experimental Design

Unit 4. Lindquist's Basic Experimental Design

- Simple Randomized Design
- Level X Treatment Design
- Subject X Treatment Design
- Group within Design
- Random Replication Design
- Factorial Design
- Latin Swuare Design.

Unit 5. Parametric Statistical Foundation

- Concept of Variance, Assumptions underlying, Analysis of Variance
- One Way Analysis of Variance (ANOVA) (Randomized Group & Repeated measures.)
- Two way analysis of Variance
- One Way Analysis of Co-variance(ANCOVA)

Unit 6 Non Parametric Statistics Foundation

- Kruskal Wallis One-Way ANOVA.
- Friedman's Two- Way ANOVA
- Chi-Square

SUGGESTED READINGS:

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4. Koul, Lokesh: Methodology of Educational Research. Vikash Publishing House Pvt.Ltd., New Delhi-14, 1997
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13. Ferguson G. :Statistical Analysis in Psychology and Education, McGraw Hill, New York, 1966.

SPECIAL EDUCATION

Elective OPB: 1 Education for the Gifted & Creative

Objectives

To make the students understand the

- (i) (i) Concept of gifted and Creative children.
- (ii) Need and significance of special education.
- (iii) Approaches of identifying gifted and creative children.
- (iv) Educational Programmes for gifted and creative children.

Unit 1. Education of exceptional children.

- Exceptionality, concept of positive and negative deviation special needs and problems of exceptional children status of exceptional a historical perspective.
- Classification of exceptional children, conventional approach and functional approaches and their relative merits and limitations.

Unit 2. Special Education

- need and significance, foundations of special education (Philosophical, Psychological and Socio-cultural), objectives and basic principles
- Special education programme in India-current status, issues and trends, agencies of special education governments and non-governmental organisations

Unit 3 Education of the Gifted.

- Concept of giftedness, types and characteristics of the gifted.
- Factors promoting giftedness and its development.
- Identification of the gifted children, methods and techniques.
- Problems related to social, emotional and educational adjustment

Unit 4. Education of the Creative

- Creativity, nature, characteristics and components of creativity, factors fostering creativity.
- Theories of creativity and development of creativity models and techniques.
- Identification of creative different measures, creativity tests (Torrance, Wallach and Kongans, Baquer Mehdi, Passi and Khiangte's test-their merits and limitations.
- Factors fostering creativity, classroom conditions for nurturing and stimulating creativity

Unit 5. Approaches to Education of the Gifted and Creativity

- Objectives of special education schemes for the gifted and creative.
- Educational practices and approaches, grouping, acceleration, enrichment individualized instructions, motivating the gifted, self learning and tutorials their merits and limitations.
- Curricular modifications for the education of the gifted and creative.
- Bright under achievers their characteristics and causes and remedial programmes.
- Remedial programmes for gifted under achievers

Unit 6. Guidance and Counselling for the gifted and creative

- Need for guidance and counselling.
- Process of guiding the gifted and talented.
- Role of teachers, parents and community agencies in guiding the gifted and creative

SUGGESTED READINGS

1. Kirk, S. & Gallagher.: Education of the Exceptional Children, New Delhi, Oxford IBH, 1979.
2. Heck, A.O. The Education of the Exceptional Children, New York, Mcgraw Hill, 1953.
3. Sumpton & Lucking.: Education of the Gifted, New York, Ronald Press, 1960.
4. Torrance, E. P.: Guiding Creative Talent, Englewood Cliffs, Prentice Hall, 1960.
5. Torrance & Myers.: Creative Learning and Teaching, New York, Dadd Mead, 1970.
6. Desmukh.: Creativity in Classrooms, New Delhi, Prentice Hall, 1988.
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11. Cruick Shank M.: Psychology of Exceptional Children, London, 1955.
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13. Kraner A H.Biten (eds.) :Gifted Children, Challenging their potential, New York, 1981.

Elective OPB2(i) INDIAN EDUCATIONAL THOUGHT

OBJECTIVES.

- (i) To enable the students to understand the ancient and medieval thoughts and practice in education.
- (ii). To enable the students to make logical analysis and interpretation of Indian Schools of thoughts and ideas in education.
- (iii). To help the students to critically examine the contributions of great thinkers and of the schools of Philosophy and their application and relevance to education in the present context

Unit 1. Vedic Education.

- Educational Thought of Manu.
- Education in the Epic Age

Unit 2. Buddhistic Educational Thought

Unit 3. Islamic Educational Thought and Suffism in Education

Unit 4. Influence of Western thought on Modern Indian Education and system and practices

Unit 5. Educational ideas governing constitutional provisions of Education and Educational policies in post-Independent India

Unit 6. Views on Education of the following Indian educational thinkers

- a) Raja Ram Mohan Roy.
- b) Vivekananda.
- c) Aurobindo Ghosh.
- d) J. Krishnamoorthy
- e) Radhakrishnan
- f) Zakir Hussain
- g) Vinobha Bhave

SUGGESTED READINGS

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2. Mookerjee, R.K.: Ancient Indian Education (Brahmanical & Buddhist.)
3. Bishop, D. H.: Indian Thought an Introduction, 1973.
4. Nawaz, M. R.: Development of Muslim Educational Thought, Michigan, 1982.

5. Chaube, S.P.: Recent Educational Philosophies Indian, 1972.
6. M.W.Khan(ed): Education and Society in the Muslim Work.
7. Dikshit, S.D.: Education, Nationalism and India, Sterling Publishers, Delhi, 1966
8. Adhedananda.: Ideal of Education, Ram Khrishna Vendan Calcutta, 1945.
9. Sri Aurobindo: On Education
10. S.K. Maitra.: The Meeting of the East and the West in Sri Aurobindo's Philosophy.
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16. Chaube, S.P. A History of Education in India, Ram Narain Lal Beni Madho, Allahanad, 1961.
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ELECTIVE OPB 2 (ii) WESTERN EDUCATIONAL THOUGHT

OBJECTIVES:

- (i) To enable the students to understand the educational thought and practice in Greek.
- (ii) To enable them to understand the contributions of the western thinkers in the field of education.
- (iii) To help them to critically examine the various movement in education in the West.

Unit 1. Greek Educational Thought.

- Aims, methods, curricula and organisation of Spartan and Athenian systems of education.
- Views on education the Greek classical Educational theorists; Socrates, Plato and Aristotle.

Unit 2. Contribution of Marcustullius Cicero and Marcus Fabius Quintilianus in Roman Education.

Unit 3. Christian Education Movement contribution of Tertullian, Clement and Origen, Foranciscan and Dominican Education.

Unit 4. Educational trends during the Renaissance and Reformation period, their influence on Western Educational thought and practices.

Unit 5. Influences on Modern Education.

- The age of industrialization.
- The beginnings of Mass Education with reference to English system: the monitotial system and the common school system.,
- De-schooling Movement in Education
- Views of Ivan Illich, , Everest Renneier, Paulo Freire, Paul Goodman.

Unit 6. Psychological Movement in Education.

- View of Johann Heinrich Pestalozzi, Wilhelm Froebel, Hohn Holt, Bruner

SUGGESTED READINGS

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2. Meyer F. A.: History of Educational Thought, 1964.
3. Rusk R.R. :Doctrines of the Great Educators, 4<sup>th</sup> Ed, McMillan, London, 1969
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20. Granes, F. P.: Great Educators of 3 Centuries, The MacMillan, Company, New York, 1912

**ELECTIVE OPB 3 (i)****VALUE EDUCATION****OBJECTIVES**

- (i) To enable the students to understand the need and importance of Value Education
- (ii) To enable them to understand the nature and types of values and theories of values
- (iii) To familiar the students with the Indian Values and various methods and approaches of Value Education

**Unit 1.**

- Meaning, nature and scope of Value Education
- Need for Value Education
- Objectives of Value Education

**Unit 2.**

- Types and hierarchies of Values
- Relativity and hierarchies of values.
- Terminal Values vs. Instrumental Values
- Dysfunctionality of Values

**Unit 3. Theories of Value Development**

- Philosophical basis of value development
- Psychological basis of value development
- Socio-Cultural basis of value development

**Unit 4. Content of Value Education**

- Cultural heritage and values
- Democracy.
- Social justice
- Scientific temper
- Secular and sacred value

**Unit 5.**

- Social Change and Values
- Traditions vs. Modernity
- Value crisis

**Unit 6. Methods and Approaches in Value Education**

- Direct and Indirect methods
- Models of value development
- Assessment of values
- Role of school, media and community in education of value

**SUGGESTED READINGS**

1. Sheshardri et. al(eds) : Education in Values : A Source: NCERT, New Delhi, 1992
2. Byrappa, S.L : Values in Modern Indian Educational Thought, NCERT, New Delhi, 1981.
3. Feather , N.T. : Values in Education & Society., Free Press, New York, 1975
4. Rokesh, M. : The Nature of Human Values, Free Press, New York, 1973
5. Gawande,A.N. : Value Oriented Education, DVS Publishers, Guwahati, 2002
6. Kumar Satindu.: Educational Philosophy in Modern India, Anmol Publications, Pvt.Ltd., New Delhi, 2000
7. Kar, N.N.: Value Education, Associated Publishers , Ambala Cantt., 2000
8. Kaul, G.N. : Value and Education in Independent India, Associated Publishers, Ambala Cantt, 2000.

ELECTIVE OPB(3)

YOGA EDUCATION

OBJECTIVES

- (i) To enable the students to understand the nature, scope and importance of Yoga Education
- (ii) To enable them to understand various types of Yoga Education

Unit 1. Meaning, nature and scope of Yoga, Yoga Education, Need for Yoga Education

Unit 2. Bases and types of Yoga

a) Bases: Philosophical  
Psychological  
Physiological.

b) Types: Raja Yoga  
Bhakti Yoga  
Karna Yoga  
Jnana Yoga

Unit 3. Steps in Yoga practice

- Yama (Abst )
- Niyama(Observance)
- Asana (Body Postures)
- Pranayama(Breath Control)
- Pratyahara (Sense withdrawal)
- Dharana(Concentration)
- Dhyana(Meditation)
- Samadhi (State of Equanimity)

Unit 4. Yoga and Natural Living

Unit 5. Yoga and Mental Health

Unit 6. Yoga and World Peace

SUGGESTED READINGS:

1. Kapur, C. L. : Yoga and Education SCERT Himachal Pradesh, Simla Hills.
2. Yoga Asanas in theory and practice, School of Yoga, Manghyr, Bihar.
3. Dynamics of Yoga: Bihar School of Yoga, Monghur.
4. The Science of Yoga: Bihar School of Yoga, Monghur
5. Gopi Krishna : Higher Consciousness, D. L. Taraporaovade Sons and Co. Pvt. Ltd.
6. Morajee Desai.: Nature Cure, S. Chand and Company Ltd., New Delhi.
7. Dasikachar, T.K.V.(ed) The Heart of Yoga: Developing a personal practice, Inner Traditions International Publications, 1999

**Elective B: OPB 4. TEACHER EDUCATION****OBJECTIVES**

- (i) The meaning, scope, objectives of teacher education and its development in India.
- (ii) The role of various agencies of teacher education
- (iii) Various techniques of teacher education
- (iv) Various aspects of student-teaching programmes prevailing in the country
- (v) Important research findings in teacher education

**Unit 1. Introduction to Teacher Education**

- Meaning, nature and scope of teacher education
- Need for education of teachers.
- Aims and objectives of teacher education at elementary, secondary and higher secondary levels.
- Development of teacher education in India before and after independence

**Unit 2. Agencies of Teacher Education.**

- National Council for Teacher Education (NCTE)
- National Council of Educational Research and Training (NCERT).
- University Grants Commission (UGC).
- State Institute of Education (SIE)/State Council of Educational Research and Training (SCERT).
- District Institute of Education and Training (DIET)
- Village Education Committee (VEC).

**Unit 3. Teacher Education Programmes.**

- Pre-service teacher education – organisation, types, NCTE curriculum frame work – Objectives, content methods and evaluational at various levels.
- In-service teacher education – needs, objectives, types, organisation and evaluation.
- Comprehensive Teacher Education Programme.
- Integrated teacher education Programme.

**Unit 4. Techniques of Teacher Education.**

- Interaction Analysis.
- Simulation.
- Micro-teaching.
- Programmed Learning

**Unit 5. Student Teaching.**

- Role of student teaching in Teacher Education Programme.
- Organisation of student teaching; various patterns: block-teaching , internship, integrating theory and practice.
- Supervision and evaluation of student teaching

**Unit 6. Professionalism in Teaching Education & Research.**

- Meaning of a profession.
- Teaching as a profession, professional ethics of a teacher.
- Teacher as a member of professional organisation.
- Professional organisations for various levels and their roles.
- Performance appraisal of teachers.
- Trends of research in teacher education in India with special reference to:
- Teaching effectiveness.
- Criteria of admission
- Curriculum
- Problems and issues

**SUGGESTED READINGS**

1. Anand ,C.L. Aspects of Teacher Education, Delhi, S.Chand and Co., 1988. ,,
2. Mukherjee, S.N.(ed):Education of the Teacher in India, Vol.I& Vol.II, Delhi, S.Chand and Co., 1988.
3. -do - : Admission and Organisation in Teacher Training Institutions, New Delhi, NCERT, 1987.
4. Singh, L.C. (ed): Teacher Education In India- A resource Book, New Delhi, NCERT, 1990.
5. Meffit, John Clifton: Inservice Education for Teachers, Washington the centre for Applied Research in Education, INC., 1983.

6. NCTE: Teacher Education Curriculum- A Framework, New Delhi, NCERT, 1978.
7. Tibble, J.W.(ed): The Future of Teacher Education, London, Routledge and Kegan Paul, 1971.
8. Passi, B.K.: Becoming a Better Teacher. Microteaching Approach, Amedabad, Sahitya Nudranalaya, 1976.
9. Govt. of India.: Report of the Education Commission, 1963-1966, New Delhi, Ministry of Education, Govt. ofn India, New Delhi, 1966.
10. Subramanyam, K.: Handbook for College and University Teachers, 82/SRT, Malapet, Hyderabad, 1995.
11. Grower, R. & Walters S.: Teaching Practice Handbook, ELBS, Heinemann Educational Books Ltd., London, 1987.

Elective OPB 4(ii). METHODS OF TEACHING AT TERTIARY LEVEL

- (i) To help the students to understand the concepts of Learning and instruction as well as the concept of system approach to instruction
- (ii) To acquaint them with the concepts of teaching, teaching effectiveness and teacher competencies
- (iii) To familiarise the students with the various theories of learning and teaching
- (iv) To help the students to understand various teaching skills, strategies, methods and aids.
- (v) To acquaint them with the trends of research in teaching.

Unit 1. Learning and Instruction

- Meaning of Learning and Instruction.
- Concept of system- systems approach to instruction
- Role of the teacher in the instructional system

Unit 2. Teaching and Teaching Competencies

- Concepts of teaching, teaching effectiveness and teacher competencies
- Classification of teacher competencies
- Repertoire of teacher competencies

Unit 3. Theories of Learning and Teaching

- Theories of Learning; behaviourism and cognitivism;
- Developmental theory of Learning ( Jean Piaget)
- Discovery approach to learning (J.S. Bruner.)
- Meaningful verbal learning (David Ausubel.)

Unit 4. Teaching Skills and Teaching Strategies

- Teaching Skills; Introducing a lesson, questioning, stimulus variation, reinforcement, increasing pupil participation, achieving closure, etc. integration of different skills.
- Teaching Strategies; Autocratic style, permissive style.

Unit 5. Methods of Teaching at the Tertiary Level: Audio Visual Aids

- Teacher Centred-Lecture, demonstration, team teaching.
- Learner Centred – Programmed learning, personalised system of instruction, Computer assisted instruction.
- Other Methods – Seminar, workshops tutorials etc., group discussion, projects.
- Audio Visual Aids .
- Meaning and types.
- Their Value and Use in classroom instruction

Unit 6. Research on Teaching at Tertiary Level.

- Needs and approaches.
- Trends of research in teaching in India

SUGGESTED READINGS

1. Chauhan, S.S.: Innovations in Teaching Learning Process, New Delhi, Vikas Publishing House, Pvt.Ltd., 1989.
2. Kulkarni, S.S.: Introduction to Educational Technology, Bombay, Oxford and IBH Publishing Co., 1986.
3. Sharma, G.D. & Shakti R Ahmed .: Methodologies of Teaching in Colleges, New Delhi, NIEPA, 1986.
4. Vedanayagam, E.G.: Teaching Technology for Colleges, New Delhi, Sterling Publishers Pvt.Ltd., 1988.
5. Pervival, F. & Ellington H.: A Handbook of Educational Technology, New York, Nicholas Publishing Company, 1984.
6. Bloom, B.S. et.al.: Taxonomy of Educational Objectives, Handbook I. Cognitive Domain, New York, David McKay Co., Inc., 1956.
7. Dale, E. : Audio Visual Methods in Teaching, New York, Holt Rinehart and Winston, 1954.
8. Kochar, S.K.: Methods and Techniques of Teaching, Sterling Publishers, New Delhi, 1981
9. Elton, L.: Teaching Higher Education: Appraisal and Training, Kegan Page, London, 1987.
10. Ruhela, S.P.: Educational Technology: A Systemic Textbook, Associated Publishers, Ambala Cantt, 1991.

(xxi) M.A.Syllabus in Adult & Continuing Education

The School Board of Humanities & Education in its meeting held on 18th, October '02 has approved the M.A.Syllabus in Adult & Continuing Education as received from the Head, CSLS vide his letter No.F.33/UACE/2002-03/143 dt. 5-11-'02 as at Annexure -'A'.

The Syllabus is placed as Annexure-'B'

The matter is placed before the Council for consideration.

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No. F.33/UACE/2002-03/143

5<sup>th</sup> Nov 2002

To,  
The Dean  
School of Humanities and Social Sciences  
NEHU, Shillong

Sub: M.A. Syllabus in Adult Education

Madam,

After incorporating all the suggestions from the honourable learned members of the School Board, the four copies of the final and approved syllabus by the School Board is being sent to you for onward submission to Academic Council for their necessary approval.

I am also sending a floppy of the syllabus, which you may send to the Conference Section for making additional copies.

We take this opportunity to thank you for your kind interest in getting the syllabus approved from the honourable members.

Thank you

Yours sincerely

(Prof. M.C. Pandey)  
Head, CSLS

**M. A. Syllabus in Adult and Continuing Education**

The Centre for Adult and Continuing Education, NEHU, which was established in 1974, plays a vital role in forging a closer nexus between the University and the community, thereby fulfilling the third dimension of the University; namely extension. The centre since inception has conducted various certificate courses in Library and Information Science, Tourism, Journalism, Home Gardening, etc. In addition to this short duration certificate courses were conducted in the entire North-Eastern Region on population education, adult education, consumer education, entrepreneur development, counselling, adolescent education, reproductive health and child care, etc.

UGC's visiting team for the IX plan recommended that in view of the very good work done by the Centre in promotion of adult literacy and population education programme, the Centre for Adult and Continuing Education be made into a regular teaching department. "The committee also recommended one post of a Reader and two posts of Lecturer and a sum of Rs. 5.75 lakhs for the purchase of equipment. The conversion of the centre into a teaching department in view of the excellent performance in research and training activities."

**Admission criteria**

Graduates from any recognised University.

**Intake:**

20 students will be taken.

**Semester wise course structure in Masters in Adult Education**

Semester - I	Semester - II	Semester -III	Semester -IV
AE 101: Fundamentals in Adult Education	AE 201: Community Organisation	AE 301: Substance Abuse	AE 401: Human Resources Development
AE 102: Guidance and Counselling	AE 202: Demography and Population Education.	AE 302: Research Methodology	AE 402: Entrepreneur ship Development
AE 103: Adult Psychology	AE 203: Environment Education	AE 303: Disaster Management	AE 403: Rural Development
AE 104: Extension Education.	AE 204: Health and Nutrition.	AE 304: Project Work	AE 404: Women Studies

**COURSE CONTENT IN M. A. SYLLABUS IN ADULT EDUCATION****Paper I      AE 101      Fundamentals in Adult Education**

**Unit-I:** Adult Education – Concept, meaning and scope. Formal and Non-Formal Education, Extension education, Distance education, Lifelong education & Continuing Education. Gandhian view on Adult Education.

**Unit-II:** Adult Education – Policies and programmes. Adult Education Programme in India – a historical perspective. Adult Education and National Policy on Education 1986. Adult Education and Acharya Rama Murti Report 1990. Adult Education and Janardhan Reddy Committee Report 1991. National Policy on Adult Education 1986 modified in 1992.

**Unit-III:** Basic concepts Literacy/Functional Literacy. Approaches to Literacy: Selective approach, Centres approach, Area Development Approach, Mass Approach and Total literacy campaign. Establishment of National Literacy Mission: objective and operational strategies. Training of adult education functionaries. Development of Literacy Material – IPCL approach. Post Literacy and Continuing Education (Establishment of Jana Shikshan Nilayam).

**Unit-IV:** Adult Education and Development. Literacy, Society and Development. Literacy and Women Development. National Integration and Women Development.

**Reading material:**

1. A.L. Rahi: Adult Education - policies and programmes, The Associated Publishers, Ambala, 1996.
2. C.L. Kundu: Adult Education: Principle, Practice and Prospects, Sterling Publishers Pvt Ltd, New Delhi, 1986.
3. Grover and Rita Chopra: Adult Education, The Indian Publications, Ambala, 1998.
4. Sita Ram Sharma: A development of Adult Education in India, Anmol Publication, New Delhi, 1990.
5. S.R. Sharma: National Policy on Education Vol. I., Anmol Publication, New Delhi, 1991
6. K. Govindappa: Adult Education - Impact of National Literacy Mission, New Delhi, 1998.

**Paper II:      AE 102      Guidance and Counselling**

**Unit-I:** Definition, Nature and scope of Counselling. Need for counselling. Stages of Counselling. Process of Counselling.

**Unit-II: Counselling Skills. Principles of Counselling. Counselling Methods and techniques (group counselling, person to person counselling, etc)**

**Unit-III: Areas of Counselling on STD, AIDS, DRUGS, ALCOHOL, and family related issues. Counselling for students, teachers, parents and elderly.**

**Unit-IV: Counselling and Guidance movements in India. The future of Counselling. Career Counselling.**

**Reading material:**

1. Dhun Panthaki: Education in Human Sexuality, Family Planning Association of India, Mumbai, 1997
2. S.K. Kochhar: Guidance and Counselling in Colleges and Universities, Sterling Publishers Pvt Ltd, New Delhi, 2002.
3. Indu Dave: The Basic Essentials of Counselling, Sterling Publishers Pvt. Ltd., New Delhi, 1983
4. Harman D. Burck, Harold F. Cottingham and Robert C. Reardon: Counselling and Accountability - Methods and Critique, Pergamon Press Inc., London, 1973.

**Paper – III: AE103            Adult Psychology.**

**Unit-I: Profile of Adult Learner/Student. Adult Learner – In what ways different from child different stages of development ). Need of the knowledge of Adult; Psychology for a teacher.**

**Unit-II: Methods of teaching adults. Motivation – meaning needs and motives. Determinants of adult motivation, i.e., in adult education.**

**Unit-III: Methods of adult learning. Theories of adult learning. Theoretical Perspectives of teaching adults. Blocks to learning.**

**Unit-IV: The adult learning group. Adult learners and adult educator/teacher. Teacher education for adult education providers in universities.**

**Reading material:**

- 1 S.K.Mangal: Educational Psychology, Prakash Brothers, Ludhiana 1988.
- 2 R.R. Shirur: A Synergy of Theory, Practice and Strategies in Adult Learning, Sterling Publishers. Pvt. Ltd., New Delhi. 1997.
- 3 Gomathi Mani: Adult Learning - Theory and Practice, Sterling Publishers Pvt Ltd, New Delhi, 1994.
- 4 Alan Rogers: Teaching Adults, Sterling Publishers Pvt Ltd, New Delhi, 1989.
- 5 A.L. Rahi: Adult Education Policies and Programmes, The Associated Publishers, Ambala, 1996.
- 6 S.S. Chauhan: Advanced Educational Psychology, (sixth revised edition), Vikas Publishing House, New Delhi, 1997.

**Paper – IV: AE104 Extension Education.**

**Unit-I:** Extension Education: Meaning, Concept and scope. Understanding rural social structure: family, caste, class, kinship etc. Extension services in India. Role of University in Extension Education. Problems of Extension Services in India. Social problems of contemporary society in India. Communication and Extension approaches.

**Unit-II:** Communication approach to extension education. Communication and extension approach. Role of rural institutions in development and people participation

**Unit-III:** Approach to Extension Education for rural development. Developmental aspect of extension education. Extension teaching methods: Audi visual aids, T & V, field visits, role of mass media. Gandhian approach to extension education.

**Unit-IV:** Management of Extension Education. Meaning, concept and theories of management. Planning, nature types and process of planning. Concept and process of educational planning in adult education.

**Reading material:**

1. V. Reddy: Extension Education, Addis, Chennai, 1997.
2. S.B. Chatterji: Introduction to Management - its Principles and Techniques, World Press, 1988.
3. Robert G. Clark: Basic Concepts and Theories of Administration and Supervision as Applied to Extension Adult Education Programme, Pergamon Press, London, 1987.

**Paper – V: AE 201 Community Organisation.**

**Unit-I:** Community organisation, meaning, concepts and assumptions. Community analysis Importance of organisational context. Dynamics of planned change.

**Unit-II:** Community Development. Dynamics of planned change(Process of Directed change)

**Unit-III:** Community solving problem. Organising the community. Group discussion method, Public relation appraisal (PRA). Formation of Self Help Groups (SHGs)

**Unit-IV:** Urban and rural institutions: traditional institutions, Panchayati Raj institutions etc.

**Reading material:**

1. Ralph M.Klemer and Henry Specht: Reading in Community Organisation Practice,
2. Zeact Z. Zhudipare: Urban Community Development –
3. Wilhen W.Biddle and Laueride J. Biddle: Encouraging community development.
4. V. Reddy: Extension Education, Addis, Chennai, 1997.
4. S.B. Chatterji: Introduction to Management - its Principles and Techniques, World Press, 1988.
5. O.P. Dahama and O.P. Bhatnagar: Education and Communication for Development, Oxford & IBH Publishing House, New Delhi, 1980.
6. A.N. Singh: Community Organisation, Shipra Publication, New Delhi, 1995.

**Paper – VI: AE202 Demography and Population Education.**

**Unit – I:** Meaning, scope definition of demography and population education. Population policies, population theories. World population and growth, demographic terms used in population education.

**Unit – II:** Population dynamics (Sex ratio, Mortality, Fertility, Migration, age, structure and distribution etc). Family life education, sex education and social responsibility of an adult.

**Unit - III:** Impact of population pressures on environment, health food and nutrition and employment. Population growth and education. Messages and adult education, measures to control population.

**Unit – IV:** Statistical method, of demographic analysis and presentation of data.

**Reading material**

1. O.S. Srivastava: Demography and population studies. Vikas Publication House Pvt. Ltd., New Delhi, 1998.
2. Asha. A.Bhende and Tara Kanitkar: Principals of Population Studies, Himalaya Publication House, Mumbai, 1992.
3. U.K.Singh and K.N. Sudarshan: Population Education, Discovery Publishing House New Delhi, 1996.
4. A. Ahmad, J.I.Clarke, C.B. Shrestha, A. Trilsbach: Mounting Population Pressures Vikas Published House, New Delhi, 1990
5. R.C. Sharma: Population Resource Environment and Quality of life, Dhanpat Rai and Sons, New Delhi, 1988.
6. S.N. Agarwala: India's Population Problems, Vikas Publication House Pvt Ltd., New Delhi, 1971.
7. K.B. Pathak and F. Ram: Principles of Demography, Himalaya Publishing House, Mumbai, 2000.

**Paper – VII:            AE203            Environmental Education.**

**Unit-I Introduction to Environmental Education: Need for Environmental Education: Components of Environment and their interactions: Basic concepts of Ecology, Eco-system, energy flow, food chain and food web, bio-mass , carrying capacity, life - support systems, bio-diversity.**

**Unit-II Environmental related consequences and conflicts. Deforestation and Desertification, global warming and green house effect, sources types and control of air, water and soil pollution; soil; toxic and hazardous wastes; industrial and radioactive wastes: Waste disposal and waste recycling. New technology and hazards.**

**Unit-III Energy resources: primary and secondary sources of energy; Renewable and non-renewable energy sources; population pressure on the environment; Carbon and nitrogen cycles; Environmental Impact assessment.**

**Unit-IV Principles and objectives of conservation: Conservation movements and people's involvement; Adults responsibility towards conservation of environment; environmental problems of North – East India – Shifting cultivation, Deforestation, Mining, land degradation, landslides, floods and population growth.**

**Reading material:**

1. P.D.Sharma: Ecology and environment, Rastogi Publication, 1991.
2. E.P.Odum: Fundamentals of Ecology, by W.B.Saunders and Co. Philadelphia, 1971.
3. V.K.Rao and R.S.Reddy: Environmental education 1997 by Common wealth publisher, New Delhi.
4. W.L.Thomas: Man's role in changing the face of the earth, University of Chicago Press, Chicago, 1956.
5. P.A.H.Ehrlich: Eco-science. Population resource and environment, Freeman, San Francisco, 1977
6. C.V.Rajeshkhara: Global Environment series. Discovery Publishing House, New Delhi, 1992.
7. M.R.Garg et al.: Environmental pollution and protection, Deep and Deep publications, New Delhi, 1997.
8. Zahid Hussain: Environmental degradation and conservation in North East India, Omsons publications, New Delhi, 1996.
9. B.Datta. Ray et al.: Populations poverty and environment in North East India, Concept publishing company, New Delhi, 2000.
10. A.C. Mohapatra, S.K. Barik and C.S. Rao: Man and Environment, Star Publishing House, Shillong, 2001.

**Paper – VIII: AE 204 Health and Nutrition.**

**Unit-I:** Concept, Nature, Scope and Definitions Physical Health Mental Health Eocial Indicates of Health (CBR, CDR, IMR etc) nutritional indicators (Birth wt. Age/weight/light) health profile in India.

**Unit-II:** Child care nutrition and fertility. Nutrition and child survival, immunisation, common nutritional deficiencies, malnutrition vitamin deficiencies (Goiter-Iodine) protein deficiencies, calorie intake and other nutritional in balances.

**Unit-III:** Food and nutrition, classification of food, diet (therapeutics diets, diabetics, ulcer, Compact diets etc.). Nutritional diseases.

**Unit-IV:** Health services, , first aid ( fever, shock , heat strokes, blood pressure, cut wounds etc. Health awareness (dysentery, diarrhoea, dehydration, obesity, dog bites etc). Food additives and adulteration.

**Reading material:**

1. J. E. Park, K Park: Text Book of Preventive and Social Medicine, Banarsidas Bhannot, Jabalpur, 1986.
2. National Institute of Nutrition: A Manual of Nutrition, Indian Council of Medical Research, Hyderabad, 1984.
3. M.C. Pandey and J.L. Sailo: Nutrition-Diet and Personal Hygiene, Population Education Resource Centre-Centre for Adult and Continuing Education, NEHU, Shillong, 1980.
4. Education Planning Board: Food and Nutrition – A Text of Home Science for Senior Students, Arya Publishing Co., New Delhi, 1996.

**Paper – IX: AE 301 Substance and Drug Abuse.**

**Unit-I:** Basic Concepts: Drug, drug abuse, substance abuse, historical perspective on the use of drugs: Nature and extent of drug abuse in contemporary society. Major classifications of abused substance – narcotics and non-narcotics.

**Unit-II:** Concept of Addiction; addiction – theory, prevention and treatment issues, physical, psychological and social dimensions of addiction; profile of drug addicts.

**Unit-III:** Drug use in modern society: Drug use as a social problem: Alcohol and tobacco use in society: Illicit trafficking: Relationship between drugs, crime and society; current issues of contention with respect to use, abuse and policy: Role of government, non-government agencies in combating the menace of drug abuse and illicit trafficking:

**Unit-IV: Intervention and prevention: advantages and disadvantages of treatment methods: Counselling and Rehabilitation:**

**Reference:**

1. Saroj Prashant: Drug abuse and society, Ashish Publication House New Delhi, 1993.
2. Ishwari Modi and Shalini Modi: Drugs-Addiction and Prevention, Rawat Publications, New Delhi, 1997.
3. Bhim Sain: Drug Addiction – Alcoholism, smoking, obscenely, Mittal Publications, New Delhi, 1991.
4. Bhim Sain: Alcohol Addiction – A study in nature and dominoes of drinking and prohibition. Deep and Deep Publications – New Delhi, 1989.
5. S.K.Ghosh: The traffic in Narcotics and Drug addiction, Ashish Publication House, New Delhi, 1987.
6. T. Kapoor: Drug Epidemic among Indian Youth, Mittal Publication. New Delhi, 1985.
7. M.N. Karna: Assessment of Drug abuse, drug users and drug prevention services in Shillong, (Mimeograph).

**Paper – X: AE 302 Research Methodology in Adult Education.**

**Unit-I: Research – An Introduction. Historical Development of Educational Research. Research needs in Adult Education. Action research and field survey.**

**Unit-II: Methods of Data collection : Library method of data collection. Historical method. Documentary method of study. Questionnaire method. Inter view method. Observation method. Survey method. Inter – disciplinary method of research. Qualitative and quantitative methods.**

**Unit-III: Research Design of social sciences, sampling, Hypotheses.**

**Unit-IV: Case study in adult education. Analysis and interpretation of data. Participatory adult education methods.. Data processing, analysis and interpretation, report writing. Monitoring and evaluation**

**Reading material:**

1. Kulbir Singh Sidhu: Methodology of Research in Education, Sterling Publishers, New Delhi, 1994.
2. Lokesh Kaul: Methodology of Educational Research, New Delhi, 1984.
3. R.N. Sharma: Methodology of Educational Research, Surjeet Publications, New Delhi, 1993.
4. John Best & James, V. Kahn: Research in Education, Prentice Hall of India, New Delhi, 1986.
5. Motilal Sharma: Planning and Evaluating Non-formal education – A system models, The Indian Publications, Ambala, 1980.

6. N.K. Upasani: Planning for better learning, S.N. D. T. Women's University, Bombay, 1983.
7. William, J Goode & Paul K. Hath Methods in Social Research, McGraw Hills, Kogakushu, 1952.
8. V.V. Khanzode: Research Methodology – Techniques and Trends, APH Publishing Corporation, New Delhi, 1995.
9. V. Pauline Young: Scientific social survey and research, Prentice Hall of India, New Delhi, 1968.

**Paper – XI:            AE 303            Disaster Management.**

**Unit-I:** Nature, Meaning, kinds of disaster, natural, man made disasters, general education and awareness on hazards of disasters, man power planning.

**Unit-II:** Pre-disaster planning: social and administrative preparedness. Immediate requirement (Medical aids, hospitals, government assistance, technical preparedness. Clearing material, food stocks.

**Unit-III:** Rescue and rehabilitation: mobilisation of local help, Retrieval of dead bodies and their cremation. Available resources , clothing, shelters, temporary rehabilitation and relief camps. Public health programme

**Unit-IV:** Relief (present and future)

Post disaster rescue, relief and rehabilitation camps. Medical treatments. Social awareness information kits. Availability of relief operation through UN & government agencies and Law enforcing agencies, Red cross, NGOs etc.

**Reference: -**

1. Skeet Muriel: Manual for Disaster Relief work, UN 1977
2. D.Nash: Disaster Management, 2000
3. B. S. Naranjan: Disaster Management, 2001
4. S. K Singh, S. C. Kundu, Shona Singh: Disaster Management,
5. UN Disaster prevention and Mitigation: Social and Sociological Aspects Vol. (12 ), United Nation Disaster relief Organization 1986
6. John I Clark, Peter Curson, S.L. Kayastha and Prithvish Nag: Population and Disaster, Basil Blackwell Inc, Cambridge, Massachusetts, 1989.

**Paper – XII:            AE 304            Project Work**

1. Drug Abuse and illicit trafficking in the North – East.
2. Population and population growth in North Eastern Region.
3. Literacy and population growth.
4. Learning as viewed by adult.
5. Rehabilitation centres in the North – East and their role.
6. Fertility rate and literacy.
7. (Child labour) Dropout.

8. Use of birth control methods.
9. Individual family, Society and Religion.
10. Watershed management
11. Reproductive Health and Rights
12. Adult education in Meghalaya.
13. Agro-based enterprises in Northeast with special reference to Meghalaya.
14. Problems and prospects of Entrepreneurship Development.
15. Problems of the aged.
16. History of Adult education in Northeast .
17. Types and source of drugs in the Northeast with special reference to Meghalaya.
18. Role of media in the field of Adult education.
19. Problem of AIDS in the Northeast.
20. Role of NGOs in the eradication of illiteracy.
21. Environmental awareness among students at school, College and university levels.
22. Supreme Court orders on felling of trees and its implications.
23. Problems of Child Labour in Meghalaya
24. Problems related to Addicts
25. Environmental laws and their effectiveness
26. Rescue, relief and rehabilitation in Disaster Management
27. Any other

**Paper – XIII: AE401 Human Resource Development.**

**Unit–I:** Concept, definitions and need, meaning of HRD. Approach and mobilization of resources

**Unit–II:** Manpower planning and development, motivation, communication leadership and social security (job evaluation and enrichment)

**Unit–III:** Preparing people for change. Disaster preparedness, Human Resource Planning, (Training), developing human resource, human resource management in Europe, USA, Japan and in developing countries.

**Unit–IV:** Placement Service – Tea Garden, Research Institutions, Schools and Colleges, etc.

**Reading Material:-**

1. T.V Rao: HRD in the New Economic Environment, Tata and McGraw Hill Publishing Co, N.Delhi, 1979.
2. R.S Dwvedi: Human Relations and Organizational Behaviour, Oxford and I.B.H Publishing Co. Pvt.Ltd, N.Delhi, 1979.
3. M.M. Verma: Human Resource Development, Geetanjali Publication House, New Delhi, 1988.
4. T.V Rao: Readings in HRD, Oxford & IBH Publishing Co Pvt Ltd, New Delhi, 1991.

5. L. Prasad, A M. Banerjee: Management of Human Resources, Sterling Publication, New Delhi, 1997.

**Paper – XIV: AE402 Entrepreneurship Development**

**Unit–I:** Entrepreneurship – Meaning, concept and role of an entrepreneur. Environment of an entrepreneur institutional interface. Models for Entrepreneur Development problems encountered in Entrepreneur Development. Theories and Trends in Entrepreneurship

**Unit–II:** Planning and setting up a small enterprise – Scanning opportunities – Choice of enterprise, scale and location, market assessment, choice of technology, financing small enterprise, making a business plan.

**Unit–III:** Operating a small enterprise ownership structure and operational framework. Personnel management in a Small Enterprise. Financial management in a Small Enterprise. Marketing management in a Small Eenterprise. Operations management in a Small Enterprise. Agro-based Enterprises in Entrepreneurship Development

**Unit–IV:** Strategies for growth and stabilisation of Small Enterprise. Performance and control of a Small Enterprise. Managing a family enterprise. Women entrepreneurship.

**Reading Material**

1. Manohar Deshpande: Entrepreneurship of small-scale industries, Deep and Deep publications, New Delhi, 1984.
2. P.N. Singh: Developing Entrepreneurship for economic growth, AIMA, VIKAS Management series. Vikas publishing House Pvt. Ltd., 1997.
3. B.C. Tandon: Environment and Entrepreneur, Chug Publications, Allahabad, 1975.
4. MS 93 Volume, 1-5, IGNOU.
5. D.D. Mali: Entrepreneurship, Indian Institute of Entrepreneurship, Guwahati, 2001.
6. R. Kanungo: Innovation and Entrepreneurship, Sage Publication, Delhi, 1998.

**Paper – XV: AE 403 Women Studies**

**Unit–I:** Introductory Lectures. Feminist thought – Historical perspective. Gender and development.

**Unit–II:** Women, Society and State. Status of women in modern society. Sexuality and reproductive health. Religion, state and law

**Unit-III:** Women's and the concept of Empowerment. Introduction to women's empowerment. Women's work and empowerment. Women's education and empowerment. Socio – economic perspectives of women's empowerment.

**Unit-IV:** Women's movement. Introduction to women's rights. Over view of women's movements. Women's movements in India with special reference to North – East.

**Reading material:-**

1. Veena Mazumdar: Emergence of Women's Question in India and the Role of Women's Studies, CWDS, 1985.
2. Neera Desai and Maithreyi Krishnaraj (eds.): Introduction – Women and Society in India, Ajanta, New Delhi, 1987.
3. Flavia Agnes: Perspectives – Women's Movement within a Secular Framework Redefining the Agenda, Economic and Political Weekly, May 7 1994.
4. Jane K. Thompson: Fighting Discrimination – Up Against the Iviied Wall, Social Work, Vol. 21, No. 6, Nov. 1976.
5. Vasantha Kannabiran and K. Lalita: The Magic Time – Women in the Telangana People's Struggle in Kumkum Sangari and Sudesh Vaid (eds.): Recasting Women – Essays in Colonial History, Kali for Women, New Delhi, 1989.

**Paper – XVI: AE404 Rural Development.**

**Unit – I:** Introduction, Concept and Meaning of Rural Development, Theoretical Approach to the Understanding of Rural Development and their Limitations, Philosophy and Principles of IRDP, Theories of Rural Development and World Bank Model of Rural Development

**Unit – II:** Rural education – concept and scope, people's participation in rural development, role of voluntary agencies, Rural Health programme, Development of Co-operative movement, Social and Cultural Determinants of Rural Developments

**Unit – III:** Government approaches to rural development, Gandhian approach, sectoral approach, community development approach, technology and technology transfer for rural development, Delivery system and training for people's development.

**Unit – IV:** Strategies in rural development, Role of government departments in rural development with reference to Meghalaya, Panchayati Raj, Rural Development – Problems and Solutions, Impact of Rural Development Programmes.

**Reading material**

1. S.L. Doshi and P.C. Jain: Rural Sociology, Rawat Publications, Jaipur, 1999.
2. S.N. Bhattacharya: Indian Rural Economics by New Delhi, 1984.
3. J.B. Chitamber: Introduction to Rural Sociology, New Age International, New Delhi.
4. S.R. Maheshwari: Rural Development in India: A Public Policy Approach, Sage Publications, New Delhi, 1995
5. Ram Kumar Varma (ed.): Rural Development and Anti – poverty programme (Vol. I), Printwell, Jaipur, 1995.
6. A.Z.Ao: Rural Development in Nagaland, Har Anand New Delhi, 1994.

5:2:22(1)

xxii) Syllabus for the B.Sc (Pass) and (Honours) Course in Botany,

The Board of Under-Graduate Studies in Botany in its meeting held on 3rd October '02 finalised & approved the syllabus for the B Sc (Pass) and (Honours) Course in Botany which is placed as Annexure-'A'

The matter is placed before the Council for consideration.

SG

**Syllabus for the Three Years Degree course in Botany**  
**North- Eastern Hill University**  
**Shillong**

- A. B.Sc Pass  
 B. B.Sc Honours

There shall be a total of 12 papers. Paper I to VI shall be offered to both B.Sc. (General) and B.Sc. (Honours) students. Paper VII to XII shall be offered to those opting for B.Sc. (Honours).

Year	Paper	Contact Hours	Full. Marks		
			Theory	Practical	Total
<b>A. B.Sc Pass</b>					
I Year					
	Paper I	Algae, Bacteria Viruses, Fungi Bryophytes Pteridophyte	15 10 10 <u>10</u> 45	70	
II Year					
	Paper II	Gymnosperms, Paleobotany, Anatomy, Morphology & Embryology Angiosperm Taxonomy	10 20 <u>15</u> 45	70	
	Paper III	Practicals			60
	Paper IV	Plant Physiology Ecology	22.5 <u>22.5</u> 45	70	
III Year					
	Paper V	Cell Biology Genetics Plant Breeding & Biotechnology	17.5 17.5 10 <u>45</u>	70	
	Paper VI	Practical			60
			280	120	400

**Duration of Examination**

Theory Papers : 3 hours each  
 Practical : 6 hours each

Year	Paper	Contact Hours	Full. Marks		
			Theory	Practical	Total
<b>B. B.Sc. Honours</b>					
I Year					
	Paper VII	Microbiology	15	70	
		Plant Pathology	20		
		Biometrics	10		
			45		
II Year					
	Paper VIII	Environmental & Conservation Biology	30	70	
		Plant Geography & Ethnobotany	15		
			45		
	Paper IX	Practical		60	
III Year					
	Paper X	Embryology	20	70	
		Palynology	5		
		Applied Botany	20		
			45		
	Paper XI	Molecular Biology and Biochemistry	25	70	
		Plant Biotechnology	20		
			45		
	Paper XII	Practical		60	
			280	120	400

## Duration of Examination

Theory Paper : 3 hours  
 Practicals : 6 hours

## PAPER I

**Algae, Bacteria & Viruses, Fungi, Bryophytes & Pteridophytes  
(Theory)****Algae**

Outline of Fritch's classification; Range of vegetative and reproductive structures in Chlorophyceae, Bacillariophyceae, Phaeophyceae and Rhodophyceae. Evolution of sex in algae; Economic importance of algae.

Important features of life cycles of *Oedogonium*, *Chara*, *Voucheria*, *Ectocarpus* and *Polysiphonia*.

**Bacteria and Viruses**

Classification; Structure, nutrition & reproduction in bacteria & viruses; General account of viruses (TMV & bacteriophages); Economic importance of bacteria and viruses; General account of cyanobacteria.

**Fungi**

Classification salient feature of different classes; salient features of Gwynne Vaughan's & Ainsworth's classification; Range of vegetative structure & reproduction in fungi; Important features of life cycles of *Phythium*, *Erysiphe*, *Puccinia*, *Agaricus*, *Peziza* and *Alternaria*; Economic importance of fungi. General account of lichens.

**Bryophytes**

Classification & salient features of different classes. Thallus structure; Reproduction ; Evolution of sporophytes; Life cycle of *Marchantia*, *Anthoceros* and *Sphagnum*.

**Pteridophytes**

Classification & salient features of different classes; Evolution of stele; Heterospory and seed habit; Life cycles of *Rhynia Psilotum*, *Lycopodium*, *Selaginella*, *Equisetum* and *Marsilea*.

## PAPER II

**Gymnosperms, Palaeobotany, Morphology, Embryology, Anatomy, and Angiosperm Taxonomy  
(Theory)****Gymnosperms, Palaeobotany**

Classification, salient features of different classes. Evolutionary trends; Structure, reproduction and life cycles of *Cycas*, *Pinus* and *Gnetum*; Fossil formation and fossil types; Geological time scale; General account of dominant Jurassic flora.

**Morphology, Embryology**

Morphology of stamen and carpel; Micro- and Mega- sporogenesis; Male gametophyte, female gametophyte (monosporic) and fertilization; Development of typical dicot & monocot embryo, and development of endosperm.

**Anatomy**

Root-Stem transition; Organization of apical meristem; Secondary growth; Anomalous secondary growth in *Mirabilis*, *Bignonia*, *Nyctanthus* and *Dracaena*.

**Angiosperm Taxonomy**

Principles of classification; Systems of classification of Bentham and Hooker, Hutchinson and Cronquist.

## PAPER I

Distinguishing features of the following families: Ranunculaceae, Fabaceae, Asteraceae, Acanthaceae, Lamiaceae, Cucurbitaceae, Euphorbiaceae, Orchidaceae and Poaceae.

**PAPER III**  
**Practical**  
**(Based on Paper I & II)**

1. Study of vegetative and reproductive parts with the help of temporary preparations of all type genera prescribed in Paper I. Dissection, sectioning, drawing, description and identification of the specimen prescribed in Paper I.
2. Study of vegetative and reproductive structures of all prescribed gymnospermous genera by preparing temporary stained slides (dissection, sectioning, drawing, description and identification).
3. Anatomical studies of anomalous secondary structures of *Nyctanthus*, *Mirabilis*, *Bignonia* and *Dracaena* stems by making double-stained permanent preparations.
4. Taxonomic studies of angiospermous plants belonging to the families mentioned in Paper II: Flower dissection, drawing and description in technical language, identification upto genus level.
5. Spotting: Covering all those groups and sections not covered in the preparations.
6. Report based on the field study and submission of herbarium sheets ( 10 Nos.)

**Note:** (i) Equal weightage to be given to Papers I & II.  
(ii) At least one botanical excursion to be conducted during the session.

**PAPER IV**  
**Plant Physiology and Ecology**  
**(Theory)**

**Plant Physiology**

Absorption of water and minerals; Translocation of minerals and organic substances; Mechanism of stomatal transpiration; Mineral nutrition. **Enzymes:** Structure and mechanism of action; **Phyotosynthesis:** Mechanism of photosynthesis, C3, C4, and CAM plants; **Respiration:** Glycolysis, Kreb's cycle; Electron Transport Chain and ATP formation; Photorespiration; **Nitrogen metabolism :** NO<sub>2</sub> assimilation, Amino acid synthesis; Mechanism of biological N<sub>2</sub>-fixation; Dormancy; **Phytochrome:** structure and function; Photoperiodism and Vernalization; **Growth regulators:** Auxins, cytokinins and gibberellins (History of discovery, physiological role & mechanism of action); Physiology of senescence.

**Ecology**

Basic concepts of Ecology; Ecological factors; Climatic, edaphic, biotic and physiographic; Ecological adaptations; Attributes of population, population growth, population interaction; Community structure and development (succession); Ecosystem: structure and function (productivity, flow of energy, food chains, food webs, ecological pyramids, nutrient cycling); Air pollution, water pollution and pollution control; Vegetation types of India.

**PAPER V**  
**Cell Biology, Genetics, Plant Breeding & Biotechnology**  
**(Theory)**

**Cell Biology**

Structure and function of cell wall and cell membrane, chloroplasts, mitochondria, and ribosomes; Nucleic acids: DNA & RNA structure. DNA replication; Mitosis and Meiosis; General account of structure and function of chromosomes.

**Genetics**

Mendel's Laws of inheritance, chromosomal theory of heredity; Gene and Gene interaction (epistasis, supplementary, complementary & duplicate genes), multiple alleles; Linkage and crossing over; Mutations and mutagens; Polyploidy, Extranuclear inheritance ( kappa particles in *Paramecium* & Variegated leaves in *Mirabilis*); Sex chromosomes and sex determination type; Chromosomal structural aberrations in plants.

**Plant Breeding & Biotechnology**

Principles of plant breeding; Pure line and mass selection; Hybridization in self & cross pollinated crops; Hybrid vigour; Role of induced mutations in crop improvement Introductory biotechnology, and genetic engineering; Role of biotechnology in agriculture and horticulture.

**PAPER VI**  
**Practical**  
**(Based on Papers IV & V)**

1. Study of transpiration rate in dorsiventral & isobilateral leaves by Blackman's apparatus.
2. To determine the osmotic potential of cell sap by plasmolytic method.
3. Extraction and separation of plant pigments from green leaves by solvent method.
4. Measurement of R.Q. in different plant materials.
5. Study of soil pH, carbonate, nitrate and reductivity by qualitative methods.
6. Determination of requisite size and number of quadrats for the study of plant community.
7. Study of structure of plant community by determining frequency, density and abundance by quadrat method.
8. Study of adaptational features of xerophytes, hydrophytes and epiphytes.
9. Preparation of temporary slides of root tips.
10. Study of Polytene and Lampbrush chromosomes through permanent slides.
11. Study of cell division in flower buds and identification using acetocarmine.
12. Study of monohybrid and dihybrid ratios and modifications of dihybrid ratio, using seed samples.

**Notes:** Equal weightage to be given to Papers IV & V.

**PAPER VII**

**Microbiology, Plant Pathology and Biometrics  
(Theory)**

**Microbiology**

Growth and nutrition of microbes; Microbiology of air, soil and water; Microbiology of food (dairy and bakery); Mycoplasma and actinomycetes : a general account; Role of microbes in decomposition, carbon and nitrogen cycle; Role of microbes in agriculture; Antibiotics.

**Plant Pathology**

Classification of plant diseases; Host-parasite interaction: defence mechanism against infection, transmission and dissemination of diseases, diseases symptom, disease cycle and control measures of late and early blight of potato, white rust of crucifers, canker and wheat rust; Control of plant diseases (chemical & biological).

**Biometrics**

Collection and presentation of data; Sampling methods; Measures of central tendency, standard deviation and standard error; Coefficient of variation; Probability; Test of significance: t-test and chi-square-test.

**PAPER VIII**

**Environmental & Conservation Biology, Plant Geography & Ethnobotany  
(Theory)**

**Environmental & Conservation Biology**

Dynamic nature of environment and interactions among various environmental factors; Environmental problem: Ozone depletion, global warming and desertification; Renewable & non-renewable natural resources; Over exploitation of natural resources and its effects; Productivity of natural ecosystems (forest, grassland & fresh water); Plant diversity and its conservation: Sacred groves, National Parks, Sanctuaries and Biosphere reserves in N. E. India; Concepts and principles of environmental management; Sustainable development; Environmental problems of N. E. India.

**Plant Geography**

Factors affecting plant distribution; Plant dispersal and migration; Barriers of plant distribution; Floristic regions of India; Endemism.

**Ethnobotany**

Ethnobotany and its significance; Plants used by tribes of north-eastern region for food & medicine.

**PAPER IX**

**Practical**

**(Based on papers VII & VIII)**

1. Calibration of microscope and measurement of microorganisms/spores/pollen etc.
2. Preparation of nutrient agar medium (potato dextrose agar), preparation of slants and pour plates and inoculation (soil inoculum).
3. Study of the effects of glucose, fructose and sucrose on the growth of microbes.
4. Determination of density of microbial population using haemocytometer.

5. Study of Gram negative and Gram positive bacteria ( leguminous root nodules, curd)
6. Study of diseased specimens prescribed in theory papers by temporary preparations and with the help of permanent slides.
7. Computation of measures of central tendency and standard error using biological data.
8. Test of significance of difference between means using t-test.
9. Test of goodness of fit using chi-square test.
10. Study of the spatial and temporal variations in climatic factors: light, temperature, relative humidity.
11. To determine soil organic matter content by Walkley & Black's rapid titration method.
12. To determine B.O.D. of pond and stream water samples.
13. Identification and description of 5 plant specimens of ethnobotanical importance.
14. Visit to places of ecological/environmental importance.  
The students should submit detailed report in the final practical examination for evaluation.

**Notes:** (i) Equal weightage to be given to Paper VII & VIII  
(ii) For experiments of 7, 8 & 9 data are to be provided by the examiners at the time of examination.

**PAPER X**  
**Embryology, Palynology and Applied Botany**  
**(Theory)**

**Embryology**

Microsporogenesis and microgametogenesis; Megasporogenesis and megagametogenesis (monosporic, bisporic and tetrasporic types); Pollen- pistil interaction; Compatibility and incompatibility; Development, structure, and function of endosperm; Types of haustoria; Embryogeny-different types, function of suspensor and synergid; Polyembryony; Apomixis.

**Palynology**

Pollen production and dispersion in time and space, pollen/spore morphology and its role in taxonomy; Pollen allergy.

**Applied Botany**

Plants for man- cereals, pulses, fibres, fats and oils, spices, condiments, beverages, timber, fruit, aromatic and medicinal plants, ornamental plants (scientific names and families of at least three plants of each category and the parts used); Origin of cultivated plants; Centres of origin; Cultivation and improvement of rice, jute, sugarcane, mustard, potato; Cultivation and processing of tea and rubber; Characteristics and uses of timber yielding (teak, sal) and medicinal plants (*Cinchona* and *Rauvolfia*).

**PAPER XI**  
**Biochemistry, Molecular Biology and Plant Biotechnology**  
**(Theory)**

**Biochemistry**

Structure and classification of carbohydrates, lipids, amino acids and proteins; Enzymes: classification, structure of active site, mechanism of action, regulation of enzyme activity, coenzymes and vitamins; Laws of thermodynamics; Redox potential and electrochemical gradient; Chemiosmotic synthesis of ATP; Secondary plant products: occurrence, properties and function of phenolics, anthocyanins and terpenoids.

**Molecular Biology**

Structure and physical properties of DNA and RNA; Mechanism of DNA replication, RNA transcription, and protein synthesis; Regulation of gene expression in prokaryotes; Bacterial recombination.

**Plant Biotechnology**

Cell and tissue culture techniques; Cellular differentiation and totipotency; Organogenesis and embryogenesis; Protoplast isolation and culture; Somatic hybridization; Clonal propagation; Genetic engineering of plants; Vectors for gene delivery (Viruses, phages, plasmids); Agrobacterium- the natural genetic engineer; Achievements in crop biotechnology (with suitable examples) and future prospects. Pollen biotechnology.

**PAPER XII**  
**Practical**  
**(Based on Papers X & XI)**

1. Study of pollen by preparing pollen slides using acetolysis method.
2. Dissections of endosperms and embryo.
3. Study of germination of pollen grains.
4. Study of timber, fibre pulse, spice, beverage yielding plants.
5. Detection of starch, protein, fat and cellulose in plant materials by chemical tests.
6. Study of anther and pollen development, megasporogenesis and female gametophyte, double fertilization, endosperm and embryo development using permanent slides
7. Estimation of soluble protein in plant materials by Bradford test.
8. Effect of temperature and substrate concentration on urease activity.
9. Separation of plant pigments and amino acids by paper chromatography.
10. Colorimetric estimation of RNA/DNA.
11. Preparation of tissue culture medium and inoculation of plant material.

**Note :** Equal weightage to be given to Paper X & XII.

**Suggested Readings****PAPER I**

- Alexopoulos, C. J. and Mims, C.W. 1979. *Introductory Mycology* 3<sup>rd</sup> edition, Wiley Eastern Limited New Delhi
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- Carlile M. J., Watkinson, S. C and Gooday G. W. 1994. *The Fungi*, Academic Press, USA.
- Cass, N. D. and Whitton. B.A. 1973. *The Biology of the Blue-green algae*. University of California Press, Berkeley.
- Chapman, V. J. and Chapman, D. J. 1975. *The Algae*, 2<sup>nd</sup> edition, McMillan Publ. Inc., New York.
- Dodge, J. D. 1973. *The Fine Structure of Algal Cells*. Academic Press, New York.
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- Mishra, R. R. 1996. *Soil Microbiology*. CBS Publ.
- Onions, A.H. S., Alisopp, D. & Eiggins, H. P. W. 1981. *Smith's Introduction to Industrial Mycology*, 7<sup>th</sup> edition. Edward Arnold, London.
- Parihar, N. S. 1986. *Bryophyta*. Central Book Depot, Allahabad.
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- Vashishtha, B. R. Algae. S. Chand & Co., New Delhi.
- Vashishtha, B. R. Fungi. S. Chand & Co., New Delhi.
- Vashishtha, B. R. Pteridophyta. S. Chand & Co., New Delhi.
- Vashishtha, B. R. 1987. Pteridophyta. S. Chand & Co., New Delhi.
- Watson, E. V. 1967. Structure and Life of Bryophyta. Hutchinson University Library, London.
- Webster, J. 1980. Introduction to Fungi. 2<sup>nd</sup> Edition. Cambridge University Press, Cambridge.

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- Bhojwani, S. S. and Bhatnagar S. P. 2000. The Embryology of Angiosperms. Vikas, Delhi.
- Clark, D. L. 1976. Fossils, Palaeobotany and Evolution. W.M. C. Brown Company, New York.
- Cronquist, A. 1968. The Evolution and Classification of Flowering Plants. Thomas Nelson, London.
- Davis, P. H. & Heywood, V. H. 1967. Principles of Angiosperm Taxonomy. Oliver & Boyd, Edinburgh.
- Eames, A. J. 1981. Morphology of Angiosperms. McGraw Hill, New York.
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- Foster, A. S. & Giffard, E. M. 1962. Comparative Morphology of Vascular Plants. Allied Pacific Pvt. Ltd., Bombay.
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- Meyen, S. V. 1978. Fundamentals of Palaeobotany. Chapman & Hall, London.
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- Datta, S. C. 1989. *Plant Physiology*. Allahabad Central Book Depot, Allahabad.
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- iv) Streamlining Admissions in Under-Graduate Programmes.  
in the Country.

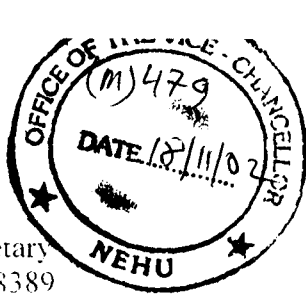
The Committee constituted by the Ministry of H R D, Department of Secondary and Higher Education, Govt. of India, New Delhi to streamline admissions to Under-Graduate Programmes leading to professional qualifications in the country had its meeting on 25th, September '02 and resolved to agree the recommendations of the Committee as placed as Annexure- 'A'

The matter is placed before the Council for consideration.

SG



R.D.Sahay  
Deputy Secretary  
Tel.No. 338 8389



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Amma me-A

मानव संसाधन विकास मंत्रालय  
माध्यमिक और उच्चतर शिक्षा विभाग  
भारत सरकार  
शास्त्री भवन  
नई दिल्ली - 110 001

MINISTRY OF HUMAN RESOURCE DEVELOPMENT  
DEPARTMENT OF SECONDARY & HIGHER EDUCATION  
GOVERNMENT OF INDIA  
SHASTRI BHAVAN  
NEW DELHI - 110 001  
Dated 11 November, 2002

D.O.No.F.20-21/2002-Desk(U)

*Right  
For the  
Ministry  
18/11/02*

Dear Prof. Miri,

I enclose for your kind perusal a copy of the report of the Committee constituted by this Ministry to streamline admissions to undergraduate programmes leading to professional qualifications in the country. the contents of which are self-explanatory.

2. The report of the Committee was considered by the University Grants Commission in its meeting held on 25<sup>th</sup> September, 2002. The Commission resolved to agree with the following recommendations of the Committee:

- (i) All Central/Deemed Universities (including National Institute of Technology) should participate in the common exam during 2003. Their difficulties and unique characteristics should be accommodated to the extent possible.
- (ii) At least 50% of the students in Deemed Universities should come from the All India Body of the students.
- (iii) In all the Central/Deemed Universities, only essential reservations i.e. as per constitutional-statutory requirements should be continued.
- (iv) All India PMT (AIPMT) test may include all the Deemed to be Universities for the year 2003.

I shall be grateful if the recommendations mentioned at (i) and (iii) above could be noted for information, guidance and compliance.

With regards,

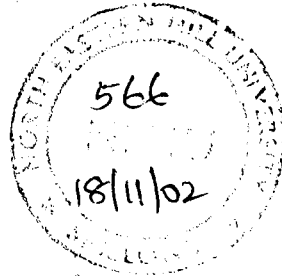
Yours sincerely,

*[Signature]*

(R.D.Sahay)

*For* *[Signature]*  
*18/11/02*  
*[Signature]*

Prof. Mrinal Miri  
Vice- Chancellor,  
North-Eastern Hill University,  
Shillong - 793 022



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*11/11/02*

For Official Use Only

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## **Streamlining Admissions in Undergraduate Programmes in the Country**

**Report of the Committee to Streamline Admissions in Undergraduate Programs  
leading to Professional Qualifications in the Country**

July 30, 2002

Department of Secondary & Higher Education,  
Ministry of HRD, Govt. of India

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# 4

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### *Gist of Recommendations*

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*List of Universities / Institutions / States / UTs (Category-wise)*

*Annexure II*

### Executive Summary

Based on the experience of AIEEE-2002, Government of India in the Department of Secondary and Higher Education, Ministry of HRD constituted a Committee under the Chairmanship of Dr. Arun Nigavekar, Chairman (UGC) to further streamline admissions in undergraduate programs leading to professional qualifications. The Committee met on 3<sup>rd</sup> and 15<sup>th</sup> July at the UGC Office at New Delhi. Chairmen of the Professional Councils, DG (NIC) and representative of the Ministry of Health attended the meetings as special invitees. Written feedbacks received from the professional councils, central / deemed universities, state Governments, Central Board of Secondary Education-CBSE, Central Counseling Board-CCB were taken into consideration.

The Committee felt that there is a strong rationale for common admission test (s) at the national level for maintenance of standards, in the interest of students and parents and for ensuring transparency and objectivity in admissions. The Committee noted that the National Policy on Education, constitutional and statutory provisions and Supreme Court directions validate and support common exam for admission to professional programs.

Taking into consideration all inputs received in course of the meeting and received in writing, the Committee made 17 (seventeen) specific recommendations to streamline admissions in undergraduate programs leading to professional qualifications. The Committee has suggested that the Government may now lay down revised policy framework. Based on which, UGC, AICTE and other Professional Councils could frame new regulations or revise existing regulations (where required). This needs to be done within a definite time frame, so that the Common Entrance Exam could be held timely in a more systemic manner next year.

The Committee also suggested that on a long basis, a National Testing Service (NTS) should be established independent of the Secondary Boards for the purpose.

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### Gist of Recommendations

1. AICTE, in consultation with the stakeholders should frame Regulations for entry-level qualifications for engineering, architecture and pharmacy programs within August 2002. MCI on its part should consider extending relaxed criteria to physically challenged category and also desirability of having age limit.
- ✓2. All central / deemed universities (including National Institutes of Technology) should participate in the common exam during 2003. Their difficulties and unique characteristics should be accommodated to the extent possible.
- ✓3. At least 50% of the students in deemed universities should come from the All India Body of the students.
4. Open seats (to be filled up on All India basis) in all professional institutions -Govt., Govt.-aided and self-financing in all State / UT level institutions should be filled up on the basis of a Common Exam at the National Level.
5. There should be at least 15% open seats (to be filled up on All India basis) in all professional institutions -Govt., Govt.-aided and self-financing in all State / UT level institutions. In self-financing institutions half of these seats should be in the free category.
6. States / UTs that wish to join the common admissions for all seats should be encouraged to do so.
- ✓7. In all Central / Deemed Universities, only essential reservations i.e. as per constitutional / statutory requirements should be continued.
8. Admissions to NRIs/ PIOs and Foreign Nationals should be regulated as per AICTE regulations. These regulations along with fee structure should be widely publicized and become an essential part of the Information Brochure (s).
9. There is a need to have a close look at various Court orders on the issue of admissions to NRIs / PIOs and Foreign Nationals and if required contest these cases so that there is no ambiguity.
- ✓10. For 2003, AIPMT may include deemed universities as per Supreme Court directions in Tamil Nadu case.
11. Whereas, Common Exam for engineering and medical groups need to be held separately because of different subject combinations, however there could only one information brochure and application form and these along with common exam for

architecture / planning could be scheduled on two consecutive days. This would facilitate both the students and the examining body.

12. An Expert Group independent of the examining body, may be constituted for extensive post analysis / feedback of the question papers, rigorous item analysis to improve the Test and review syllabus for the exam so that it does not have a leaning to a particular Board syllabus.
  13. Next year Exam could be held on 10 / 11 May. List of examination centers and the venue for examination should be reviewed.
  14. CBSE should be provided necessary infrastructure and staff support. The work of common exam being very sensitive, such staff cannot be appointed on contract basis or on ad hoc basis.
  15. On a long-term basis, the Government may initiate steps to set up National Testing Services (NTS) - independent of the Secondary Boards. This may include admissions to programs in agriculture, veterinary sciences, other sciences and even humanities. Such exam could be conducted several times a year on the pattern of SAT / GRE.
  16. Another Expert Group may be constituted for in depth examination of the entire issue of seat allocation and counseling and possibility of conducting on-line counseling for the year 2003. This Group would devise a mechanism and a format for submission of an Annual Return on Admissions by the Institutions.
  17. Government may lay down revised policy framework for admissions to professional programs in the country preferably covering programs both on the engineering and medical side. Based on the policy framework, UGC, AICTE and other Professional Councils should then frame new regulations or revise existing regulations (where required) within a definite time frame
-

## Background

1. Program of Action 1992 under the National Policy on Education 1986 envisaged conduct of a common entrance examination on all India basis for admissions to professional and technical programs in the country. As per directions of the Supreme Court, CBSE has been conducting All India Pre Medical / Dental Examination (AIPMT) for 15 % seats in Govt. medical colleges<sup>1</sup> (and some private colleges) since 1987. For admissions to engineering, architecture and pharmacy programs, Central Govt. laid down a *three - test scheme* vide its Resolution dated 18<sup>th</sup> October 2001. As per this All India Engineering, Architecture and Pharmacy Entrance Examination (AIEEE) was started in 2002. All central / deemed universities were expected to participate in AIEEE-2002. Open seats in state level institutions were to be filled through this Exam. States / UTs had option to either join AIEEE or continue with their existing arrangements for admission to state seats in state level institutions.

2. Based on the experience of AIEEE-2002, a Committee was constituted to further streamline admissions in undergraduate programs leading to professional qualifications (*at Annexure I*). The Committee met on 3 July and 15 July at the UGC Office at New Delhi. The Committee deliberated on all issues related to its Terms of Reference (ToRs). Chairmen of the professional councils and representative of the Ministry of Health attended the meetings as special invitees. Written feedbacks received from the professional councils, central / deemed universities, state Governments, Central Board of Secondary Education-CBSE, Central Counseling Board-CCB (*List at Annexure II*) were all taken into consideration. The Committee discussed admission related issues in respect of programs in engineering, medical, architecture, planning, pharmacy and dental of either four or five year duration (including integrated and dual degree programs). That is, all professional programs with minimum qualification of class 12 pass were considered.

## Rationale

3. The Committee noted that various Boards of Secondary Education have different standards. Therefore there is a need for a national yardstick for ensuring merit-based admissions in professional programs, where admissions are held on all India basis and where student demand exceeds supply. The Committee felt that there is a need to put an end to varying admission standards in these programs in the interest of maintaining professional standards. The Committee noted that these considerations would however be subject to equity objectives and constitutional provisions that provide reservation for weaker section of society. Further, there is an element of cross-subsidy through mechanism of free and payment seats in self-financing institutions / programs. The Hon'ble Supreme Court in Unnikrishnan Case has established this principle of merit. In addition, the Committee felt that there are problems of overlaps, physical, mental and financial burden due to multiplicity of tests. Though many of these multiple admission tests have over the year established credibility, but it is not uncommon for issues of transparency and objectivity being raised in a few cases from time to time.

<sup>1</sup> Other than States of Andhra Pradesh & J & K

### **Statutory Position**

4. The Committee noted that many institutions favor a common exam. Some object to it because of their unique characteristics. Still others link it to their academic autonomy. The Committee felt that autonomy is a conceptual issue. Common Exam to provide for a national yardstick for admissions does not dilute academic autonomy. They have full autonomy to determine curriculum and impart instruction. In this regard, the Committee noted the exclusive constitutional jurisdiction of the Central Govt. (under Entry 66 of the Union List) for coordination and maintenance of standards in higher education. It was informed that section 10(o) of the AICTE Act, 1987 provides for issue of guidelines for admission to technical institutions and universities. This power of the AICTE has been validated by the Supreme Court / High Court on more than one occasion. The Committee was also informed that deemed university guidelines of the UGC provide for admission on all-India basis to identical courses in all deemed universities through a common entrance test. Judgment of the Supreme Court in Tamil Nadu Deemed Universities Case (March 2002) that upheld this authority of the UGC was brought to the Committee's notice. The Committee therefore notes that the Central Government through UGC, AICTE and other professional councils has adequate statutory authority to regulate admissions in professional programs in the country.

### **Review of AIEEE 2002 (ToR a)**

5. The Committee noted that AIEEE 2002 was conducted by CBSE on 19 May 2002 at 396 Centers in 65 Cities. 211696 candidates were registered out of which 190045 candidates appeared. 9974 seats in BE, BArch, BPlanning and BPharm are expected to be filled up through this exam in 106 institutions including 11 deemed universities. All seats in all institutions in Himachal Pradesh, Uttaranchal & Chandigarh UT and 25% payment seats in Haryana, Rajasthan & Orissa are to be filled up through this Exam. The Exam comprised of four papers [with objective type (multiple choice) questions except aptitude test for BArch program] held on a single day from 9.15 AM to 5.15 PM. The exam was based on a common minimum syllabus drawn from syllabi taught in different Boards of States participating in the exam. CBSE in their feedback to the Committee proposed reducing the number of papers, a change in date of exam, review of number of exam centers, additional staff for conduct of exam etc.

### **Entry Level Qualifications (ToR b)**

6. Presently there are different educational qualifications prescribed for same professional program (except in Medical / dental) in different States / Institutions. Medical Council of India (MCI) in their Regulations on Graduate Medical Education, 1997 has clearly prescribed a minimum of 50% marks taken together in physics, chemistry and biology for general candidates and 40% marks for SC / ST / OBC. Similar minimum educational qualifications were prescribed for general candidates for AIEEE-2002. JEE for IITs does not prescribe any cut-off. Further, in both AIEEE 2002 and JEE, there is an upper age limit of 25 years relaxed by five years for SC / ST / Physically Challenged (PC) candidates.

7. After considerable deliberation on the issue, the Committee recommends harmonization of entry-level requirements for maintaining standards of all professional programs throughout the country. Such requirements should take into consideration, flexible choice of subjects that various Boards are now offering. However, not prescribing a cut off would mean total disregard for Board Exams. Taking this into consideration, AICTE, in consultation with Professional Councils, School Boards and Institutions, should frame Regulations within August 2002. MCI on its part should consider extending relaxed criteria to PC category and also desirability of having upper age limit.

#### **Participation of Central / Deemed Universities (ToR c)**

8. There are nearly 10 central universities and 30 deemed universities that had undergraduate programs awarding professional degrees. 11 deemed universities had participated in AIEEE 2002. 3 deemed universities namely ISM Dhanbad, IIT Allahabad and IITM Gwalior and IT (BHU) & NIFT Ranchi are being de-linked from JEE (IIT) and would participate in this exam in 2003. Common exam for 4 deemed universities in Tamil Nadu is being conducted by UGC this year. Regional Engineering Colleges (RECs) on conversion to National Institutes of Technology (NITs) and their declaration as deemed universities would now participate in the Common exam. Therefore, only a very few deemed universities and central universities remain to be covered (Please see Annexure). In view of the statutory position and the rationale given above, the committee recommends that all central / deemed universities should participate in the common exam during 2003.

9. For 2002 Exam, some of the universities that did not participate conveyed their difficulties in participation. Some sought a year's exemption. However, a few did not respond at all. The Committee recommends that there should be no exemption of any central / deemed university from the common exam. To the extent possible difficulties of the Universities should be accommodated. In event of a university not being able to furnish admission related data timely, such information available in their printed information brochure / website for previous years could be used for planning the common exam. All acts of non-cooperation on the part of the universities may be taken up seriously by the UGC. Action should be initiated in all such cases and reached to a logical conclusion.

10. The committee 'duly recognizes some unique features of a few deemed universities and recommends that to the extent possible these may be accommodated while planning for the common exam. On their part, these institutions should clearly spell out their unique characteristics so that students are informed of these and make their choices accordingly.

11. The committee noted that few deemed universities had majority of the seats reserved for the State in which they are located. Since deemed universities have a national mandate and all India character, therefore, the committee recommends that at least 50% of the students in deemed universities should come from the All India Body of the students. In case of central universities (excluding affiliated colleges), admission

should be on All India basis. However, present arrangement of reservations in the colleges affiliated to central universities could continue.

#### **Participation of States / UTs (ToR d)**

12. In order to reduce further multiplicity of entrance tests and to ensure fairness and objectivity in admissions, the Committee recommends institutions that admits students for professional programs from an all India body of students should admit students on their performance in the common exam conducted at the national level. States could continue their present arrangements of admitting students for seats to be filled up from within the state through the State Level Common Exams or Board Exams. States / UTs that wish to join the common exam for admissions for all seats should be encouraged to do so.

13. The committee took note of Supreme Court directions of 1986 that resulted in 15% seats in Govt. medical / dental colleges<sup>2</sup> (including some private colleges) being filled up on all India basis through AIPMT conducted by CBSE from 1987. The committee noted that this has helped in removing regional imbalances in facilities for medical / dental education in the country and also promoted national integration by ensuring that all these institutions have all India body of students. Some States like Haryana Rajasthan, Orissa, Punjab, Karnataka, UP etc. already have provision of open seats in State level institutions. The committee recommends that there should be at least 15% open seats (to be filled up on All India basis) in all professional institutions -Govt., Govt.-aided and self-financing. In self-financing institutions half of these seats should be in the free category. Reservations as applicable in Central Govt. may apply for open seats and admission to seats should be held on all India basis through a common exam.

#### **Reservation / Quotas (ToR c & d)**

14. AIEEE 2002 experience shows that seats in deemed universities / State level institutions that participated in 2002 were fragmented in 18 Categories. Categories - SC, ST, PC are essential to fulfill constitutional / statutory obligations. Category Girls is required for 'girls only' institutions. Free, payment and NRI categories would be required to implement fee policy in self-financing institutions. Categories such as Sports, NCC, Industry Sponsored, Staff, Military Person, and Freedom Fighter, Orphan are aberrations. These unnecessarily fragment the merit space and result in dilution of the principle of merit-based admissions. In view of this, the committee recommends that in the central / deemed universities, any of these categories if exists should be abolished. However, reservation categories specific to a particular State / UT would be essential for filling up State / UT seats. Committee also recommends review of system of quotas for states / UTs that are deficient in facilities for professional education.

15. Admissions to NRIs / PIOs and foreign nationals should be regulated as per AICTE regulations issued vide notification no.26-7/Legal/2002 dated 24<sup>th</sup> April 2002. MCI may also consider similar unambiguous regulations for NRI admissions. The

<sup>2</sup> Other than States of Andhra Pradesh & J & K

committee also noted that many institutions misinterpret NRI quota as NRI sponsored or management quota and there are serious irregularities in admissions in this category. These regulations along with fee structure should be widely publicized and become an essential part of the Information Brochure (s). Many orders of the Courts in such matters are creating further ambiguity. The Committee suggested that both AICTE and MCI should take a close look at these issues and if required contest these cases so that there is no ambiguity.

#### **Combining Common Exam for Engineering and Medical (ToR e)**

16. Exam for medical group is in physics, chemistry and biology and for engineering group in physics, chemistry and math. Therefore separate set of papers would be required for two groups. Next year, common exam would have to be conducted to include deemed universities as per Supreme Court directions in Tamil Nadu case. The Committee felt that the common exams for engineering and pharmacy, medical and architecture / planning could be held on two consecutive days. There could be only one information brochure and application form. This would facilitate both the students and the examining body. Since AIPMT is being held in pursuance to Supreme Court directions, this arrangement may have to be vetted by the Court.

#### **Test Design (ToR f)**

17. The committee concurs to the view of CBSE to reduce the number of papers by combining them. The Committee felt that the test should also measure relevant aptitude for different professions. On the difficulty level of the question paper, the Committee suggests that it should be an optimal mix of simple and difficult questions so that bunching is avoided. There should be an extensive post analysis / feedback of the question papers. Rigorous item analysis may be undertaken to continuously improve the Test. Syllabus for the exam may also be reviewed every year so that it does not have a leaning to a particular Board syllabus. The Committee recommends that an Expert Group independent of the examining body may be constituted for the purpose.

18. The Committee noted that since several lakh students are placed through the examination in the range of few hundred marks, there are bound to be ties. In some cases, thousands of students may score the same total number of marks. The committee suggests that the possibility of using the students' scores of Class 12 Board exam for breaking the tie could be explored. The scores of Board exams could to a reasonable degree be made comparable using scaling techniques. Now that all Boards have computerized compilation and declaration of results, it should be possible to get these results in a standard electronic format by the end of May each year. In the eventuality of a Board not able to declare results in time, the students' score in Class 10 Board exam could be used. The Committee felt that this would have an extremely salutary effect on the school system and has been advocated by many experts from the school system. The above Expert Group may also examine this.

#### **Logistics (ToR g)**

19. Proposal of the CBSE to hold the Exam on 10 / 11 May was found acceptable. The Committee agreed that the examination centers and the venue for examination should

be reviewed on annual basis. In the initial year this exercise may have to be done on trial and error basis keeping in mind geographical spread and prospective candidates. Later this could be on the basis of experience of the previous years. The Committee recommends that CBSE should be provided necessary infrastructure and staff support for conduct of the common exam. The Committee felt that the CBSE's request for minimum staff support - one Joint Secretary, one Assistant Secretary, One Section Officer, two Heads Assistants, two Stenographers and three Class IV is very reasonable. The Committee felt that since the work of common exam is very sensitive, such staff cannot be appointed on contract basis or on ad hoc basis.

20. The Committee explored various possibilities for conduct of the common exam and in absence of any alternate arrangement, recommended that CBSE should continue to be the examining body for entrance to both medical and engineering group for the next few years. Meanwhile, Government may initiate steps to set up National Testing Services (NTS) - independent of the Secondary Boards. This may include admissions to programs in agriculture, veterinary sciences, other sciences and even humanities. Such exam could be conducted several times a year on the pattern of SAT / GRE. This exam could eventually be conducted on-line. For 2003, CBSE could consider on-line acceptance of application-forms and issue of admit cards. The Committee felt that depending on States / UTs joining the common exam for all seats, the exam may have to be conducted in other regional languages.

#### **Seat Allocation and Counseling**

21. The Committee recommends that the entire issue of seat allocation and counseling would require in depth examination and possibility of conducting on-line counseling for the year 2003 be explored. For this the committee felt that it would be appropriate to appoint an Expert Group. Best interests of the students and the institutes should be kept in mind while planning it. Seats on offer should be frozen by April every year. There should be greater involvement of participating states / UTs and institutions in the process and coordination and proper sequencing of counseling schedules. The committee also suggested that the institutions be advised to submit a return on admissions each year at the end of admission process giving details of students admitted. Such returns, if received in standard electronic format, could be compiled to make a nation-wide database of students enrolled in professional programs in the country. This would help in manpower planning and checking frauds and mal-practices.

#### **Next Steps**

22. Finally, the Committee suggested that with these inputs, the Government might lay down revised policy framework for admissions to professional programs in the country. In view of the overlap, it would be desirable that all professional programs both on the engineering and medical side are covered. Based on the policy framework, UGC, AICTE and other Professional Councils should then frame new regulations or revise existing regulations (where required) within a definite time frame.

F. 31-4 /2000-TS.I  
Government of India  
Department of Secondary Education & Higher Education  
Ministry of Human Resource Development

New Delhi, the 10th June 2002

**OFFICE MEMORANDUM**

**Subject: A Committee to Streamline Admissions in Undergraduate Programmes leading to Professional Qualifications in the Country**

With the objective of reducing multiplicity of tests and the mental agony and financial burden on the students and their parents, the Govt. of India in this Ministry has laid down *Policy for Admissions to Engineering, Architecture and Pharmacy Programmes at the Undergraduate Level in the Country vide Resolution No. 31-4/2000-TS.I dated 18<sup>th</sup> October 2001*. First All India Engineering Entrance Examination (AIEEE) was conducted by the CBSE on 19<sup>th</sup> May 2002. In AIEEE-2002, six (6) States / UTs (fully / partly) and ten (10) deemed universities participated.

2. Based on this experience, a need to further streamline admissions in undergraduate programmes leading to professional qualifications is now strongly felt. The Government has therefore decided to constitute a committee to look into this and related issues. The committee will have the following composition:

1. Prof. Arun S Nigavekar, Chairman, UGC - Chairman
2. Prof. R Natarajan, Chairman, AICTE
3. Shri Syed Shahid Mahdi, Vice-Chancellor, Jamia Millia Islamia
4. Prof. M.P. Kapoor, Vice-Chancellor, TIET Patiala
5. Prof. B.P. Khandelwal, Director, NIEPA
6. Prof. NSV Kameswara Rao, Chairman, CCB-AIEEE2002 & Professor, IIT Kanpur
7. Shri V.S. Pandey, Joint Secretary, Technical Education, Ministry of HRD
8. Shri M.M Jha, Joint Secretary, Secondary Education, Ministry of HRD
9. Shri S.P. Gaur, Joint Secretary, Higher Education, Ministry of HRD
10. Prof. A K Maitra, Director, School of Planning and Architecture
11. Shri N. Ravi Shankar, Secretary, Technical Education, Uttaranchal
12. Shri A V Singh, Principal Secretary, Technical Education, Madhya Pradesh
13. Shri R Ramabhadran, Secretary, Technical Education, Gujarat
14. Dr. Malti Das, Principal Secretary, Technical Education, Karnataka
15. Prof. Ashok Ganguly, Chairman, CBSE
16. Prof. D.V. Sharma, General Secretary, Council of Boards of Secondary Education
17. Shri Pawan Agarwal, Director, Technical Education - Member Secretary

3. The committee with the permission of the Chairman may co-opt or invite such other person (s) as it deems appropriate to participate in any of its meetings as its special invitees.

4. The main objective of committee is to review the existing arrangements for admissions in undergraduate programmes leading to professional qualifications in the country and recommend a system of admissions and counseling that is in the interest of students and their parents, avoids multiplicity, is fair and transparent and ensures high standards of professional education in the country. Accordingly, the terms of reference of the committee shall be as follows:

- (a) Review of existing system of admissions.
- (b) Review of entry-level qualifications and fixing norms and standards to facilitate common test.
- (c) Participation of Central Universities and Deemed Universities and issues related to reservation of seats.
- (d) Participation of State Level Institutions (Fully / Partly) and policy on seats to be filled up on All India Basis
- (e) Possibility of merger of All India Pre Medical Test Conducted by CBSE with AIEEE 2002.
- ~~(f) Institutional arrangement for conduct of test and counseling during 2003.~~

5. The Committee may deliberate on related matters and may also be assigned such other functions as may be found necessary from time to time. The Committee shall submit its interim report within July 2002. The Committee will be serviced by the Department of Secondary and Higher Education.

Sd/-

(V S Pandey)

Joint Secretary to the Government of India  
3382298 (Phone) / 3381355 (Fax)

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Copy to:

1. Chairman / All Members of the Committee
2. Secretary-General, AIU / Executive Secretary, ISTE
3. Vice Chancellor / Director of All Central / Deemed Universities
4. Principal Secretary / Secretary, Technical Education of All States / UTs.

**A. List of Deemed Universities that Participated in AIEEE 2002**

1. International Institute of Information Technology, Hyderabad
2. Thapar Institute of Engineering & Technology, Patiala
3. Manipal Academy of Higher Education, Manipal
4. Avinashlingam Institute for Home Science & Hr Education, Coimbatore
5. Sathyabama Institute of Science & Technology, Chennai
6. Vellore Institute of Technology, Vellore
7. College of Engineering & Technology, Gurukul, Haridwar
8. School of Planning & Architecture, New Delhi
9. Birla Institute of Technology, Mesra, Ranchi
10. Dayal Bagh Educational Institution, Agra
11. Shanmugha Arts, Science, Technology & Research Academy

**B. Proposed to be De-linked from JEE (IIT) and Participate in Common Exam 2003**

1. Indian School of Mines, Dhanbad
2. IT (BHU)
3. Indian Institute of Information Technology & Management, Gwalior
4. Indian Institute of Information Technology, Allahabad
5. NIFFT Ranchi
6. Ten NITs (Formerly RECs) to join.

**C. List of Deemed Universities that have Responded**

1. Banasthali Vidyapeeth
2. Bharati Vidyapeeth
3. Allahabad Agriculture Institute
4. BITS Pilani
5. Rajasthan Vidyapeeth
6. Sri Ramachandra Medical College & Research Institute
7. Jamia Hamdard
8. DD Institute of Technology, Nadiad

**D. List of Deemed Universities that have not Responded**

1. Sri Chandrasekharreddra Saraswathi Vishwa Mahavidhyalaya, Kanchipuram
2. Bengal Engineering College
3. Tilak Maharashtra Vithyapeeth
4. Gandhigram Rural Institute

5.5:4 (17)

**E. List of Central Universities**

1. Delhi University
2. AMU
3. JMI
4. Viswa Bharati
5. Pondicherry University
6. Assam University
7. Tezpur University
8. Nagaland University
9. Mizoram University

**F. List of States & UTs that Participated Fully**

1. Himachal Pradesh
2. Chandigarh
3. Uttaranchal

**G. List of States & UTs that Participated Partly (15 / 25 % of Seats)**

1. Haryana
2. Rajasthan
3. Orissa

**H. List of States & UTs that confirm Participation in 2003 (Fully/Partly)**

1. Punjab (15% open seats)

**I. List of States & UTs that have not responded**

1. Karnataka
  2. UP
  3. Tamil Nadu
  4. Pondichery
  5. West Bengal
-

5:8:6(1)

vi) Appointment of Joint Supervisor

The appointment of Dr S Kalekar as joint supervisor in respect of Ms Lapyunshai Syiem Department of Khasi was placed before the Board of Research Studies in the 8th meeting held on 2nd December'02 wherein the Board considered and approved that the matter be recommended to Academic Council.

The letter from the Head Department of Khasi, the letter of Vice-Chancellor and Bio-data of Dr S Kalekar is placed as Annexure-'A', 'B', and 'C'.

The matter is placed before the Council for consideration.

SG

NORTH EASTERN HILL UNIVERSITY  
MAYURBHANJ COMPLEX, NONGTHYMMAI, SHILLONG-793014  
(Meghalaya)

From : Prof. B. L. Swer  
Head, Department of Khasi,  
NEHU, Shillong.

No. F-Kh/17-357  
December 3, 2001.

To

The Vice-Chancellor,  
North-Eastern Hill University,  
Shillong.

Sub:- Request for approval of Dr. Sharayu Kalekar to be  
Joint Supervisor in Khasi Department, NEHU.

Sir,

With reference to the subject, I would like to submit our request for the approval of Dr. Sharayu Kalekar as Joint-Supervisor in the Department. Miss Lapynshai Syiem was admitted as a Ph.D. Scholar and she was allotted by the Department to work under my supervision. I had also proposed the need of Dr. Kalekar's assistance. The proposal was placed before the Board of Post-Graduate Studies in Khasi which met on the 24.10.2000. The meeting considered and recommended the proposal to the School Board of Humanities and Education, NEHU. The School Board Meeting which met on the 10.11.2000 considered and approved the proposal with the condition that "inclusion of joint Supervisor from outside NEHU is subject to the approval of BBS/AC". The Department since then has waited for that approval from the BRS and AC.

There seems to be a misunderstanding that the Department has appointed Dr. Kalekar as the Joint Supervisor but that was not the case. The letter that Dr. Kalekar sent to Dr. Helen Giri was in response to the Scholar's request for Dr. Kalekar's agreement to be her Joint Supervisor.

Sir, I also submit herewith Dr. Kalekar's bio-data, a copy of which was sent to the then Dean, School of Humanities and Education, NEHU on the 16.11.2000.

I hope that you will consider our request favourably so that the work of the Scholar can progress smoothly.

Thanking you,

Yours faithfully

Sd/✓  
( B. L. Swer )

5:8:6(3)

Annexure 'B'

NORTH EASTERN HILL UNIVERSITY  
NEHU Campus, Shillong-793022  
(Meghalaya)

Mrinal Miri  
Vice-Chancellor

E-mail: mirimrinal@hotmail.com

NO: NEHU-VCF/3-18/2001-1547  
14th December, 2001

Dear Prof. Swer,

This is in response to your letter dated 3rd December, 2001 about the appointment of Dr. Sharayu Kalekar as Joint Supervisor for Ms. Lapynshai Syiem. In view of the position mentioned in your letter referred to above, the Department may now go ahead and appoint Dr. Sharayu Kalekar as Joint Supervisor. This may kindly be reported to the Academic Council.

With regards,

Yours sincerely,

Sd/-

( Mrinal Miri )

Prof. B.L.Swer,  
Head, Department of Khasi,  
NEHU Mayurbhanj Campus,  
Shillong 793014.

BIO-DATA OF DR SHARAYU KALEKARINTERODUCTION

Dr Sharayu kalekar is one of the leading representatives of the Rampur-Sadarang Tradition of Hindustani Music. She is the Ex.Vice-Chancellor of the Indira Kala Sangeet Vishwavidyalaya, Khalragarh, which is the only University of Music & Fine Arts in the Country. She has been giving Vocal recitals in the All India Radio and in prestigious music conferencers since her childhood. She has received Sound and Systematic Training in Vocal Music from the renowned musician Late Pandit Bholanath Bhatt of Allcha-bad for twenty years. Forover 12 years, she learnt music from the illustrious musicologist and composer, the late Acharya K C D Brahaspati. Under the guidance of the brilliant scholar, she did commendable research work on the secrets of Rampur - Sodarang tradition Accomplished in the rendering of Dhruvpad, Khayal, Thumri, Dadra and Tappc, she is also one of the leading scholars in the field of applied research work in music. She is also in the possession of a large number of rare compositions of music.

She is a "A" Grade artist of All India Radio and Television and has been regularly performing for the last 45 years in the National and other impartant concerts of music.

She was the Principal of Govt. Degree College - Chandigarh of Punjab University. She was the Head of the Music Deptt. In Women's College for sixteen years. She has been imparting advance train- ing in Vocal Classical Music to the Students under the Schemes of scholarships to young workers in different cultural field from Govt. of India, Ministry of Human Resources and Developments (Department of Culture). She was nominated as the representative of the State Government (Chandigarh, U.I) for the General Council of Sangeet Natak Academi, New Delhi for five years. She visited Mauritious and Kenya representing India sponsored by I.C.C.R, Delhi. She has been awarded (Sangeet Sewa Puraskar) from Harvali- abti Sangeet Samitt(1997) Jallandhar and nonouied by prochin Kala Kendra Chanagath(1998) for her services in the field of Music. Recently she received the prestigious State Award for India Classical vocal music from Sangeet Natak Academi Uttar Pradesh, Lucknow for the year 1996. At present she is the member of Execu- tive Board and General Council of Sangeet Natak Academy, New Delhi for five years nomnated by the Govt. of India in April 1999.

5:8:7(1)

vii) Nomination of Three members to the Board of Under-Graduate Studies.

The member nominated by the Academic Council to following Boards of Under-Graduate Studies have for some reason or other resigned from the Board. The Council may therefore in terms of Proviso (i) of the Ordinance OA-9 nominate Three members not below the rank of Reader to the following Board of Under-Graduate Studies.

1. Board of Under Graduate Studies in Computer Science.
2. Board of Under-Graduate Studies in Electronics.

The matter is placed before the Council for consideration.