

NORTH-EASTERN HILL UNIVERSITY  
SHILLONG- 793 001

No:AC:38-1/Conf/90- 673. Dated Shillong the 24th February, 1990.

To

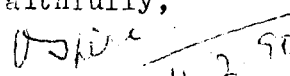
The Members of the  
Academic Council,  
North-Eastern Hill University.

Subject: Agenda papers for the 38th Meeting of the Academic Council.

Sir/Madam,

I am directed to forward herewith the Agenda papers for the 38th Meeting of the Academic Council scheduled to be held on the 3rd March, 1990 at 11:00 A.M. for favour of your information and consideration.

Yours faithfully,

  
(C. D. Shira) 24.2.90  
Deputy Registrar(Conf.)

Encl:a.a

NORTH-EASTERN HILL UNIVERSITY  
SHILLONG- 793 001

AGENDA PAPERS  
THIRTY EIGHTH  
MEETING  
OF THE  
ACADEMIC COUNCIL

3rd March, 1990, Shillong.

AGENDA PAPERS FOR THE THIRTY-EIGHTH MEETING OF THE ACADEMIC COUNCIL

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Item No. 1 Confirmation of Minutes of the 37th Meeting of the Academic Council held on the 5th and 6th September, 1989.

The Minutes of the 37th Meeting of the Academic Council held on 5th and 6th September, 1989 were circulated amongst the members. No comments were received from the members. The minutes may, therefore, be considered for confirmation.

2:1:(1)

Item No. 2      REPORTING ITEMS

- (i) Action taken on the Minutes of the 37th Meeting of the Academic Council

Obituary reference - The condolence message of the Council was conveyed to the bereaved family and Smti. Kallolini Hazarat in her reply desired to convey her sincere thanks to the Academic Council for their appreciation of the services rendered by Dr(Mrs) Madhuri Ben Shah to the cause of education.

(a) (ii) The Executive Council in its 67th meeting held on 15th and 16th September, 1989 approved the following :

1. No.AC:37:89:5:05:(i): (Panel of Examiners for M.Phil)
2. No.AC:37:89:5:05:(ii):(Panel of Examiners for Ph.D)
3. No.AC:37:89:5:05:(iv): (Award of Ph.D. Degree)
4. No.AC:37:89:5:07:(iv): (Permanent affiliation of five Colleges)
5. No.AC:37:89:5:01:(v): (Draft Regulation for conduct of meetings of the Academic Council)
6. No.AC:37:89:5:08:(vi): (Constitution of the Planning Board)

(b) The following Committees have been constituted and their reports are placed in the agenda:

1. No.AC:37:89:5:06:(iii):(Opening of Post-Graduate Department of Commerce in the Shillong Campus).
2. No.AC:37:89:5:05:(vii)@(viii):(UNFAIR means in examinations).

(c) The following Committees have been constituted and their reports are awaited.

1. No.AC:37:89:5:06:(i)( Course on Numerical method as applied to computers for M.Phil/Ph.D.students)
2. No.AC:37:89:5:06:(iv):(Introduction of Tenydie(Angami Language) at Degree level).
3. No.AC:37:89:5:01:(viii):(Draft Ordinances on Ph.D/M.Phil Programmes).
4. No.AC:37:89:5:08:(ix):(Membership of the Heads of Campus Departments).
5. No.AC:37:89:5:05:(xii):( 3 years integrated Degree Programme)
6. No.AC:36:89:5:08:(iii):(D.S.,D.Litt; and M.D).

(d) (i) Examination and educational facilities to students outstanding in sports:

Comments from Ten Colleges have been received and they will be placed in the Deans Committee.

(ii) Management Studies :

The Project Report and other documents have been received from the Department of Commerce and the matter is under process

- (ii) Institution of the Degree of Doctor of Science, Doctor of Literature and Doctor of Medicine -

The Academic Council in its 36th meeting vide its Resolution No.AC:36:89:5:08(iii) authorised the following members to prepare a draft Ordinance for the Degrees of Doctor of Science, Doctor of Literature and Doctor of Medicine.

1. Prof. R.S. Lyngdoh
2. Prof. J.B. Bhattacharjee
3. Prof. A.L. Verma.

Meanwhile, Dr. R.K. Mishra, Director, Institute of Self Organising Systems and Bio-Physics proposed that the following experts may be included in the Committee and it was approved by the Vice-Chancellor. The Committee was accordingly constituted with the experts.

1. Prof. S.P. Banarjee, former Vice-Chancellor of the University of Burdwan and former Registrar of the Calcutta University.
2. Prof. R.K. Foddar, former Vice-Chancellor of Calcutta University and Director of the Institute of Bio-Physics, Calcutta University.
3. Prof. M.L. Bhatia, former Head of Cardiology, A.I.I.M.S., New Delhi.

The matter is put up for information of the Council.

: : : : :

- (iv) Establishment of a Regional Support Unit in NEHU under the National Social Forestry Project by the National Wetlands Development Board -

The Academic Council in its 37th meeting held on the 5th and 6th September, 1989 authorised the Vice-Chancellor to constitute a Committee to explore the possibility of establishing a Regional Support Unit under the National Social Forestry Project. In the meantime, on an urgent correspondence received from the Ministry of Environment and Forests, Prof. R.G. Michael, Pro Vice-Chancellor was authorised to proceed to New Delhi and to discuss with the Officers in the Ministry. Prof. R.G. Michael alongwith Prof. R.S. Tripathi discussed with the Joint Secretary and other officials of the Ministry of Environment, Forest etc. During the discussion it transpired that the University was already behind the schedule and the Ministry desired the University to identify and formulate a suitable proposal and submit the same.

According to the proposal had been submitted to the Ministry and the memorandum of understanding for the Project had been signed by the Vice-Chancellor. The project has been sanctioned.

The Ministry of Environment Forests etc. have sanctioned the scheme and the posts have been advertised for recruitment of staff.

The matter is reported to the Council for information.

## 3 : RATIFICATION OF ACTION TAKEN BY THE VICE-CHANCELLOR

- (i) Nomination of North-Eastern Hill University representatives in the ~~Governing Body~~ <sup>Governing Body</sup> of affiliated Colleges :

The Vice-Chancellor has nominated University Representatives in the ~~School Board~~ <sup>Governing Body</sup> of ~~five~~ : affiliated colleges as follows :-

<u>Name of the College</u>	<u>University Representative</u>	<u>Term</u>
1. Lawngtlai College, Mizoram	1. Dr. A.K. Agarwal, Reader, Deptt. of Economics, Aizawl.	3 yrs w.e.f. 4.5.89
	2. Capt. C. Lalkima, Deptt. of Public Administration, Aizawl.	-do-
2. Champhai College, Mizoram	1. Sh. Thangchungnunga, Lecturer, Deptt. of Economics Aizawl.	2 yrs w.e.f. 9.7.89
	2. Dr. L. N. Singh, Reader, Deptt. of Psychology, Aizawl.	-do-
3. Mount Tiya College, Nagaland	1. Dr. N.P. Singh, Reader, Deptt. of Agronomy, School of Agricultural Sciences and Rural Development, Medziphema	3 yrs w.e.f. 31.5.89
	2. Dr. D. Bhattacharjee, Lecturer, Deptt. of Agricultural Engineering, School of Agricultural Sciences and Rural Development, Medziphema.	-do-
4. Union Christian College, Barapani, Meghalaya.	1. Prof. T. Ao, English Department, NEHU, Shillong.	3 yrs w.e.f. 21.9.88
	2. Dr. S.C. Deniel, Reader, Deptt. of Philosophy, NEHU, Shillong.	-do-
5. Shillong Commerce College, Shillong.	1. Prof. M.N. Karna, Deptt. of Sociology, NEHU, Shillong.	3 yrs w.e.f. 7.2.90
	2. Prof. R.L. Walli, Deptt. of Political Science, NEHU, Shillong.	-do-

The matter is placed before the Council for ratification.

(ii) Nomination of External Experts  
in the School Board

The Vice-Chancellor has nominated the following external experts as members of Boards of the respective Schools.

The matter is placed before the Council for ratification :

School of Physical Sciences

1. Prof. S.M. Bhatvta dekar,  
School of Mathematics T.I.F.R.,  
Homi Bhabha Road, Colaba,  
Bombay - 400 005.
2. Prof. Amiya Mukherjee,  
Stat-Maths Division, Indian  
Statistical Institute,  
203 B.T. Road, Calcutta - 700035.
3. Prof. E.S. Rajgopal,  
Department of Physics, Indian  
Institute of Sciences, Bangalore.
4. Prof. H.K. Sehgal,  
Department of Physics, Indian  
Institute of Technology,  
New Delhi - 110 016.
5. Prof. P. Chandra,  
Department of Chemistry,  
Banaras Hindu University, Banaras.

School of Life Sciences

1. Prof. S.R.V. Rao,  
Department of Zoology,  
Delhi University, Delhi-110007.
2. Prof. A.B. Das,  
Department of Life Sciences,  
Vishwabharati Shantiniketan-  
West Bengal - 731235.
3. Prof. K. Upathyaya,  
School of Life Sciences,  
J.N.U. New Delhi-110067.
4. Prof. S.C. Pandiya,  
School of Studies in Botany,  
Jiwaji University,  
Gwalior - 474011.
5. Prof. A.K. Koul,  
Department of Bio-Sciences,  
University of Jammu,  
New Campus,  
Jammu 180001.

## (iii) Award of Ph.D Degrees.

The results of the following candidates have been approved by the Examinations Department. The cases have been approved by the concerned School Boards and the Board of Research Studies in Sciences ratified the action taken in its meeting held on 1.3.90. The cases are now placed before the Academic Council for consideration and ratification.

Name of the candidate	Degree	Department
1. Shri S. Sarma	(Ph.D)	Geography
2. Shri Rajiv Sharma	(Ph.D)	Geology
3. Shri Ashish Gupta	(Ph.D)	Zoology
4. Shri A. Parthasaradhi	(Ph.D)	Zoology
5. Mrs A. Khan	(Ph.D)	Botany
6. Shri Wary	(Ph.D)	Bio-Chemistry

## Item No.4- DEFERRED ITEM

## (i) Performance Appraisal of College and University teachers -

The National Policy on Education, 1986 envisaged the development of system of appraisal of performance of teachers. The Mehrotra Committee also in the report on revision of pay scales of teachers in Universities and Colleges emphasised the need for developing a satisfactory system of evaluation of University Grants Commission appointed a Task Force to prepare the guidelines for introduction of a system of Performance Appraisal of teachers. The system developed by the Task Force and the format designed by it have been adopted by the University Grants Commission in its meeting held on the 4th November, 1988. The Chairman and the Secretary, U.G.C. forwarded the papers vide their D.O. letter No.F.1-4/87(PS-Cell) dated the 12th November, 1988 and No.F.1-4/87(PS-Cell) dated the 15th December, 1988 respectively for perusal and adoption by the University. The details may be seen at Annexure- "A".

The matter <sup>was</sup> placed for consideration of the Council in the 37<sup>th</sup> meeting but was deferred.

The case is put up again as a deferred item.

①

D:K:1(2)

TELETYPE: 31-88012  
 तार ग्राम: बुनियाद UNIGRANTS  
 दूरभाष PHONES: 8 12 OFF-3218888  
 दिनांक 28-11-88

विश्वविद्यालय अनुदान आयोग  
 महापुरवाह कार्यालय  
 नई दिल्ली-110 002

UNIVERSITY GRANTS COMMISSION  
 BHADURSHAH ZAFAR MARG  
 NEW DELHI-110 002

Prof. S. K. KHANNA  
 Ph. D. (Engg.), P.E., P.P.S., P.M.A.

SECRETARY  
 सचिव

D.O.No.P. 1-4/87 (P.S. Cell) December 15, 1988

Dear

The National Policy on Education 1986 envisaged the development of a system of appraisal of performance/teachers which is Open participatory and data based. /of

Keeping this in view the UGC appointed a Task Force with participation of All India Federation of University and College Teachers Organisation (AIFUCTO) for this purpose. The guidelines based on the report of the Task Force were considered and adopted by the Commission in its meeting on 4th November, 1988 and these are sent herewith for your perusal and adoption.

With regards,

Yours sincerely,

(S.K.KHANNA)

The Dean,  
 College Development Council,  
 North Eastern Hill University,  
 P.O. Lower Lachuniers,  
 Shillong 793 001.

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भारत सरकार  
एन सिटी-110 002  
UNIVERSITY GRANTS COMMISSION  
BANSALPURHAW JAFAN MARG  
NEW DELHI - 110 002

*Yash Pal*  
SECRETARY

DO.No.F. 4-4/87(28 Cell)

November 12, 1986

Dear Vice-Chancellor/Principal,

In discussions following the announcement of the National Education Policy 1986, and revision of teachers' pay-scale, it was announced that a system of Performance Appraisal of College and University teachers would be evolved in discussion with teachers' organisations. The stipulation was that the system should be open, participatory and data-based.

The Commission, therefore, set up a task force, with participation of AIFUCTO (All India Federation of University and College Teachers' Organisations), for this purpose. The guidelines based on the report of this task force prepared after a number of meetings were considered and adopted by the Commission in its meeting on 4th November 1986. These are sent herewith for your perusal and adoption.

With regards,

Yours sincerely,  
*Yash Pal*  
(Yash Pal)

:4:1(4)

**Report of the Task Force  
on  
Performance Appraisal of Teachers**

**Considered and as adopted by the  
Commission in its meeting held on  
November 4, 1988.**

**UNIVERSITY GRANTS COMMISSION  
NEW DELHI  
1988**

**Report of the Task Force on Performance  
Appraisal of Teachers**

The National Policy on Education, 1986 envisages the development of a system of appraisal of performance of teachers which is open, participatory and databased. The Menon Committee Report on revision of pay scales of teachers in Universities and colleges has emphasised the need for developing a satisfactory system of evaluation of teachers which will help their career development by securing feed back for self improvement.

Keeping the above recommendations in view, the UGC appointed a Task Force to prepare guidelines for introducing a system of performance appraisal of teachers in Universities and colleges. The list of the members of the Task Force is given in Appendix-I.

The Task Force held four meetings in August, 1987, March, April and September, 1988. After very careful and detailed deliberations on all issues, the Task Force developed a system of evaluation of the performance of teachers. The Task Force has also designed formats for the guidance of the institutions in this regard. The formats designed by the Task Force are presented in Appendices II & III. The Task Force recognises that at present no systematic evaluation of performance of teachers is in vogue in a large number of institutions. It is, therefore, important that introduction of a system of evaluation would need the involvement of the teacher community and the institutions.

In this context, the Task Force appreciates the efforts made by the AIRUCTO in organising regional seminars to evolve appropriate methods of performance evaluation of teachers. The Task Force

4:4:1(6)

hopes that similar initiatives will be taken by universities, colleges and other organizations. The Task Force recognizes that after some experience is gained, it would be possible to improve the methodology.

The Task Force is of the view that the record of evaluation made by the teachers and verified by the institutions will be an open document which should be the basis for recognition of excellence in performance as well as for further improving the overall efficiency of the system.

## Appendix I

List of Members of the Task Force on  
 Teacher in Approval of the Teachers.

1. Shri K. R. S. Rao  
 10, T. Nagar Road  
 New Delhi.
2. Prof. C. Padmanabhan  
 Department of Bio-Chemistry  
 Indian Institute of Science  
 Bangalore.
3. Prof. V. G. Bhat  
 Department of Bio-Chemistry  
 Indian Institute of Science  
 Bangalore.
4. Dr. A. Ghose  
 Vice-Chancellor  
 Madras University  
 Madras-600004.
5. Shri Devendra Kumar  
 Vice-Chancellor  
 Cambridge Rural Institute  
 Cambridge  
 Madras - 624302.
6. Prof. Iqbal Habib  
 Chairman  
 Indian Council of Historical Research  
 39, Preeti Park Road  
 New Delhi.
7. Dr. Sachin Roy  
 President  
 AIFCTO  
 Krishna's Park Road  
 P.O. 5 East, Barrow,  
 (West Bengal)
8. Dr. Manmoy Bhattacharya  
 General Secretary  
 AIFCTO  
 15, Brindaban Mallick Lane  
 Calcutta - 700 009.
9. Prof. P. S. Nandan  
 AIFCTO, NIC  
 4/76, P Block Patel  
 Siner.
10. Shri Kanubhai Anandaram Shastri  
 Secretary, AIFCTO  
 90/979, Vijay Nagar  
 Marol Puri  
 Mumbai - 400 018.
11. Prof. S. Parthasarathy  
 Vice-President  
 AIFCTO  
 11, West Purusai Mission Street  
 Madurai - 625001.  
 Tamil Nadu
12. Sister E. M. Bregina  
 C/O Fr. Joseph Nair  
 St. Joseph's College  
 Torpa  
 Ranchi Distt.  
 P.O. 835227.  
 Bihar.
13. Sh. J. D. Gupta  
 Joint Secretary  
 Ministry of Human Resource Development  
 Department of Education  
 New Delhi.
14. Prof. S. K. Sharma  
 Secretary  
 UGC.

PERFORMANCE APPRAISAL REPORT-I \*

SELF APPRAISAL.

A. Personal Information

- (a) Name
- (b) Address (Residential) Ph.No.
- (c) Designation
- (d) Department
- (e) Date of Birth
- (f) Area of Specialization

B. Academic Qualifications

Exam. Passed	Board/University	Subjects	Year	Division/Grade Merit etc.
--------------	------------------	----------	------	------------------------------

High School

Higher Secondary  
or Pre-degree

Bachelor's degree(s)

Master's degree(s)

Research degree(s)

Others (Diplomas/  
Certificates etc.)

Teachers already in employment at the time of  
introduction of the scheme and for new entrants at the time  
of joining of the institution.

C. Research Experience & Training

Research Stage	Title of work/Thesis	University where the work was carried out
----------------	----------------------	---

M.Phil. or equivalent

Ph.D.

Post-Doctoral

Publications (give a list separately)

Research Guidance (give names of students guided successfully)

Training (please specify)

D. Research Projects carried out

Title of the Project	Name of the Funding Agency	Duration	Remarks
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E. Seminars, Conferences, Symposia Workshops etc. attended

Name of the Seminar/Conference/Symposia Workshop, etc.	Name of the Sponsoring Agency	Place and Date
--	-------------------------------	----------------

Teacher's Information

Courses Taught	Name of University/ College/Institution	Duration
----------------	--	----------

i) B.Sc. (Hons.)  
(B.A./B.Sc. Hons.,  
Hons.)

ii) M.A./M.Sc.,  
etc.)

iii) M.Phil.

iv) Any other

Total Teaching Experience

(a) Undergraduate (Pass) \_\_\_\_\_

(b) Undergraduate (Hons.) \_\_\_\_\_

(c) Post-graduate \_\_\_\_\_

G. Involvement/Contributions to Teaching

(a) Design of curriculum;

(b) Teaching methods

(c) Laboratory experiments;

(d) Evaluation methods;

(e) Preparation of resource  
material including books,  
reading materials, laboratory  
manuals etc.

(f) Remedial Teaching/Student  
Counseling (academic)

(g) Any other

**II. Extension Work/Community Service**

(a) Please give a short account of your contribution to:

i) Community work such as values of National integrity, secularism, democracy, socialism, humanism, peace, scientific temper, flood or drought relief, small family norms etc.

ii) National Literacy Mission

(b) Positions held/Leadership role played in organizations linked with Extension Work and National Service Scheme (NSS), or NCC or any other similar activity.

**I. Participation in Corporate Life:**

Please give a short account of your contribution to:

(a) College/University/Institution

(b) Co-curricular Activities

(c) Enrichment of Campus Life (debates, sports, games, cultural activities)

(d) Students Welfare and Discipline

(e) Membership/Participation in bodies/Committees on Education and National Development.

(f) Professional Organization of Teachers.

J. (a) Membership of Professional  
Bodies, Societies etc.

(b) Editorship of Journals

K. Any other information.

(Signature of the Teacher)

**PERFORMANCE APPRAISAL REPORT-11 \***

**EMPLOY APPRAISAL**

**A. General Information**

- (a) Name
- (b) Date of Birth
- (c) Address (Residential)
- (d) Designation
- (e) Department
- (f) Area of Specialization
- (g) Date of Appointment
  - (i) in the Institution
  - (ii) in the Parent Post
- (h) Honours Conferred

Ph. No.

**B. Teaching**

(a) Classes Taught

Class	Assigned per week			Taught in the year			Steps taken for the teaching of periods missed during absence of leave
	** L	T / P		L	T / P		
	(1)			(2)			(3)
I) U.G. (B.A./B.Sc., etc. Pass) (B.A./B.Sc. etc., Hons.)							
II) PG (M.A./M.Sc., etc.)							
III) M.Phil.							
IV) Any other							

\* (To be filled at the end of every academic year)

\*\* L = Lecture T = Tutorial P = Practical

(b) Regularity and Punctuality

(c) Details of course teaching plan, synopsis of lectures, and reading lists supplied to students

(d) Details of participation in the following:

(i) University Evaluation

(ii) Internal Evaluation

(iii) Paper Setting

(iv) Assessment of Home assignments

(v) Conduct of Examinations

(vi) Evaluation of Dissertation etc.

C. Details of Innovations/Contribution in Teaching, during the year:

(a) Design of curriculum;

(b) Teaching methods

(c) Laboratory experiments;

(d) Evaluation methods;

(e) Preparation of resource material including books, reading materials, laboratory manuals etc.

(f) Remedial Teaching/Student Counselling (academic)

(g) Any other

D. Improvement of Professional Competence

(a) Details regarding refresher courses/orientation attended, participation in summer schools, workshops, seminars, symposia etc. including open university courses/M.Phil., Ph.D.

E. Research Contributions

a) Number of students (M.Phil/Ph.D.)

At the beginning of the year.	Registered during the year	Completed during the year.
-------------------------------	----------------------------	----------------------------

M.Phil.

Ph.D.

(b) No. of research papers published (please enclose list)

(c) Research Projects

Title of the project	Name of the funding agency	Duration
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(d) Details of Seminars, Conferences, Symposia organised

(e) Patents taken, if any, give a brief description.

(f) Membership of Professional Bodies.  
Editorship of Journals etc.

F. Extension Work/Community Service

(a) Please give a short account of your contribution to:

1) Community work such as  
values of National integra-  
tion, secularism, democracy,  
socialism, humanism, peace,  
scientific temper, flood  
or drought relief, small  
family norms etc.

2) National Literacy Mission

(b) Positions held/Leadership role  
played in organizations linked  
with Extension Work and  
National Service Scheme (NSS),  
or NCC or any other similar  
activity.

G. Participation in Corporate Life:

Please give a short account of your contribution to:

(a) College/University/Institution

(b) Co-Curricular activities

(c) Enrichment of Campus Life  
(hostels, sports, games,  
cultural activities).

(d) Students Welfare and  
Discipline

(e) Membership/Participation in Bodies/Committees on Education and National Development.

(f) Professional Organizations of Teachers.

**H. Assessment**

(a) Steps taken by you for the evaluation of the course programme taught

**I. General Data**

State brief assessment of your performance indicating (a) achievements, (b) difficulties faced and (c) suggestions for improvement.

**Signature of the Teacher**

**J. \*Verification of factual data.**

- A. General Information
- B. Teaching
- C. Details of Innovations/Contribution in Teaching, during the year
- D. Improvement of Professional Competence
- E. Research contributions
- F. Extension Work/Community Service
- G. Participation in Corporate Life

**Signature of the Person authorized\***

\* By a person to be nominated by Principal/Vice-Chancellor

0:4:1(13)

University Grants Commission

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4:1:2:(1)

- (ii) Amendment of Ordinance OA-1, OA-2 and OA-3 relating to the Establishment of School of Studies, Departments and Centres of Studies.

The Academic Council and the Executive Council have decided for establishment of Schools of Studies, Departments and Centres of Studies but the relevant Ordinances have not been amended. It is, therefore, proposed to update the Ordinances in accordance with the various decisions of the University authorities.

An Item was put up in the last meeting of the Academic Council for amendment of Ordinances OA-1, OA-2 OA-3 and OA-4 but consideration of the item was deferred. In the present proposal, amendment of Ordinance OA-4 has not been included as assignment of various Departments and Centres are being re-examined.

The Statements indicating the proposed amendments to the Ordinances OA-1, OA-2 and OA-3 relating to the Establishment of Schools of Studies, Establishment of Departments, Establishment of Centres of Studies are placed at Annexure - "A", "B", "C" respectively for consideration of the Council.

Amendment to Ordinance OA-1 on the Establishment of  
School of Studies.

<u>Existing Ordinance</u>	<u>Proposed Amendment.</u>	<u>Ordinance after amendment</u>
The following Schools of Studies may be established in the University:	Add the following Schools:	The following Schools of Studies may be Established in the University:
<ol style="list-style-type: none"> <li>1. Sch. of Social Science.</li> <li>2. Sch. of Life Science.</li> <li>3. Sch. of Environmentla Sc.</li> <li>4. Sch. of Physical Science.</li> <li>5. Sch. of Medical Science.</li> <li>6. Sch. of Agricultural Sciences and Rural Dev.</li> <li>7. Sch. of Languages.</li> <li>8. Sch. of Education.</li> </ol>	<ol style="list-style-type: none"> <li>"9 School of Economics and Management studies.</li> <li>10. School of Library and Information Sciences</li> <li>11. School for Studies of Spiritual and Moral Values."</li> </ol>	<ol style="list-style-type: none"> <li>1. School of Social Studies.</li> <li>2. School of Life Sciences.</li> <li>3. School of Environmental Sciences.</li> <li>4. School of Physical Sciences.</li> <li>5. School of Medical Sciences.</li> <li>6. School of Agricultural Sciences and Rural Development.</li> <li>7. School of Languages.</li> <li>8. School of Education.</li> <li>9. School of Economics and Management Studies.</li> <li>10. School of Library and Information Science.</li> <li>11. School for Studies of Spiritual and Moral Values.</li> </ol>

.....

Annexure-'B'Amendment to Ordinance 0A-2 on the Establishment of  
Departments.

<u>Existing Ordinance</u>	<u>Proposed Amendment</u>	<u>Ordinance after admentment</u>
The following Department may be established in the University.	Add the following departments:	The following Departments may be established in the University.
1. Department of Economics	25. Department of Business Management	1. Department of Economics
2. Department of History	26. Department of Public Admn.	2. Department of History
3. Department of Phil. osophy.	27. Department of History and Archaeology.	3. Department of Philosophy
4. Department of Pol. Science	28. Department of Modern Indian Languages.	4. Department of Pol. Science
5. Department of Sociology	29. Department of Horticulture.	5. Department of Sociology
6. Department of Anthropology	30. Department of Socil Conservation	6. Department of Anthropol
7. Department of Commerce	31. Department of An- mal Science.	7. Department of Commerce
8. Department of Botany	32. Department of Rural Dev. Planning.	8. Department of Botany
9. Department of Bio-Chemistry	33. Department of Librar y and Information and Science.	9. Department of Bio-Chemist
10. Department of Zoology	34. Department of Journalism	10. Department of Zoology
11. Department of Micro Biology	35. Department of Chris- tianity.	11. Department of Micro- Biology.
12. Department of Architecture	36. Department of Traditional Religions	12. Department of Architectu
13. Department of Geography	37. Department of Pharmacy"	13. Department of Geography
14. Department of Geology		14. Department of Geology
15. Department of Chemistry		15. Department of Chemistry
16. Department of Physics		16. Department of Physics
17. Department of Mathematics		17. Department of Maths.
18. Department of English		18. Department of English
19. Department of Hindi		19. Department of Hindi
20. Department of Khasi		20. Department of Khasi
21. Department of Linguistics		21. Department of Linguistics
22. Department of Education		22. Department of Education
23. Department of Classical Languages.		23. Department of Classical Languages.
24. Department of Psychology		24. Department of Psychology
		25. Department of Business Management
		26. Department of Public Admn.
		27. Department of History and Archaeology
		28. Deptt. of Modern Indian Lanauges.
		29. Deptt. of Horticulturae.
		30. Deptt. of Socil Conservati on.
		31. Deptt. of Animal Science
		32. Deptt. of Rural Dev. Plannir
		33. Deptt. of Lib. & Informatic Sciences.
		34. Deptt. of Journalims
		35. Deptt. of Christianity.
		36. Deptt. of Traditionld; Religions."
		37. Department of Pharmacy.

Amendment to Ordinance OA-3 on the Establishment  
of Centres of Studies.

<u>Existing Ordinance</u>	<u>Proposed Amendment</u>	<u>Ordinance after Amendment</u>
<p>The following Centres of Studies may be established in the University for the present</p>	<p>Substitute "10 Centre for School Mathematics and Sciences"</p>	<p>The following Centres of Studies may be established in the University for the present:</p>
<p>1. Centre for Adult and Continuing Education.</p>	<p>by</p>	<p>1. Centre for Adult and Continuing Education.</p>
<p>2. Centre for Educational Technology.</p>	<p>"13 Centre for Applied Statistics."</p>	<p>2. Centre for Educational Technology.</p>
<p>3. Centre for Forestry and Nature Resources Management.</p>	<p>14. Centre for Distance Education."</p>	<p>3. Centre for Forestry and Nature Resource Management.</p>
<p>4. Centre for Child Dev.</p>		<p>4. Centre for Child Dev.</p>
<p>5. Centre for Rural Dev.</p>		<p>5. Centre for Rural Dev.</p>
<p>6. Centre for Data Processing and System Studies.</p>		<p>6. Centre for Data Processing and System Studies.</p>
<p>7. Centre for Literary &amp; Cultural Studies.</p>		<p>7. Centre for Literary and Cultural Studies.</p>
<p>8. Centres for Creative Arts</p>		<p>8. Centre for Communications</p>
<p>9. Centres for Communication</p>		<p>9. Centre for Creative Arts.</p>
<p>10. Centre for School Mathematics and Sciences,</p>		<p>10. Centre for Science Education.</p>
<p>11. Centre for Eco-Development</p>		<p>11. Centre for Eco Development</p>
<p>12. Centre for Study of Foreign Languages,</p>		<p>12. Centre for Study of Foreign Languages.</p>
<p>2. The organisational set up of the Centres and the Assignment of work to the Centres shall be provided through separate Regulations.</p>		<p>13. Centre for Applied Statistics.</p>
		<p>14. Centre for Distance Education.</p>
		<p>2. The organisational set up of the Centre and the assignment of work to the Centres shall be provided through separate Regulations.</p>

(iii) Establishment of the Centre for  
Computer Science -

The University Grants Commission sanctioned the "Centre for Computer Science" under the 6th Five Year Plan, The Centre has accordingly been established in the University, But in the list of Centres of Studies proposed to be established by the University, as given in Ordinance OA-3 relating to the establishment of Centres of Studies, the Centre for Computer Science was not included. At Serial No. 6 of the list, however, a provision is made for establishment of a "Centre for Data Processing and System Studies".

The matter is placed for consideration whether the Centre for Computer Science may replace the Centre for Data Processing and System Studies provided in the Ordinance.

This item was placed in the 37th meeting of the Council but consideration of the item was deferred.

The matter is, therefore, placed again for consideration of the Council.

(iv) Functioning of the School of Agricultural Sciences and Rural Development -

The University Grants Commission approved the proposal of the University for creation of a School of Agricultural Sciences under the VI Plan and it was conveyed by their letter No. F.7-20/81(F-2) dated 1.6.84. The School of Agricultural Sciences was sanctioned in order to:-

- (i) start Under-Graduate courses in Arts and Sciences, and
- (ii) introduce Post-Graduate courses in Rural Development Planning, Horticulture, Animal Production and Soil Conservation.

Accordingly the Academic Council in its 22nd meeting held on the 29th, 30th and 31st October, 1984 vide its resolution No.AC:22:84:04:4(ii) resolved to create the School of Agricultural Sciences and Rural Development and assigned the following Deptts. under the School.

1. College of Agriculture with P.U/B.Sc.Agricultural courses and Under-Graduate courses in Arts/Sciences.
2. Post-Graduate Departments in -(a) Rural Development Planning (b) Horticulture, (c) Animal Production, (d) Soil Conservation.
3. Centre for Rural Development.

The above decision of the Academic Council was also approved by the Executive Council vide its resolution No.EC:42:84:04:2(i) adopted in its meeting held on the 18th December, 1984. The Executive Council further decided that the Principal, College of Agricultural, shall be the Ex-Officio Dean of the School of Agricultural Sciences and Rural Development.

It may be seen from the above decisions of the Academic Council and the Executive Council that the School of Agricultural Sciences and Rural Development should comprise-(1) College of Agriculture(2) Post-Graduate Departments and (3) Centre for Rural Development. It appears from the actual functioning of the School that all the three units have been combined together and the

Contd/.../-

College of Agriculture does not seem to exist anymore. The Principal of the College also does not seem to have been appointed. Actually, the Principal of the College should have been the Ex-Officio Dean of the School. But only the Dean, is appointed without indicating that he is also the Principal of the College of Agriculture.

In the sanction of the U.G.C. and the resolution of the Academic Council the name of one of the Departments of the School is "Rural Development Planning". In the minutes of the Executive Council, however, it appeared as "Rural Development and Planning" and this terminology is being used in the University. But this appears to be a mistake. "Rural Development Planning" and "Rural Development and Planning", imply two different meanings and also functioning of the Department itself.

Another Post-Graduate Department sanctioned by the U.G.C. and decided by the Academic Council and the Executive Council is the "Department of Animal Production". The nomenclature being used by the University for this Department is "Animal Science". It may be considered whether the nomenclature should be the "Department of Animal Science" or the "Department of Animal Production."

If these three units decided by the Academic Council and the Executive Council function separately under the same School, some of the problems like membership of the Board of Post-Graduate Studies and School Board could perhaps be avoided.

The matter is placed for <sup>as a deferred item</sup> consideration and decision of the Council on the following :-

1. whether the three units should function separately under the School;
  2. whether the nomenclature of the Department should be "Rural Development Planning";
  3. whether the nomenclature of the Department of "Animal Science" should be the "Department of Animal Production; a
  4. whether the Principal of the College should be appointed.
- The case is put up again as a deferred item.

- (v) Inclusion of faculty members of under Graduate Departments in the Board of Post Graduate Departments and the School Board, SASARD -

Clause 1(iv) of Ordinance OA-8 on the Board of Post-Graduate Studies provides that "one teacher each from other Departments within the School having common courses with Department" shall be members of the Board of Post Graduate Studies.

Clause 1(iv) of the Ordinance OA-7 on the Boards of the School provides that "one Reader and one Lecturer from each of the Departments by rotation on the basis of seniority" shall be members of the School Board.

In all the Boards of Post-Graduate Studies and the School Boards of the University only the teachers of the Post-Graduate Departments are nominated as members. In the School of Agricultural Sciences and Rural Development, the Dean of the School feels that teachers of Under Graduate courses should be included in all the Boards of Post Graduate Studies as well as in the School Board. The view of the Dean is as follows :

"The teaching in P.G. Departments at SASARD had major and minor courses which are offered from each department in order to meet the requirements for the degree. Under Horticulture, we offer Horticulture as the major subject and the minor subjects we offer Plant Pathology, Agronomy, Entomology, Plant Breeding, Agricultural Chemistry etc. The M.Sc. students are required to take minor courses from the above subjects as well as statistics as a compulsory course. Keeping in view of these requirements, the departments like Agronomy, Plant Pathology, Plant Breeding, Entomology etc. are part and Partial of P.G. department who are offering P.G. courses for M.Sc (Ag.) students. Although some of the departments are still at Under-Graduate level, the teachers are competent to offer minor P.G. courses with adequate qualification and experience. . Moreover, all these teachers are also members in the School Board."

Some of the members of the School Board, however, objected in writing to the inclusion of teachers of Under-Graduate Departments.

Contd/.../-

At present, there are four Post Graduate Department namely, (i) Rural Development and Planning; (ii) Horticulture (iii) Animal Science; (iv) Soil Conservation and other Departments are at the Under-Graduate Level.

The matter is placed for consideration of the Council whether the teachers of Under Graduate Courses in the School may be included in the Board of Post Graduate Studies and the School Board.

(vi) Grant of autonomous status to the Institute  
of Self-Organising Systems and Bio-Physics

The University Grants Commission originally sanctioned the Centre of Bio-Physics and Self-Organising Systems. After the establishment of the Centre, when the Centre submitted a proposal to the Academic Council for conversion of the Centre to the School of Self-Organising Systems, assigning the Centre for Bio-Physics to the School, the Academic Council felt that it will not fit in the existing pattern of the Schools in the University, since it may be required to interact with all Schools in a multi-disciplinary manner. The Council, therefore, resolved vide Resolution No. AC:26:86:05:1(iii) to establish an Institute of Self-Organising System and Bio-Physics. The proposal was also approved by the Executive Council.

The University Grants Commission vide its letter at Annexure -"A" conveyed its view that the Institute may enjoy autonomous status and that the Director of the Unit may be given powers and necessary flexibility with regard to the functioning of the Unit.

The matter is placed for consideration of the Council as a deferred item, on the nature of the autonomy but may be granted to the Institute.

4:1:6:(2)

ANNEXURE-'A'

All communications should be addressed to the Secretary by designation and not by name No.F.6-6/85/(CUP)

University Grants Commission  
Bahadurshah Zafar Marg  
New Delhi - 110002  
January, 1989.

To

The Registrar,  
North-Eastern Hill University,  
Shillong- 793 001.

Subject: Setting up of an independent unit at the Institute of Bio-Physics and Self Organizing Systems under the auspices of NEHU.

Sir,

The University Grants Commission recently reviewed the working of the Institute of Bio-Physics and Self Organizing System. The Commission is of the view that this Institute should enjoy autonomous status and the Director of the Unit should be given powers and necessary flexibility with regard to functioning of the Unit. The Commission has also agreed to provide Rs. 2 lakhs per annum for a period of five years beginning 1988-89 for the Institute towards appointment of Visiting Professors<sup>m</sup> Scientists and for organizing workshops, seminars and also for meeting other contingent expenditure.

The receipt of this letter may kindly be acknowledged.

Yours faithfully,

Sd/-A.G.Deshmukh,  
Joint Secretary.

(vii) Functioning of the Department of Psychology at Aizawl, Mizoram Campus - (with drawn)

No students could be admitted for the last two years in the Department of Psychology at Aizawl, Mizoram campus. There has been no admission of students in the feeder college also Psychology is taught at the degree level only in one college under the jurisdiction of NEHU, that is, at Pachhunga University College. The subject is not taught in the colleges of Meghalaya and Nagaland. Even if some students could be admitted at the degree level, it will take three years for the students to complete B.A. honours course to come up for admission in M.A. classes in the Department of Psychology. As such there will be no admission and teaching in the Department of Psychology for five years.

At present there are three teachers in the Department, that is, one Professor and two Readers.

"Department of Psychology, (Aizawl)"

The department of Psychology was established by the University as a part of the School of Education so as to develop it into a full-fledged department at a later stage. Before the visit of the Committee the Commission has agreed to the creation of one post of Professor and two posts of Readers for starting a paper in Psychology in the department of Education. This department has been established with a view to organising regular programmes of post-graduate and research studies within this discipline. It will collaborate with the School of Education in the conduct of study and Research in the areas of Educational Psychology, Development studies, Instructional Technology and Organisational behaviour. It will also undertake extension work in important areas like child development, delinquent crime, guidance and counselling in educational institutions and selection and placement work through a programme of test development."

The position was further assessed by the UGC Visiting Team in connection with VII Plan and the Team made the following

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observation :-

"The department started functioning in October 1983. It has staff of 2 Readers and One Lecturer. The subject is taught at the under-graduate level only in one college. This is the only department in this subject in all the three campuses. It is difficult to get students as there are no students in the under-graduate classes and next year there would not be any student seeking admission to the department. It is proposed to start Psychological Service Centre, for the use of the Community."

The matter is placed for consideration and for decision as to how the Department of Psychology may function.

4:1:8(1)

(viii) Items sub -mitted by the Pro-Vice-Chancellor,  
Nagaland Campus-

The Pro-Vice-Chancellor, Nagaland Campus Submitted the Agenda  
items on the:

- (1) Establishment of Post Graduate Departments in the School  
of Agricultural Sciences and Rural Development and
- (2) Functioning of the School Board of Agricultural Sciences  
and Rural Development. The items may be seen at Annexure  
'A'.

The items are placed for consideration of the Council.

The case is put up again as a deferred item.

ANNEXURE-'A'

1. Establishment of Post-Graduate Departments in the School of Agricultural Sciences and Rural Development, Medziphema.

The present position of establishment of Post-graduate Deptts. in the School of Agricultural Sciences and Rural Development is as follows :-

- (a) Department of Horticulture - Approved by E.C. and UGC and already established.
- (b) Department of Soil Conservation Approved by E.C. and UGC but could not be started due to shortage of teachers.
- (c) Department of Rural Development and Planning. Approved by E.C and UGC but could not be started earlier due to shortage of teachers. Admission has been taken recently without sufficient teachers. The only lecturer represented that the course cannot be run in this condition.
- (d) Department of Plant Pathology Not yet approved by E.C. and UGC but admissions have been taken recently.

The above issues were pointed out to the O.S.D., vide No. NCK/AC/A-22/86-969 dated 7.7.89.

In the light of the above, the Academic Council may consider and decide whether the Departments should start functioning without teachers in case of ~~Sl (c)~~ <sup>(b) & (c)</sup> and without approval of E.C and U.G.C. as in case of Sl (d)

2. Functioning of the School Board of the School of Agricultural Sciences and Rural Development, Medziphema.

The first School Board meeting was held on August 18-19 1989. Several representatives had been received against the way the proceedings were conducted, minutes were written and actions were taken. This has been intimated to the Vice-Chancellor and O.S.D. The second meeting of the School Board was held on August 28-29, 1989. It has been reported that about 7(seven) regular members deliberately absented themselves because of the irregularities they considered to have been committed. The Dean perhaps nominated on spot other members in place of the absentees. Doubt arises whether the School Board functioning in accordance with the statute and ordinances. The Pro Vice-Chancellor has suggested appointment of some or a Committee to go into the depth of the issues for coorrective measures to enable the institution to function smoothly on right academic lines.

The Academic Council may like to deliberate and decide for appropriate action.

Sd/-Kiremwati  
Pro Vice-Chancellor

5 - ACADEMIC MATTERS :

5:1- Statutes, Ordinances, Regulations and Rules-

(i) Amendment of the Table under Statute 20 -

Statute 20 of the University provides that the Selection Committee for recruitment of Lecturers should consist of the following -

- (i) The Head of the Department concerned
- (ii) One Professor to be nominated by the Vice-Chancellor.
- (iii) Two persons not in the service of the University, nominated by the Executive Council, out of a panel of names recommended by the Academic Council for their special knowledge of or interest in the subject with which the Reader or Lecturers will be concerned.

In the case of the constituent college, however, there is no clear provision. It is not clear whether the Head of the Under Graduate Department or the Principal, as the Head of the College, should sit in the Selection Committee as a member. A proposal was submitted to the Executive Council for inclusion of the Principal of a constituent college as a member of the Selection Committee against the provision for the Head of the Department. If this is approved, it may be considered whether the words "Principal of the College, in the case of Constituent College" may be inserted under (i) above to read as follows -

- (i) The Head of the Department concerned/Principal of the College, in the case of Constituent College."

Since this involves amendment of the Statute 20, the proposal is submitted for consideration of the Academic Council.

(ii) Draft Regulations for the M.A.  
and Diploma Programme in Public  
Administration.

The Academic Council in its 36th meeting held on 23.2.89 vide resolution No.AC.36:89:5:05(v) entrusted the following teachers to prepare the draft regulations on the M.A. and Diploma Programme in Public Administration :

1. Prof. A.K.Sharma
2. Prof. J.B.Bhattacharjee
3. Prof. B.Pakem

The Draft Regulation prepared and submitted by the Committee is placed at Annexure -'A' for consideration of the Council.

REGULATIONON M.A. IN PUBLIC ADMINISTRATIONCourse Structure

1. The Course shall comprise of two streams viz. (a) four semesters programme leading to M.A. Degree and (b) two semesters programme leading to P.G. Diploma followed by two more semesters programme leading to M.A. Degree. (See Regulation on P.G. Diploma Programme.)

Admission Requirements

2. (a) The candidates seeking admission to four semester M.A. Programme must have passed an Honours Degree Examination (3 years) with a minimum of 45% marks from North Eastern Hill University or from any other recognised University.

(b) He/She must fulfil all other conditions as may be laid down by the University/Admission Committee from time to time.

(c) Reservation of seats for candidates belonging to Scheduled Castes and Scheduled Tribes shall be as per policy laid down by the University from time to time.

(d) In all cases of admission, the decision of the Admission Committee shall be final.

Examination and Scheme of Papers

3. (a) The duration of the M.A. Programme shall be two academic years.

(b) The course shall be whole time course.

(c) The course shall be divided into four semesters and there shall be an examination at the end of each semester.

(d) The scheme of papers and course contents shall be prescribed from time to time.

4. The attendance requirements, completion of course or courses, the procedure for admission to end-semester examinations, the declaration of the results, the gradation and award of the Degree shall be as prescribed by the Ordinance on the Master Degree Programmes in Arts, Science and Commerce (OC-7).

Contd./.../-

(a) A candidate seeking admission to four semesters MA Programme in Public Administration must have passed Bachelor's Degree, Honours, of this University or a three-year degree course of any other recognised University.

REGULATION ON P.G. DIPLOMA IN PUBLIC ADMINISTRATION

Courses Structure

- (1) This shall be a two-semester course leading to the award of P.G. Diploma in Public Administration.

Admission Requirements

- (2) (a) The candidates seeking admission to Diploma Programme must have passed the honours degree examination from North-Eastern Hill University or from any other recognised University. Alternatively, candidates possessing a pass course bachelor's degree (Two Years) are also eligible for admission to the Diploma Programme provided they possess a minimum of two years of work experience in a governmental, semi-governmental, or private organisation.
- (b) A candidate who has passed the P.G. Diploma from the North-Eastern Hill University and possesses an honours bachelor's degree (Three Years) shall be eligible for admission to M.A. Programme at the third semester provided that he/she has secured 50% marks in the P.G. Diploma. If admitted to M.A. Programme at the third semester, he/she shall be required to complete third and fourth semesters within Six semesters from the date of admission to P.G. Diploma Programme. (A candidate who is admitted to the Diploma Programme with a pass course bachelor's degree shall terminate his/her study at the Diploma level and shall not be eligible for admission to the M.A. Programme.).
- (c) He/~~she~~ must fulfil all other conditions as may be laid down by the University/Admission Committee from time to time.
- (d) Reservation of seats for candidates belonging to Scheduled Castes and Scheduled Tribes shall be as per policy laid down by the University from time time.
- (e) In all cases of admission, the decision of the Admission Committee shall be final.

Contd/.../-

Examination and Scheme of Papers

- (3) (a) The duration of the P.G. Diploma Programme shall be one academic year.
- (b) The course shall be whole time course.
- (c) The course shall be divided into two semesters and there shall be an examination at the end of each semester.
- (d) The scheme of papers and course contents shall be prescribed from time to time.
- (4) The attendance requirements, completion of course or courses, the procedure for admission to end-semester examinations, the declaration of the results, the gradation and award of the diploma shall be as prescribed by the Ordinance on the Master Degree Programmes in Arts, Science and Commerce(OC-7).

*A candidate seeking admission*

*to*

(iii) Amendment of Ordinance OC-4 of the  
Doctor of Philosophy Programme  
(Registration of candidates) -

The School Board of Life Sciences in its meeting held on 28. 11. 89 resolved that the Ordinance on the Doctor of Philosophy may be amended to provide that "if a candidate and/or a Supervisor leaves the jurisdiction of the N.E.H.U. before completion of three years after registration, the registration of the candidate will stand cancelled automatically."

The matter is placed for consideration of the Council.

.....

- (1) M.Sc(Agri) syllabi for Horticulture,  
Rural Development Planning, Soil  
Conservation and Plant Pathology -

The School Board of Agricultural Sciences & Rural Development, which met on the 28th and 29th August, 1989 approved the syllabi for M.Sc(Agri) in Horticulture, Rural Development Planning, Soil Conservation and Plant Pathology. The syllabi are placed as Annexures - A, B, C and D for consideration of the Council.

...

5:2:1:(2)

HORTICULTURE

ANNEXURE - 'A'

LIST OF PROPOSED COURSE FOR M.SC.(AG.) HORTICULTURE

<u>Course No.</u>	<u>Course Title;</u>	<u>Credit Hours</u>
HOR - 501	Fundamentals of fruit production	4 (3+1)
HOR - 502	Advance plant production.	3 (3+1)
HOR - 503	Nursery Husbandary	3 (2+1)
HOR + 504	Nutrition of Horticulture crops	3 (2+1)
HOR - 505	Plant growth substance in Hort.	3 (2+1)
HOR - 506	Systematic Pomology	3 (2+1)
HOR - 507	Fruits and gegetable preservation	4 (3+1)
HOR-- 508	Post harvest Pgysiology of Hort. crops.	3(2+1)
HOR - 509	Special crops in Horticulture.	3 (2+1)
HOR - 510	Tropic and Sub-tropical fruits	4 (3+1)
HOR -511	Temperature fruits	4 (3+1)
HOR - 512	Plantation cropts	3 (2+1)
HOR - 513	Spice crops	3 (2+1)
HOR - 514	Production and maintaince of minor forest produce.	3 (2+1)
HOR - 515	Ethnic Horticulturue	3 (2+1)
HOR - 516	ConservatioA of Environment	3 (2+1)
HOR - 517	Medical and Aromatic Plants	3 (2+1)
HOR - 518	Seminar	1 (1+0)
HOR - 519)	Vegetable Crops.	3 (2+1)
HOR - 599	Research	15.

Contd/.../-

COURSES FOR M.SC.(AG.) HORTICULTURE DEGREE

1. Fundamentals of fruit production : Course No. HOR 501  
Credit Hrs: 4(3+1)

Water requirement of fruit plants and factors influencing it. Essential nutrient elements, their functions, deficiency and excess symptoms, manures and fertilizers with particular reference to NEH region. Soil management practices for hill areas. Pruning and training of fruit trees. Climate in relation to fruit cultivation, adverse weather conditions and protection measures against them, Flower bud formation, external and internal factors, pollination, fruit set and fruit drop. Unfruitfulness in fruit trees and remedies.

Practical:

Determination of irrigation, requirements in orchards, mulching, use of herbicides in controlling weeds in orchards, layout of different systems of irrigation.

2. Advanced plant propagation : Course No: HORZ 502  
Credit Hrs: 3(2+1)

Basic concepts and principles of plant propagation. Plant growing structures glass-houses, lath houses, hot beds, mist chambers etc. Recent developments in seed and vegetative propagation. Techniques of plant propagation and equipment. Standardization of root stocks. Polyembryony and its exploitation in propagation.

Practical :

Exercise in micro propagation, nurse grafting, root grafting, the use of bottom heat, mist histological studies on root materials.

Contd/.../-

3. Nursery Husbandry : Course No: HORS - 503  
Credit Hrs : 3(2+1)

Importance of Nurseries as business and fruit production. Nurseries for fruit, ornamental, forest plants and vegetable seeds and seedlings. Establishment of nursery. Selection of site and layout. Selection, certification and maintenance of mother plants and bud wood. Selection and multiplication of root stocks. Lifting, packing, transportation and marketing of nursery plants.

Practical :

Exercises in lifting, packing, layout of nursery, raising of seedlings, selection of bud wood, indexing of citrus plants.

4. Nutrition of Horticultural Crops : Course No: HOR - 504  
Credit Hrs : 3(2+1)

Mineral elements essential for plant growth and development. Role of essential elements in growth and metabolism. Nutritional disorders and diagnostic techniques. Foliar nutrient uptake of ions and organic substances across membranes, translocation of organic and inorganic substances. Nutritional requirements in relation to growth and development of horticultural plants. Factors affecting nutritional requirements, manuring principles and practices.

Practical :

Field identification of hunger signs in fruit crops preparation of nutrient solution and study of deficiency symptoms sampling techniques, determination of organic matter and macro-nutrients.

Contd/.../-

5. Plant Growth Substances in Horticulture : Course No: HOR 505  
(Credit Hrs : 3 (2+1))

History, classification and nomenclature of plant growth regulators. Mode of action and biological effects of various regulations such as auxins, gibberellins, cytokinins, inhibitors, retardants and Ethylene. Role of plant regulators in plant propagation, flowering, fruit setting, fruit thinning, fruit drop, fruit development, parthenocarpy, dormancy, storage and weed control. Juvenility and senescence, their use in breaking dormancy, rooting of cuttings etc.

Practical :

Preparation of various types of solutions of plant growth regulators such as auxins, gibberellins, cytokinins etc.

6. Systematic Pomology : Course No: HORS - 506  
Credit Hrs: 3(2+1)

General principles of classification and nomenclature. Description, classification and nomenclature of important fruit and plantation crops of NEH region. Survey of some wild forms of fruit and plantation species in NEH region. Survey of some wild forms of fruit and Plantation species in NEH region.

Practical :

Description and identification of important species and cultivars of various fruits.

7. Fruit and Vegetable Preservation: Course No: HOR - 507  
Credit Hrs : 4(2+2)

Scope and importance of preservation industry in India particularly in NEH region. General principles of fruit and vegetable preservation. Methods of preservation e.g. canning, dehydration, preserves, squashes, cordial, jam, jelly, pickles etc. Quality during processing, tomato products, pickles and chutneys, vinegar.

Contd/.../-

Practical :

Methods of commercial preparation of different fruits and vegetable products and other storage. Assessment of strength of sample section by making test jellies preparation of jam, juice and squash from orange, mango, tomato.

8. Post harvest Physiology of Horticultural Course No: HOR 508  
Credit Hrs: 4(2+2)

Post harvest classification of horticultural produce Methods of determining maturity. Biochemical changes in harvested produce. Use of plant growth regulators, wax emulsions, irradiation etc. in decay control. Storage of fresh fruits and vegetables. Theories of chilling injury quality evaluation for fresh market and processing. Effects of different types of packings and methods of handling deterioration of horticultural produce.

Practical:

Pre and post harvest practices for prolonging the shelf life of fruits, visit to cold storage plants. Determination of maturity by standards. Fundamental principles and techniques of chemical analysis of fruits, vegetables and their products, chemical and physical nature of food additives, organoleptic evaluation of foods. Estimation of chemical constituents like acidity, vitamins etc.

9. Special topics in Horticulture : Course No.: HOR 509  
Credit Hrs : 2 (2+0)

Study of any topic of special interest in horticulture. The exact topic for a student will be decided by the class instructor.

Contd/.../-

10. Tropical and sub-tropical Fruits : Course No :HOR 510  
Credit Hrs : 3(2+ 1)

Importance and scope of tropical and sub-tropical fruits in India, NEH region in particular. Detailed study on the origin, history, distribution, varieties, climatic and soil, propagation and planting, after care, harvesting and marketing, diseases and pests of important tropical and sub-tropical fruit crops e.g. citrus, pineapple, banana, guava, papaya, Jack fruit, litchi, mango, pomegranate etc.

Practical :

Visits to some orchards and study of major problems in the production. Acquaintance with important diseases and pests.

11. Temperate fruits : Course No :HOR-511  
Credit Hrs : 3(2+1)

Importance and scope of temperate fruits in India, NEH region in particular. Detailed study of origin, history, distribution, varieties, climate and soil, propagation and planting, after care, harvesting and marketing, diseases and pests of important temperate fruits e.g. apple, peach, plum pear almond strawberry etc.. Effect of environmental and nutritional factors on plant growth, induction of flowering, fruiting.

Practical :

Visits of some orchards and study of special problems in the production of some fruits. Acquaintance with major insects pests.

Contd/.../-

## 12. Plantation crops :

5:2:1:(8)

Course No: HOR 512

Credit Hrs: 4(3+1)

Importance and scope of plantation crops in India, NEH region in particular. Detailed study on origin, history, distribution, varieties, climate and soil, propagation & planting, after care, harvesting and marketing. Disease and pests of important plantation crops e.g. coffee, tea, rubber, arecanut, coconut, cardamom, black pepper etc.

Practical:

Visits to some gardens and study of special problems in their production.

## 13. Spice crops:

Course No: HOR 513

Credit Hrs: 2(1+\*)

Importance and scope of spices cultivation in India, NEH region in particular. Detailed study on origin, history, distribution and planting, after care, harvesting and marketing, diseases and pests of important spice crops e.g. ginger, turmeric, garlic, coriander, cumin, cinnamon etc.

Practical:

Study of special problem in their production, curing of ginger and turmeric.

## 14. Production &amp; maintenance of minor forest produce:

Course No: HOR 514

Credit hrs: 3(2+1)

Cultivation of bamboos, canes, ka-nok (*Eriodendron anfractuosum*), AK (*Calotropis*) *Eucalyptus globulus*, *Terminalia chelbala* (Harra), Babul (*Acacia nilotica*), *Acacia catechu* (Katha), Red sander (*Petrocarpus santalinus*), *Sterculia urens* (sum), Chir (*Vine roxburghii*), Dalchini, Mahua, *Bahinia vahlu* (for leaves), Imli, Karaunela, Amra, Morlinga sp. Phoenix, *Alanthus* marketing and processing of minor forest products, *Artemisia vulgaris* (For malaria).

P

Practical:

15. Ethnic Horticulture:

Course No: HOR 515  
Credit Hrs: 3(2+1)

Forests and the tribals, cultivation of wild fruits, common to this region, tree beans, Amaranth, Dioscorea, Bhat Karela, Ferns, Cassava, Yam, Kaju, Sambucus javanica, Hysimachia candida, Bauhinia purpurea, Gamelia arborea, Eriosema, Olive, Ficus.

Practical: As above.

16. Conservation of Environment:

Course No: HOR 516  
Credit Hrs: 3(2+1)

Conservation and its needs, conservation of tropical eco system, land use of upland water sheds, Three tier system, clothing of denuded land, agro-forestry, social forestry, planting by the side of river beds, road sides, recreation forestry, nitrogen fixing trees for adverse sites, wild life.

Practical: As above.

17. Medical & Aromatic Plants:

Course No: 517  
Credit Hrs: 3(2+1)

Fundamentals of medicinal & Aromatic plants production. Their scope and importance and feasibility of their cultivation in NEH region. Export/import potentialities of medicinal plants. Cultivation methods of Citronella, Java Citronella, lemon grass, Costus, speciosus, Dioscorea sp. Costus teela, Solanum sp. Jung gloriosa superba, cinamom.

Practical:

Identification of medicinal and aromatic plants, identification of medicinal & aromatic crop seeds, identification of medicinal & aromatic crops varieties, Field work related to raising of mentha, Field work related to raising of citronella, Field work related to raising of lemon grass, Field work related to raising of Costus speciosus, Field work related to raising of Dioscorea sp. Distillation of the oil from the aromatic & medicinal plants. Visit to farmers crops and demonstration plots.

18. Seminar

Course No: HOR 518  
Credit Hrs: 1(1+0)

5:2:1:(10)

Course No : 519  
Credit hrs : 3 (2+1)

Vegetable Crops :

Importance and scope of vegetable in India, NEH region in particular, Detailed study on origin, history, distribution, varieties, climate and soil, planting requirement, aftercare, harvesting and marketing of important vegetables eg., Lady's fingers, Cabbage, Cauliflower, beans, gourds, root crops, Brinjal, Tomato, Colocasia etc.

Practical :

Classification and identification of vegetable crops, study on use of growth regulators, nutritional requirements in vegetable crops. Nursery technique for vegetables propagation. Seed production technique in vegetables.

5:2:1:(10)

Course No : 519  
Credit hrs : 3 (2+1)

Vegetable Crops :

Importance and scope of vegetable in India, NEH region in particular, Detailed study on origin, history, distribution, varieties, climate and soil, planting requirement, aftercare, harvesting and marketing of important vegetables eg., Lady's fingers, Cabbage, Cauliflower, beans, gourds, root crops, Brinjal, Tomato, Colocasia etc.

Practical :

Classification and identification of vegetable crops, study on use of growth regulators, nutritional requirements in vegetable crops. Nursery technique for vegetables propagation. Seed production technique in vegetables.

Course No : 519  
Credit hrs : 3 (2+1)

COURSE IN MINOR FIELD FOR  
M.Sc(Ag) HORTICULTURE STUDENTS

According to suggested regulations for M.Sc(Ag) Programme of North-Eastern Hill University, a student will be required to offer 15 credit hours in relevant subjects other than his/her main subject.

A Statistics course of 4 credit hours should be compulsory for students for all subjects. Out of remaining 11 credits students will take at least 6 credit hours in one department which will become his/her minor field. Remaining 5 credits he/she can offer in any other department(s).

For M.Sc(Ag) programme in Horticulture, the following subjects can be taken as minor.

1. Agromony.
2. Agricultural Botany & Plant Breeding.
3. Mycology & Plant Pathology.
4. Entomology.
5. Statistics.
6. Soil Science & Agricultural Chemistry.

Since M.Sc(Ag) programme is not starting in above subject if first phase, it will not be possible for M.Sc(Ag) Horticulture students to offer minor in above subjects. It is, therefore, suggested that two to three courses of M.Sc(Ag) level in each of above subjects may be approved alongwith courses of Horticulture. Later on when M.Sc(Ag) programme starts in these subjects, other courses will be got approved.

DEPARTMENT OF AGRONOMY

1. Physiology of weed Control. Course No. : AGR 501  
Credit Hours : 3 (2\*1)

"Weed" -relationship with climate and soil, crop weed association and competition, scope, principals and methods of weed control. Classification of herbicides, dosage and application, recommendation-cropped and non-cropped areas, Physiology of herbicidal action with special references to growth and metabolism. Weed control practices in field, vegetables, fruit and plantation crops.

2. Irrigation and drainage Course No. : AGR 502  
Credit Hours : 3 (2 \*1)

Soil-water-importance, from and movement, measurement of soil water. Effect of moisture on soil and crop and slow release materials. Soil-properties in relation to systems

and methods. Measurement of Irrigation-water. Quality of irrigation water. Irrigation-requirements of major farm crops, vegetables, fruits and plantation crops. Principles and practices of scheduling of irrigation. Drainage-scope, effect of excess water on soil and crops, drainage in relation to irrigation. Principles of field drainage, types and methods of drainage.

DEPARTMENT OF AGRICULTURE BOTANY & PLANT BREEDING

1. Crop Physiology

Course No. : ABT 501

Credit Hours : 3 (2 + 1)

Introduction : Germination and Dormancy : Growth and Development : Plant Hormones : Mineral Nutrition : Physiological processes in relation to crop yield such as Transpiration, Photosynthesis, Respiration, Photorespiration, Photoperiodism and Vernalization.

2. Breeding for Fruit and Plantation Crops.

Course No. : ABT 502

Credit Hours : 3 (2 + 1)

Objectives, techniques and achievements in hybridization of papaya, pineapple, citrus, banana, guava, litchi, grapes, tea, coffee etc. Improvement through polyploidy and mutation, production of seedless varieties.

3. Cellular Physiology

Course No. : ABT 503

Credit Hours : 3 (2 + 1)

Cell Wall and Cell membrane : Structure and composition : with reference to the unit membrane concept of Robertson.

Ultra structure of cell organelle : Endoplasmic reticulum and ribosomes; Nucleus; Golgi apparatus; lysosomes, plastid and Mitochondria.

Enzymes: The workhouse of cell : Nomenclature and classification; structure primary, secondary and tertiary. Prosthetic group, co-enzymes and isoenzymes. Specificity and mechanism of enzyme action. Factors affecting enzyme activity.

Nitrogen Metabolism : Amino acids - different types of and structures; amino acid synthesis - reductive amination transamination.

Protien - Classification, structure and function

Neucleic - DNA and RNA structure and significance (Basic/ concepts) Protein synthesis (Central dogma) Basic concepts of transcription and translation.

#### PRACTICAL PART

Quantitative estimation of chlorophyll and other pigments by spectroscopy.

Qualitative separation of the pigments by paper chromatography. Thin layer chromatography of cell components like chloroplast nucleous, mitochondria and ribosome.

Trip to Regional Sophisticated Instrumentation Centre Shillong, for demonstration of the functioning of Electron Microscope and other sophisticated equipments.

#### 4. Systematic Botany relation to Horticulture Plants.

Course No.: ABT 504  
Credit Hours : 3 (2+1)

Current system of classification of Angiosperm plants (a) Bentham & Hooker's system (b) Engler & Prantl's system and (c) Hutchinson system; Herbarium and its function; Description of a new species (Taxon) and its effective and valid publication; classification of fruits, principals and practices;

Studies of some important fruit families like Anacardaceae; Myrtaceae, Rosaceae, Orchidaceae, Ziniferaceae etc. Origin distribution, species and varietal classification of some important fruit crops like Mango, Citrus, Banana etc.

Botanical keys for plant identification, their uses and construction:

#### PRACTICAL

Study of morphology of different fruits; Identification and classification of important fruit crop families like Anacardiaceae, Myrtaceae, Caricaceae, Anonaceae, Flamae etc.

#### DEPARTMENT OF MYCOLOGY & PLANT PATHOLOGY

#### 1. Diseases of Plantation and Fruit Crops

Course No.: PLP 501  
Credit Hours : 3 (2+1)

Important diseases of following plantation and fruit crops with special reference to symptoms, etiology, transmission and control measures.

Coffee, tea, rubber, arecanut, cardamon, black pepper Citrus, pineapple, banana, guava, papaya, jack-fruit, litchi, mango, pomegranate, apple, pear, plum peach.

Disease of Vegetable and Ornamentals

Course No. : PLP 502  
Credit Hours : 3 ( 2+1 )

Important diseases of following vegetables and ornamentals with special reference to symptoms, etiology, transmission and control measures:

Melons : Water melons, muskmelon.

Tuber crops: Potato Sweet Potato, tapioca.

Solanaceous: Brinjal, Chillies, tomato.

Bean: French bean, Clusterbean, lima bean, winged bean

Cole crops: Cabbage, cauliflower.

Root crops: Carrot, radish, turnip, beet root.

Leafy Vegetable : Spinack, amaranthus.

Perennial : Drum stick, asparagus, rhuabarb, lady's finger.

Species : Onion garlic, ginger, turmeric.

Ornamentals: chrysanthemum, canna, gladiolus, orchids, dahalia

Department of Entomology

Horticulture Entomology I  
(Tree culture and Pomology based)

Course No. : EMT 507  
Credit Hours : 3 (2+1)

Detection of damage in orchard and plantation. Pest development and degree-days, rainfall, wind, radiation and light penetration through the canopies, Biology, damage symptoms and methods of control of pests of temperate, sub-tropical and tropical fruits, and plantation and forestry crops with particular emphasis on tea, coffee, rubber etc. pest infestation of bamboo, Nursery pest management. Non-insect pest management in orchards and plantations. Relationship between tree viruses and insects. Relationship between the ripening of fruits and the index of infestation. Orchard and plantation sanitation. Pollinating insect in orchards and plantation and their augmentation with encouragement.

Promoting concepts of pest management in orchards and plantation with emphasis on cultural modification for pest reduction, interactions among canopy climates and infestation, spray schedules, minimizing the uses of pesticides and maximizing their effects, augmentation and safeguarding natural enemies, monitoring pest infestation, damage and action thresholds, making decision in pest control, economics of control, interactions between pests and weeds in tree forest ecosystem, socio-economic aspects and training programme based on extension entomology.

Experimentation with pesticides in orchard/plantation:  
design and collection and analysis. Care and maintenance of pest  
equipments (high volume and low volume).

Horticultural Entomology - II

Course No.: ENT 508  
Credit Hours : 3 (2+1)

(Olericulture, spices culture, floriculture and landscape  
design based).

Binomics, damage symptoms and methods of control of pests of  
vegetables, spices, ornamentals and lawns. Control of termites, cutworm,  
white grubs, slugs, snails, millepedes and other general polyphagous  
pests. Rotation and its effect and other general polyphagous pests.  
Rotation and its effect in pest reduction and avoidance, Property  
toxicity, method of application, use and preharvest interval, and phytotoxicity  
of pesticides used in vegetables, spices, ornamentals and lawns. Seed  
storage problems and infestation control.

Promotion of pest management concept in both nursery and garden:  
sampling, economic thresholds, natural control and integration of other  
control methods, minimizing the use of pesticides and maximizing the  
effect, decision making in pest control.

#### AGRICULTURAL STATISTICS

##### 1. Agricultural Statistics

Course No. : AGE 501  
Credit Hours : 4 (3+1)

Measures of Central tendency and dispersion, skewness  
and Kurtosis, Probability, normal distribution, (Properties only),  
test of significance (t, Z, F, and  $\chi^2$  - test), regression and  
correlation (including partial and multiple correlations with their  
test of significance), Sampling theory with reference to crop estimation  
survey, (random, stratified and multistage sampling), analysis of variance,  
principles of experimental designs, completely randomized design,  
randomized block design, latin square design, factorial experiments  
( $2^3$  factorial experiments), split plot design. Analysis of co-variance,  
missing plot technique (in R.B.D. and L.S.D. with one value missing).

Practical : Test of significance (t, Z and F test). Applications of  
 $\chi^2$  (Chi-square) test, Linear regression and correlation, Designs -  
Analysis of C.R.D., R.B.D., L.S.D. and split plot designs. Missing  
plot technique - Analysis of R.B.D. and L.S.D. with one value missing.

DEPARTMENT OF SOIL SCIENCE

1. Soil Fertility and Plant Nutrition:

Course No. SSC 501

Credit Hours : 3 (2+1)

Concept of soil fertility and productivity. Soil as a source of mineral nutrients for plant growth. The source and behaviour of plant nutrients in soil. Nutrient availability concept, ion exchange movement of nutrient ions in soils, absorption of nutrients by plant roots, soil colloids and their significance, physico-chemical properties of soil in relation to plant nutrition.

Practical

Determination of available nutrient levels in soil using different methods. Measurement of C.E.C.,  $p^H$  and organic carbon content in soils.

2. Techniques in Soil Plant Research:

Course No.: SSC 502

Credit Hours: 3 (2+1)

Errors of observation and sampling, sampling procedures of soil plant and water. Principles of volumetric and gravimetric analysis. Theory and application of spectrophotometry, flame photometry, atomic absorption and other equipments used in chemical analysis of soil, plant and water. Use of radio isotopes in soil-plant studies.

Practical: Measurement of total plant nutrient content of soil and plant, determination of various forms of nutrients in soil, analysis of runoff for various nutrient content.

3. Soil Plant and Water Relationship.

Course No. SSC 503

Credit Hours : 3 (2+1)

Structure and physical properties of water, states of water in soil, retention of water by soil, soil water interactions. Movement of water into the soil, concept of saturated and unsaturated flow. Biological classification of soil water, water and solute movement, soil water balances. Flow of water through soil-plant atmosphere continuum, evapotranspiration, water stress and plant growth, consumptive use of water, water requirement of crops scheduling of irrigation, water use efficiency, soil water management, nutrient availability and uptake.

Practical: Measurement of soil water content, measurement of soil water potential, calculation of moisture deficiency

in soil, determination of soil moisture constants. Estimation of consumptive use and water requirement by different methods. Irrigation scheduling with the help of tensiometer and moisture meter.

4. Soil Survey and Land Use.

Course No. : SSC 504  
Credit Hours : 3 (2+1)

Essential features of U.S.D.A., Soil Taxonomy, diagnostic surface horizons and subsurface horizons; pans and contacts, soil moisture regime, soil temperature regimes, diagnostic characteristics of soils belonging in order entisol, Inceptisol, Aridosol, Vertisol, Mollisol, Alfisol, Ultisol and Oxisol. Soil Survey - Concept and objectives, standard soil survey, Remote criteria for establishment of mapping units, single and compound mapping unit, base maps. Use of aerial photographs in soil survey, soil surgery procedures, land use capability classification. Land irrigability classification, land evaluation and land use.

Practical - Study of surface features in the field. Identification of mapping units. Demarcation of boundaries of mapping units in the field. Study of morphological, physical and chemical properties of horizons of the soil profile. Preparation of land use capability map.

ANNEXURE- 'B'

Proposed course structure and syllabus for M.Sc.(Ag.) in Rural Development Planning.

Major Courses

<u>Course No.</u>	<u>Course Title</u>	<u>Credits</u>
RDP 501	Rural Development - An Overview	(3+0)
RDP 502	Socio Economic structure	(3+0)
RDP 503	Rural Development-Some perspectives from different countries.	(2+0)
RDP 504	Rural Development Programme-I	(3+0)
RDP 505	Rural Development Programme-II	(3+0)
RDP 506	Rural Development Planning	(3+1)
RDP 507	Rural Development & Extension Management	(3+1)
RDP 508	Development Administration	(3+0)
RDP 509	Regional, Area and Block planning	(3+1)
RDP 510	Rural Research methodology	(2+1)
RDP 511	Seminar	(0+1)
RDP 512	Special Topics in Rural Development Planning	(2+0)
RDP 500	Thesis	(0+5)

MINOR AND SUPPORTING COURSES

AEC 501	Economic growth and Development	(3+0)
AEC 502	Economics of Agriculture	(3+0)
EXT 5	Rural Society, Rural Organisation Institutions and Development	(3+0)
ETS 522	Behavioural Sciences-Sociology, Social psychology and change	(3+0)
STS 502	Statistical techniques for Rural Development Planning	(2+1)
STS 503	Rural Development <del>for</del> Rural sources of information data	(1+0)

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CREDIT DISTRIBUTION

1.	Major courses	30
2.	Minor including supporting	15
3.	Thesis (RDP)	15
Total credit hours		<hr/> 60

Contd/.../-

COURSES FOR M.Sc(Ag.) IN RURAL DEVELOPMENT PLANNING

## MAJOR COURSES

1. RDP-501 RURAL DEVELOPMENT: AN OVERVIEW (3+0)
  - i. Development - meaning and objectives
  - ii. Rural Development- concept, approach & strategies
  - iii. Rural Development- Indian Experience
2. RDP-502 SOCIO-ECONOMIC STRUCTURE (3+0)
  - i. Demographic patterns and population dynamics
  - ii. Agrarian structure
  - iii. Income distribution, poverty & unemployment
  - iv. Social institutions, attitudes and value system
  - v. Socio-cultural dynamics of North East Region
3. RDP-503 RURAL DEVELOPMENT-SOME PERSPECTIVES FROM DIFFERENT COUNTRIES (2+0)
  - i. Rural Development- some Asian perspectives
  - ii. Rural Development- some European perspectives
  - iii. Rural Development- In Tribal areas in different countries
4. RDP-504 RURAL DEVELOPMENT PROGRAMMES-I (3+0)
  - i. Community Development Programme
  - ii. Intensive Agriculture Development Programme- Green Revolution
  - iii. Small Farmers Development Programme
  - iv. Draught prone Area Development Programme
  - v. Command Area Development Programme
  - vi. Hill area Development programme
5. RDP-505 RURAL DEVELOPMENT PROGRAMME-II (3+0)
  - i. Integrated Rural Development Programme
  - ii. Rural Works/Employment Programme
  - iii. Land Reforms
  - iv. Minimum needs Programme
  - v. Integrated Tribal Development Programme
  - vi. Flood prone areas programme
  - vii. Special Programmes.

Contd/.../-

6. RDP - 506 RURAL DEVELOPMENT PLANNING (3+1)

- i. Concept and process of Planning, Macro, Micro and Multi level planning.
- ii. Decentralised planning  
Block, district and village level Planning
- iii. Sectoral planning
- iv. Spatial planning
- v. Project Planning

7. RDP - 507 RURAL DEVELOPMENT EXTENSION (3+1)  
MANAGEMENT

- i. Institutional framework
- ii. Panchayati Raj System/community organisations
- iii. Co-operatives
- iv. Extension Management :Development Communication, concept, approach and techniques
- v. Programming, monitoring and evaluation

8. RDP- 508 DEVELOPMENT ADMINISTRATION (3+0)

- i. Development Administration- Concept, Features, functions, nature and scope-Evaluation of Development Administration in India since 1952. Political assumptions- Machinery for development Planning and evaluation-Financial resources, training of official and non-officials-Problems and issues in Development Administration-Co-ordinations-official and non official relations.
- ii. Community Development-Extension service and Panchayati Raj (Village Council)-Panchayati Raj's role in Rural Development concept, purpose, philosophy, objective and scope of Panchayati Raj. Powers functions and financial resources of Panchayati Raj-problems of Panchayati Raj State-Panchayati Raj Relationship, Panchayati Raj and socio-economic and Political Development.
- iii. Political process-Political power-base of the people (especially the weaker sections), Awareness of their rights privileges-their mobilisation as a socio-political force in a community-concepts of power and authority, power and social structure in relation to Rural Development.

Contd/.../-

- iv. Management-concepts, tasks, difference between management and traditional administration-functions of management-Theory 'Y' and management by objectives-Management in Rural Development.
9. RDP - 509 REGIONAL, AREA AND BLOCK PLANNING (3+1)
    - i. Planning for Rural settlement
    - ii. Regional, Sectoral and Spatial planning and growth centres.
    - iii. Planning for development of the weaker section of the society, SC, ST, BCS, Women and Children, special provisions and welfare programme
    - iv. Planning for North East India: Social and economic background, socio-economic activity, Resources-natural and human resources, utilization of the resources available in the region, Factors effecting development process in the region. Peoples participation and people's attitude towards development.
    - v. Role of a Block Development Officer at Block level planning and implementation of the development programmes.
  10. RDP - 510 RURAL RESEARCH METHODOLOGY (2+1)
    - i. Design of a Research Study
    - ii. Survey method and technique
    - iii. Preparation of resource inventories
  11. RDP - 511 SEMINAR (0+1)
  12. RDP - 512 SPECIAL TOPICS IN RURAL DEVELOPMENT(2+0)  
PLANNING
  13. RDP - 600 THESIS (0+15)

Contd/.../-

COURSES FOR M.SC(AG.) IN RURAL DEVELOPMENT PLANNING

MINOR AND SUPPORTING COURSES

1. AEC - 501 ECONOMIC GROWTH AND DEVELOPMENT (3+0)

- and Macro Economics : Meaning and its importance
- ii. Economic growth and development : Meaning, scope and importance. Economic theory and agrarian economics, basic requirements for economic development. Obstacles to economic growth, Gandhian model of economic development, Trends in international development.
  - iii. Human resources and development : Population and poverty and man power development vis-avis economic development. Surplus manpower on land in India. Rural poverty problems of poverty and its eradication.
  - iv. Mobilising domestic resources- Role of capital, capital accumulation and development, Capital formation-sources of capital formation, rural saving taxation, inflation and development. Rural industrialization, science and technology and development.
  - v. Trade and development-intersectoral and intra-regional pattern of trade and development, market mechanism as an instrument of development.

2. AEC - 502 ECONOMICS OF AGRICULTURE (3 + 0)

- i. Land tenure system and land reforms: Land tenure system Pre and Post Independence, Land reforms policy, Tenancy reforms, Agricultural holdings, fragmentation and subdivision of holdings.
- ii. Management of land and water resources : Land utilization problems and prospects, expansion and land settlement. Sources of irrigation, classification of irrigation works.
- iii. Farm Management: Concept and role of farm management, Farm management as Micro-business analysis, Farm financing marketing, farm planning decisions.

Contd./.../-

- IV. Farm labour: Types and end nature of work. Characteristics of agricultural labour, efficiency, productivity and supply. Demand of labour in agriculture, Impact of technology on agricultural labour, labour problems and wages.
  - V. Cropping pattern and crop planning : Meaning, factors effecting the cropping pattern, cropping pattern and production trends in India. Planning of cropping, crop intensity and rotation, future demands and supply projections.
  - VI. Technology in agriculture: Different levels and implications of modern technology in agriculture, crop production and animal Production, appropriate technology.
  - VII. ~~Animal~~ Production: Role and functions of Agricultural sector in sector in Economic Development.
  - VIII. Agriculture and capital formation: Sources of capital and development, Agricultural taxation, change in terms of trade investments in agriculture, farm financing.
  - IX. Agricultural prices and price policy : Price inconstancy price raising measures, price stabilization measures price policy and shifting the product mix-supply response to price substitution of farm enterprises and total agricultural production.
  - X. Marketing of Agricultural produce : Marketing systems and agencies, defects of agricultural marketing, cooperative marketing of agricultural produce.
  - XI. Agriculture and foreign exchange: Agriculture's contribution to foreign exchange.
  - XII. Community, Forestry, apiculture, pisciculture, Horticulture etc.
3. EXT 521 RURAL SOCIETY ORGANIZATION, INSTITUTIONS AND DEVELOPMENT  
(3+0)
- I. Rural society and its structure : Rural society and its salient characteristics. Social system and stratification, caste structure, problems of inter-caste and intra-caste solidarity.
  - II. Rural family and its system : Rural economic organization- Jajmani system, the traditional net work of inter-caste relations.

Contd/.../-

- III. Issues and problems related to India Rural Social structure: Poverty, illiteracy, social inequality prejudices and agrarian relations, labour surplus economy, political institutions and unemployment and under-employment, political participation, youth problems, rural women.
- IV. Rural organizations: Traditional (caste, kinship village panchayat)-modern Panchayati Raj/Village Council, Village cooperative, farmers and artisans, educational institutions, points of differences and delicacy concept of formality and informality in organizational set up, changing faces of village organizations.
- V. Migration of rural people, rural urban continuum and change-pattern of migration.
- VI. Rural leadership and Entrepreneurship: Qualities and types of leadership and social structure in Rural India, Rural entrepreneur and his place in socio-cultural framework.
4. EXT-522 BEHAVIOURAL SCIENCES (SOCIOLOGY AND SOCIAL PSYCHOLOGY AND CHANGE. (3+0)
- I. Sociology: Definition, nature, scope and methods of Sociology its importance, for a development worker basic concepts- society community, institution (family, marriage, economy, religion and policy). Association, culture, social organization, status and role, norms and values, socialization and social control.  
Social change: Concepts and theories of change, social in India-Factors, Social progress, social policy and planning Strategies of change.
- ii. Psychology and Social Psychology: (a) Science of human behaviours concept and progress of human mind in society, Psychology of rural development.  
(b) Perceptual and cognitive process, motivation, imagination intelligence and creativity.  
(c) Personality, personality interaction, types of personality with reference to rural people. Rural social structure and personality in India.

Contd/.../-

(d) Nature and value of social Psychology for understanding human behaviour. Attitudes and prejudices of rural people towards innovation, risks and uncertainties.

(e) Basic concepts of group dynamics individual and group process communication in group situation and its constraints.

2. Sources of statistics-Primary and Secondary. Population census; land utilisation; area yield and production statistics; irrigation statistics major inputs, agricultural labour and employment and wages; commodity statistics; livestock and poultry, fisheries, consumption and stock of food grains, cost of production, agricultural prices. National income and other, national sample surveys.

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ANNEXURE + V


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COURSE OF STUDY FOR M.Sc. (Ag.) SOIL CONSERVATION  
(Approved by the Board of Post Graduate Studies  
on May 23, 1988). APPROVED BY SCHOOL BOARD ON AUG.  
18-19, 1989.

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1. MAJOR FIELD:

Department of Soil Conservation :

<u>Sl. No:</u>	<u>Course No:</u>	<u>Title</u>	<u>Credit hrs.</u>
1.	SCN 501	Soil and Soil Degredation	2 (2+0)
2.	SCN 502	Problem Soils and their Management	3 (2+1)
3.	SCN 503	Soil Erosion and Sedimentation	3 (2+1)
4.	SCN 504	Soil Conservation Engineering	3 (2+1)
5.	SCN 505	Irrigation and Drainage	3 (2+1)
6.	SCN 506	Soil Conserving Ecosystems	4 (3+1)
7.	SCN 507	Hydrology and Watershei Management	4 (3+1)
8.	SCN 508	Soil Fertility and Water Management	3 (2+1)
9.	SCN 509	Soil Conservation Agronomy	3 (2+1)
10.	SCN 500	Soil & Water Conservation Methodology	3 (2+1)
11.	SCN 511	Ecosystem Management	3 (2+1)
12.	SCN 512	Sepcial Topics in Soil and Water Conservation	2 (1+1)
13.	SCN 513	Seminar *	1 (0+1)
14.	SCN 514*	Research *	15 (0+15)

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Compulsory Courses.

Course No:SCN 501  
Credit hrs :2 (2+0)

1. Soil and Soil Degradation:

Modern aspects of soil, rocks and minerals, weathering of rocks and weathering indices, factors of soil formation, soil forming processes, soil formation rate and ecosystem stability, U.S. Soil taxonomy, soils of India and North Eastern Hill (N.E.H.) region, their distribution and important physical and chemical properties, soil survey - types and objectives, land use capability classification with special reference to NEH region. Soil degradation in India causes and the problem, the magnitude of soil degradation in India and NEH region, the effect of erosion on agro-ecosystem with special emphasis on soil properties. soil pollution and waste disposal, the need to save the soil: Man; the key to conservation, basic aspects of soil and water conservation, characterization of soils and climates in relation to erosion hazards.

2. Problems Soils and their Management :

COURSE No:SCN 502  
Credit hrs : 3 (2+1)

Salt affected and acidic soils - their origin, distribution, classification, reclamation and management practices. Waterlogged soils; chemistry of waterlogged soils. Transformation of important nutrients during waterlogging. Management of waterlogged soils for crop production. Fertility problems in eroded soils and their management, quality of irrigation water and use of blackish water for crop production, management of dry sands, strip mine spoils nutrient depleted sites and wastelands.

Practical: Determination of lime and gypsum requirement of soil. preparation of saturation extract of soil and its analysis for cations and anions and electrical conductivity. Analysis of irrigation water for their quality appraisal. Determination of bulk density, particle density, porosity and other physical properties of soil.

3. Soil Erosion and Sedimentation:

Course No: SCN 503  
Credit hrs : 3 (2+1)

Soil erosion - Man and soil erosion, geographical distribution of erosion, geological and accelerated erosion, forms and amount of erosion, magnitude of soil erosion damage in India, acceptable

limits of erosion, rainfall characteristics related to soil erosion, erosivity of rainfall, land factors affecting erosion, erodibility of soil, surface runoff and its estimation, rainfall-runoff - soil interaction, erosion prediction, universal soil loss equation, wind erosion, gully erosion loss of soil and plant nutrients in erosion, off-site and on-site effect of erosion, principles of erosion control, control of erosion on arable and nonarable land, sedimentation - causes, movements of sediments, sediment characteristics, sediment deposit and load-bed relationship, method of measurement, stream gauging and reservoir siltation, sediment delivery ratio, silting of reservoir in India, sedimentation problem and control. Soil erosion problem in India with special reference to NEH region, shifting cultivation - problems and alternate strategies.

Practical: Measurement of peak rates of runoff, volume and velocity of runoff. Estimation of soil and nutrient loss in erosion. Estimation of erosivity from rainfall data. Acquaintance with the equipments and installation for rainfall, runoff and sediment measurements.

4. Soil Conservation Engineering:

Course No: SCN 504  
Credit hrs : 3 (2+1)

The principle of mechanical protection, planning, design and construction of mechanical protection works - contour trenches, bunds and terraces, maintenance of terraces, design of temporary and permanent gully control structures, design of small dams for head water flood and sedimentation control, typical and special ways and their design criteria, vegetative water courses and diversion ditches, farm ponds, sand reservoirs, design and construction. Land clearing, land levelling and economic land development, earth work estimation, land development machinery, maintenance of developed land.

Practical : Measurement of slope of the land, design and lay out of terraces, contour bunds, water ways and diversion ditches, etc. Cost of estimation of levelling, bunding and conservation structures, surveying and levelling, preparation of land use capability map, survey of longitudinal and cross section of gully and planning gully control structures. Visit to soil conservation centres and projects.

5. Irrigation and Drainage:Course No: SCN 505  
Credit hrs : 3 (2+ 1)

Water resources and irrigation development in India, water conveyance and control, hydraulics of open channels, design of farm channels conveyance losses, lining of channels of water courses, hydraulic principles of water management, Measurement of irrigation water velocity, area methods - water meters, weirs, Parshall flumes, orifices, etc., water application methods - irrigation systems and their design, pumps and tube wells, comparative efficiency and economy of different methods of irrigation. Irrigability classification and its use in irrigation planning. Time of irrigation, quantity of water to be applied and its measurement.

Principles of field drainage, necessity, methods and design of surface and sub-surface drains, drainage of irrigated lands, interceptor relief drains and tile drains and their design, drainage requirement of crops, drainage in relation to irrigation and salinity control.

Practical : Measurement of irrigation; water pumps and tube wells; design and lay out of irrigation drainage systems, computation of quantity of water to be applied, measurement of water velocity and water quantity. Preparation of drainage and irrigation plan for a small farm.

6. Soil Conserving Ecosystems :Course No: SCN 506  
Credit hrs: 4 (3+1)

Importance of forests, grassland pastures in soil water conservation, Forest need of the country. National Forest Policy. Forest in relation to its environment, deforestation and its consequences, wasteland afforestation with special reference to soil management practices to support afforestation of ravines and gullied areas, waterlogged areas, saline & alkali soils, steep hill slopes, bouldry and ravine areas. Choice of species for each problem site with emphasis on the local forest species and techniques of propagation. Forest management, forest regeneration, soil properties and vegetation development, Silviculture systems, silviculturing of some important forest plants. Forest destruction, effect of fire on soil and site, farm forestry, social forestry and agroforestry systems, ecology of Indian forests, conservation of forests in India.

Cultivated grasses and grassland legumes for tropics and temperate areas, grassland management, grass legume association and natural<sup>d</sup> succession. Establishment of pastures and grassland on wasteland pastures, overgrazing and desertification, selection of grasses and legumes for special problems sites. The use of shelter belts and wind breaks and other plantation crops in soil conservation.

Practical: Silvicultural characteristics of tree species. Measurement of height, canopy, dbh and density of plants. Preparation of soil conservation and farm forestry plan. Planning vegetative measures for gully plugging, vegetative check dams, land slide and slips. Hydrologic rating of crop factor, cover efficiency of crops. Identification of important grasses and trees in nearby locality. Development of fuel, fodder plantation plan in the field, observation on compatibility of tree and grasses with agricultural crops. Visit of institutes related to forestry and soil conservation.

7. Hydrology and Watershed Management :

Course No:SCN 507  
Credit hrs:4(3+1)

Hydrologic process - precipitation, runoff, interception, infiltration, groundwater, evapotranspiration, Unit hydrographs, rainfall, runoff relationship. Watershed - definition, concept - how a watershed functions, characteristics of a forested watershed. Delineation of small watershed, different conservation practices - Biological, mechanical and structural. Watershed management for reservoir protection and runoff control, effect of various conservation practices on watershed behaviour, surface storage, basin recharge and agriculture and forest development, stream and sediment gauging. Agricultural equipments for soil conservation - Farm animal and tractor drawn implements. Education programme in watershed management. Watershed restoration plans - protective and productive measures. Flood frequency analysis, special agronomic practices for hill agriculture, water harvesting. Future trends in watershed management and land development research.

Practical : Estimation of precipitation infiltration and runoff. Evaluation of comparative efficiency of different conservation practices in runoff and sediment control. Reading contour maps of

different scales and identification of various land features on maps including delineation of watershed rigid line, computation of capacity of farm ponds from contour maps.

8. Soil Fertility and Water Management :

Course No: SCE 508  
Credit hrs : 3 (2+1)

Fundamentals of soil fertility and soil productivity. Dynamics and availability of major nutrients in soil. Soil properties in relation to nutrient availability. Principles of scientific land management for soil conservation - soil and water loss, soil drainage, soil structure, soil organic matter, tillage, soil fertility and fertilizer programme and amendments. Cropping systems and land management. Soil management for optimum production with special reference to rainfed conditions of NEH region.

Principles of conservation farming in dry irrigated lands. Soil as store for water and crop growth, consumptive use of water, water requirement of crops, evapotranspiration, scheduling of irrigation for different crops, optimum allocation water under different constraints, irrigation water and water use efficiency, moisture stress and plant growth, water and the soil properties concerned in tillage, optimising use of water through soil and crop management.

Practical : Determination of various forms of N. . and K in soils. Estimation of nutrient uptake by crop plants. Planning and lay out of experiments related to soil fertility and water management practices, analysis of data and interpretation of results.

9. Soil Conservation Agronomy:

Course No: SCN 509  
Credit hrs: 3(2+1)

Agronomic practices and soil conservation, conservation farming and conservation irrigation concept, crop rotation, basis for selecting crop rotations for different soil and climatic zones, cropping systems - mixed cropping, cover cropping, soil depleting and soil building systems.

Strip cropping - functions and types, methods of laying out strips, selecting crops for strip and interculture. Procedures to fix strip width and strip ratios of erosion permitting and erosion resistant crops for different climatic belts. Tillage and tilth - objectives, tillage for water and wind erosion control, minimum tillage and Zero tillage concepts.

Special farming practices: Terrace farming on the hills and plains, contour farming and contour tillage. Role of basin listing. Contour terracing, mulch - types and advantages in conservation farming. Dryland farming - choice of crops and cropping systems, agronomic practices in dryland farming, role of tillage, fertilizers, manures, rotations, plant density and weeds pests and disease control in dryland farming, Weeds and weed control.

Practical : Ploughing methods to main ain terraces with M.B. ploughs and tractors, staking for laying out strip cropping. Practices in contour farming, judging tilth and moisture in the field. Evaluating agronomic practices in the fields. Canopy measurement of different field crops. Planning soil conservation cropping systems and fertilizer programmes for small farms. Contour cultivation. Laying out of field experiments, analysis of data and interpretation of results.

10. Soil and Water Conservation Methodology: Course No: SCN 510  
Credit hrs : 3 (2+1)

Soil and water conservation movement in India-past and present. Agencies and organisations involved in soil conservation works. River valley projects. Sedimentation problem and its control. flood - causes and control.

Erosion research methods, problems of implementing soil conservation programmes and policies. Legal aspect of soil conservation. Knowledge of command area authorities and land development boards and financial implications. Inter state projects and their functionalities, command area management.

Soil conservation schemes, central and soil conservation Boards, planning ahead, the need for action and research, model soil conservation act, forest act. Strategies for soil conservation with special reference to NEHU region, the potential of agroforestry in soil conservation in NEH region, remote sensing in soil and water management. Socio-economic aspects of soil conservation.

Practical: Solving soil conservation problem on a given watershed. Measurement of flowing water by various devices and checking it with empirical formula, collection and interpretation of data from a watershed to plan a soil conservation programme. Visits to various soil conservation centers and projects.

11. Ecosystem Management:Course No: SCN 511  
Credit hrs: 3 (2+1)

Ecosystem; Agricultural Ecosystem - properties and interactions. Nutrient cycling in natural and agro-ecosystem. Effect of erosion on natural and agro-ecosystem, soil formation rate and ecosystem stability, principles of management.

Mountain Ecosystem: Mountain; stability and instability of mountain ecosystem, environment deterioration, management of mountain ecosystem, hill slope stability and land use, destruction of forest, woodland, and natural rangelands and their protection, management of forest soils for long term productivity, degraded ecosystems and their management, wild life and biosphere reserves.

Practical: Measurement of decomposition in soils. Measurement of various forms of plant nutrients and their movement in agro-ecosystem, measurement of soil erosion on agro-ecosystem and natural ecosystem. Development of a plan for the management of forest of nearby locality.

12. Special Topics in Soil and Water Conservation:Course No: SCN 512  
Credit hrs: 2 (1+1)

This course provides for a programme of reading and discussion under faculty guidance on any topic of special interest in soil and water conservation. The exact topic will be decided by the class instructor. Enrolment permitted with the approval of the Head of the department and the instructor concerned.

13. Seminar:Course No: SCN 513  
Credit hrs: 1 (0+)

Presentation of review of literature, findings and discussion of research programme using the data obtained from research experiment. The overall progress of the research work will be presented by the student under faculty guidance.

14. Research:Course No: SCN 514  
Credit hrs: 15 (0+15)

Student will write Master's degree thesis on his assigned topic of research under faculty guidance and submit the same for evaluation. The student on finalization of his research will offer this course every semester till the completion of his thesis work. However, the credit load will not exceed 15 credit hours.

11. MINOR FIELDS:

The Courses offered by the following departments can be taken as minor courses. A statistics course (AGE: 501) of 4 (3+1) Credit hours will be compulsory for all students.

1. Department of Soil Science.
2. Department of Agricultural Engineering.
3. Department of Agronomy.
4. Department of Horticulture.

Minor courses relevant to M.Sc. (Ag.) Soil Conservation programme from above mentioned departments are detailed below:

A. Department of Soil Science:

<u>Sl. No:</u>	<u>Course No:</u>	<u>Title</u>	<u>Credit hrs</u>
1.	SSC 501	Soil Fertility & Plant Nutrition	3 (2+1)
2.	SSC 502	Techniques in Soil Plant Research	3 (1+2)
3.	SSC 503	Soil, Plant & Water Relationship	3 (2+1)
4.	SSC 504	Soil Survey and Land Use	3 (2+1)

B. Department of Agricultural Engineering:

1.	AGE 501	Agricultural Statistics	4 (3+1)
2.	AGE 502	Land Levelling and Grading	2 (1+1)
3.	AGE 503	Agricultural Hydrology	3 (2+1)

C. Department of Agronomy:

1.	AGR 501	Dryland Agronomy	3 (2+1)
2.	AGR 502	Water Requirement of Crops	3 (2+1)
3.	AGR 503	Pasture Crops and Grassland Management	2 (1+1)

D. Department of Horticulture:

1.	HOR 512	Plantation Crops	3 (2+1)
2.	HOR 516	Conservation of Environment	3 (2+1)

Department of Soil Science :1. Soil Fertility and Plant Nutrition:Course No: SSC 501  
Credit hrs: 3 (2+1)

Concept of soil fertility and productivity. Soil as a source of mineral nutrients for plant growth. The source and behaviour of plant nutrients in soil. Nutrient availability concept, ion exchange, movement of nutrient ions in soils, absorption of nutrients by plant roots, soil colloids and their significance, physico-chemical properties of soil in relation to plant nutrition.

Practical: Determination of available nutrient levels in soil using different methods. Measurement of C.E.C., pH and organic carbon content in soils.

2. Techniques in Soil Plant Research:Course No: SSC 502  
Credit hrs: 3 (1+2)

Errors of observation and sampling, sampling procedures for soil, plant and water. Principles of volumetric and gravimetric analysis. Theory and application of spectrophotometry, flame photometry, atomic absorption and other equipments used in chemical analysis of soil, plant and water. Use of radio isotopes in soil-plant studies.

Practical: Measurement of total plant nutrient content of soil and plant, determination of various forms of nutrients in soils, analysis of runoff for various nutrient content.

3. Soil, Plant and Water Relationship:Course No: SSC 503  
Credit hrs: 3 (2+1)

Structure and physical properties of water, states of water in soil, retention of water by soil, soil water interactions. Movement of water into the soil, concept of saturated and unsaturated flow. Biological classification of soil water, water and solute movement, soil water balances. Flow of water through soil-plant atmosphere continuum, evapotranspiration, water stress and plant growth, consumptive use of water, water requirement of crops, scheduling of irrigation, water use efficiency, soil water management, nutrient availability and uptake.

Practical: Measurement of soil water content, measurement of soil water potential, calculation of moisture deficiency in soil, determination of soil moisture constants. Estimation of consumptive use and water requirement by different methods, irrigation scheduling with the help of tensiometer and moisture meter.

4. Soil Survey and Land Use:

Course No: SSC 504

Credit hrs: 3 (2+1)

Essential features of U.S.A. soil taxonomy, diagnostic surface horizons and subsurface horizons; pans and concretions, soil moisture regime, soil temperature regime diagnostic characteristics of soils belonging to Order Entisol, Inceptisol, Aridosol, Vertisol, Mollisol, Alfisol, Ultisol, and Oxisol.

Soil Survey - concept and objectives, standard soil survey, Remote sensing, types of soil survey, taxonomic unit and mapping unit, Criteria for establishment of mapping units, Single and compound mapping unit, Base maps. Use of aerial photographs in soil survey, soil survey procedures, land use capability classification. Land irrigability classification, land evaluation and land use.

Practical: Study of surface features in the field.

Identification of mapping units. Demarcation of boundaries of mapping units in the field. Study of morphological, physical and chemical properties of horizons of the soil profile. Preparation of land use capability map.

Department of Agricultural Engineering:1. Agricultural Statistics:

Course No: AGE 501

Credit hrs:4(3+1)

Measures of Central tendency and dispersion, skewness Kurtosis, probability, normal distribution (properties only), test of significance (t, z, f and  $\chi^2$ -test), regression and correlation (including partial and multiple correlations with their test of significance), sampling theory with reference to crop estimation survey, (random, stratified and multistage sampling), analysis of variance principles of experimental designs, completely randomized design, randomized block design, latin square design, factorial experiments ( $2^3$  factorial experiments), split plot design. Analysis of co-variance, missing plot technique (in R.B.D. and L.S.D. with one value missing).

Practical: Test of significance (t, Z and F test), Applications of  $\chi^2$  (Chi-square) test, Linear regression and correlation, Designs Analysis of C.R.D., R.B.D., L.S.D. and split plot designs. Missing plot technique- Analysis of R.B.D. and L.S.D. with one value missing.

B.COM

	<u>PASS</u>			<u>HONOURS</u>		
	<u>PART</u>		Total	<u>PART</u>		Total
	I	II		I	II	
English		100	100		100	100
MIL/Alt.Eng	100	-	100	100	-	100
F.C	100	-	100	100	-	100
Commerce	600	500	1100			
Elec.Com.				300	200	500
Hons/Elec.				400	400	800
			1400			1600

B.SC

English	-	100	100	-	100	100
FC	100	-	100	100	-	100
3 Elective (400X3)	900	300	1200	-	-	-
2 Elec (800) (400X2)	-	-	-	600	-	600
Hons/Elec	-	-	-	300	500	800
			1400			1600

Recommendations from the Sub-Committee  
on the Common Structure for the Three Year  
Undergraduate Degree Programme (Pass & Hons)

1. First three papers in all elective subjects shall be common between Pass and Honours
2. B.A and E.Com students shall be required to opt for Hons subjects in the beginning. In case of B.Sc the students can opt for Hons. subjects out of the three electives at the end of Part I Exams.
3. In B.Sc first 300 marks of the Honours subject shall be covered at Part I as one of the electives and the remaining 500 marks at Part II. In case of B.A and B.Com Hons. Paper No. 1, 2, 4 and 5 shall be at Part I and 3, 6, 7 and 8 at Part II.

B.A

	<u>PASS</u>			<u>HONOURS</u>		
	<u>PART</u>		Total	<u>PART</u>		Total
	I	II		I	II	
English	200	100	300	200	100	300
P.C	100	-	100	100	-	100
M.I.L/Alt.Eng	-	100	100	-	100	100
Elective(three)	600	300	900	Elec(1)200	100	300
				Hons/ Elec 400	400	800
			1400			1600

2. Land Levelling and Grading:Course No: AGE 502  
Credit hrs : 2(1+1)

Land clearing, land levelling, earth moving and grading machines, land levelling for irrigation, factors to consider before grading; soil depth, rough topography, steep slopes, absence of drainage, unstable soil surface, steps to be taken to prepare for land grading. Survey and staking, mapping the topography, staff reading, resetting of level, base map, contouring by setting out, by section, by interpolation, method of land grading and calculation. Computation of cut and fill adjustments.

Practical : Plotting contours, cross section, map reading, computing area by planimeter and enlarging maps. Computation of earth work. Planning and field lay out of graded bunds. Field survey of different works.

3. Agricultural Hydrology :Course No: AGE: 503  
Credit hrs: 3(2+1)

Hydrology and its development, hydrological cycles, scope of hydrology. Rainfall, types of gauges, recording and nonrecording. Rainfall analysis - histogram, mass curve. Interpolation of rainfall records. Average precipitation. Arithmetic mean, isohyetal, Thiessen etc. Design analysis of rainfall data - frequency analysis and frequency formula, intensity, duration, frequency analysis. Runoff definition, runoff cycle, runoff rates and volume. Different methods of estimation of rates and volume. Infiltration - definition, factors affecting it. Equation and methods of infiltration. Stream flow measurement, stage discharge relationship. Different methods of determination of discharge - current meter, float, pilot tube, chemical methods. Groundwater hydrology, groundwater occurrence, groundwater retention and movement - Darcy's Law, coefficient of permeability, its determination - field and laboratory methods. Artificial recharge of groundwater through spreading, pits and shafts, wells, stream drainage, induced seepage. Hydrograph analysis hydrograph - definition and construction, components and hydrograph separation. Basic hydrograph, design hydrograph, runoff hydrograph and unit hydrograph. Statistical analysis of hydrological data.

Practical: Measurement of rainfall, analysis of rainfall, measurement of rate and volume of rainfall. Infiltration, determination of discharge, preparation of runoff hydrograph, Analysis of rainfall data.

Department of Agronomy:

1. Dryland Agronomy:

Course No: AGR 501  
Credit hrs : 3 (2+1)

Definition and delineation of dry farming areas; drought resistance in crops, Mechanism for drought tolerance and crop adaptability to drought situations, drought tolerant crops and crop varieties. Plant ideotypes for dryland areas, shoot and root growth characteristics, soil moisture conservation and utilization, moisture retention and availability concept, infiltration, moisture and ion movement and water absorption by plant under stress conditions; controlling evaporation and transpiration loss. mulches, their kinds, effectiveness and economics, antitranspirant and light reflectants, water harvesting: concept, technique and practices; Agrotechniques-crop rotation, cropping pattern, fertilizer use, weed control and other management practices in dryland agriculture.

Practical : Practical study of laying out mulches, calculation of moisture deficit in soil. Preparation of cropping schemes for different types of situation and working out cost of cultivation and production. Planning and designing water harvesting on a small farm. Visit to different centers for practical understanding various operations of dryland agriculture.

2. Water Requirement of Crops:

Course No: 43 502  
Credit hrs: 3 (2+1)

Definition of water requirement and other associated terms, water relation to plant growth and crop production, methods of expressing water requirement. Method of determining water requirement - pot culture, tank experiment, field experiment, inflow and outflow methods, analysis of climatological data. Factors affecting water requirement, soil moisture climatic complex (radiation, temperature, humidity & wind velocity), moisture judging for irrigation, water requirement of different crops.

Quality of irrigation water and crop growth. Quantity of water to be applied. Methods of water application, their suitability under different situations, evaluation of irrigation needs. Moisture judging of irrigation, cropping pattern in relation to water supply, Root distribution of crops and moisture extraction. Effect of excess water on soil and plant growth.

Practical : Measurement of water requirement of different crops using various methods. Field exercises on methods of water application.

### 3. Pasture Crops and Grassland Management:

Course No: AGR 503  
Credit hrs : 2 (1+1)

Importance of pasture crops in farming systems and their role in maintaining soil fertility, classification of various pasture crops. Agronomy of pasture crops. Importance of grasses and legumes in improving village grazing lands, forest grazing and pasture areas, establishment of pastures and their management, regeneration of infested pastures. Improvement of grazing pasture lands.

Role of grassland in soil conservation and building of soil fertility, grassland legumes for crop tropics and humid areas, establishment of grassland on wasteland and eroded areas of plains and hills, grassland types of India.

Practical : Field studies on grasses and legumes suitable for NEH region. their identification, propagation and establishment on different site conditions. Hydrologic rating of crop factor, cover efficiency of crops. Studies on soil conservation value of grasses and legumes.

### Department of Horticulture :

#### 1. Plantation Crops:

Course No : HOR 512  
Credit hrs : 3 (2+1)

Importance and scope of plantation crops in India & NEH region in particular. Detailed study on origin, history, distribution, varieties, climates, soil, propagation and planting, aftercare, harvesting and marketing, diseases and pests of important plantation crops e.g., coffee tea, rubber, arecanut, cardamom, blackpepper, etc.

Practical : Visits of some gardens to study the cultural practices for plantation crops, Study of special problems in relation to plantation crops in NEH: region.

2. Conservation of Environment ;

Course No: HOR 516  
Credit hrs; 3 (2+1)

Conservation and its needs, conservation of tropical ecosystem, land use of upland watersheds, Three-tier system, clothing of denuded land, agro-forestry, social forestry, planting by side of river beds, road sides, recreation forestry, nitrogen fixing trees for adverse sites, wild life.

Practical : Visit to some soil conservation, soil forestry and afforestation centers and studies of special problems related to environment.

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PLANT PATHOLOGY

## Annexure - D

Proposed course structure and syllabus for Post-graduate course programme in M.Sc(Ag). Plant Pathology as recommended by a committee of experts in the meeting held on 13th April, 1989 at NEHU, SASRD, Medziphema, Nagaland.

Major and Supporting Courses

1.	PLP	501	Principles of Plant Pathology	3(3+0)
2.	PLP	502	Phytopathological Techniques	2(2+2)
3.	PLP	503	Mycology	3(2+1)
4.	PLP	504	Fungal Diseases of field crops	3(2+1)
5.	PLP	505	Fungal Diseases of Fruits and Vegetables	3(2+1)
6.	PLP	506	Diseases of Plantation crops, Spices & ornamentals	3(2+1)
7.	PLP	507	Bacterial disease of plants	3(2+1)
8.	PLP	508	Viral and Mycoplasma disease of plants	
9.	PLP	509	Nematods disease of plants	2(1+1)
10.	PLP	510	Mycophagy and Mushroom technology	2(1+1)
11.	PLP	511	Seed Pathology & Post harvest diseases of Plants	3(2+1)
12.	PLP	512	Principles of Plant disease control	4(3+1)
13.	PLP	513	Epidemiology & Assessment of losses in plant diseases	3(2+1)
14.	PLP	514	Seminar	1(0+1)

## Credit Load

1.	Major courses	30
2.	Minor and supporting courses	15
3.	Thesis (PLP 599 )	15
	Total	<u>60</u>

## Compulsory course (Core course)

Core courses	Credit Load	Core courses	Credit Load
PLP 501	3	PLP 505	3
PLP 502	2	PLP 506	3
PLP 503	2	PLP 507	3
PLP 504	3	PLP 509	4
		PLP 513	1

Minimum credit load for major course 30

Minor and supporting courses 15

45

PLP 501 Principles of Plant Pathology

3(3+0)

History of Plant pathology, the nature and classification of plant diseases, mutual relationships between organisms. The phenomenon of infection, germination and entrance of the pathogen into the hosts. Symptomatology - external and internal including histopathology. Growth and reproduction of pathogens. Predisposition; effect of environment and nutrition on pathogens, physiologic specialisation and genetic basis of host parasite interactions (brief)

PLP 502 Phytopathological techniques

2(0+2)

Methods to prove Koch's postulates with obligate and non-obligate pathogens including bacterial and viruses; pure culture techniques; preservation of plant pathogens; use of operational methods of virology equipments and instruments like hemocytometer, micro manipulator, electrophoresis, chromatography, centrifuge, colorimeter, pH meter, Camera lucida. Microscopic techniques and staining methods.

PLP 503 Mycology

History and importance, modern concepts of classification and nomenclature of fungi; study of morphology; life history and taxonomy of important genera of fungi.

Practical :-

Detailed comparative study of different groups of fungi, herbarium collection, preservation and identification.

PLP 504 Fungal diseases of field crops.

3(2+1)

Nature, prevalence and etiology of important parasitic and non parasitic diseases of field crops, cereals, pulses, oil seeds, fiber and their control.

Practical :-

Detailed study of symptoms and host-parasite relationships of representative diseases. Field trips to different parts of the state for collection of diseases specimens.

PLP 505 Fungal diseases of fruits and vegetables

3(2+1)

Nature, prevalence and etiology of important parasitic and non parasitic diseases of fruits and vegetables and their control.

Practical :-

Detailed study of symptoms and host parasite relationship of representative diseases.

PLP -506 Disease of Plantation crops, spices and ornamentals 3(2+1)

Nature, prevalence and etiology of important parasitic and non parasitic diseases of plantation crops, spices and ornamentals.

Practicals :-

Detailed study of symptoms and host parasite relationship of representative diseases.

PLP - 507 Bacterial diseases of plants 3(2+1)

History, general characteristics, classification, classification and nomenclature of phytopathogenic bacteria, symptom expression; important bacterial diseases of crops and their control.

Practical:

Isolation, purification and host inoculation of plant pathogenic bacteria; staining methods, bio-physiological characteristics for identification of bacteria, testing antibacterial chemicals.

PLP -508 Viral and Mycoplasma diseases of plants 3(2+1)

History, symptomology, classification, transmission and virus-vector relationships; physical and chemical properties, purification, morphology, serology, multiplication and movement; variation in viruses, control measures, bacteriophages, cyanophages and mycoviruses; Mycoplasma classification, morphology, reproduction and growth of mycoplasmas; symptoms induced by mycoplasmas; introduction to electron microscopy; viroids and diseases caused by them.

Practical:

Symptomology; techniques of transmission, assay of viruses determination of physical properties, serological reactions; isolation and purification, effect of chemicals on virus multiplication

PLP-509 Nematode diseases of plants 2(4+1)

History of nematology, economic importance of plant parasitic nematodes, classification of nematodes with emphasis on economically important genera, ecological classification effect of soil factors like temperature, moisture, porosity, soil type and pH on nematode population. Feeding mechanism and general symptoms of nematode attack, principles and methods of nematode control-cultural, mechanical and biological methods, their uses and limitations, to symptomatology, etiology, extent of damage and control. Meloidogyne, Heterodera, Pratylenchus, Anguina, Ditylenchus, Radopholus.

5:2:1:(44)

Practical:

Extraction of plant parasitic nematodes by different techniques and their identification in water suspension, preparation of permanent slides of the perineal patterns of Meloidogyne species, posture of nematodes and oesophagus region.

PLP -510 Mycology and Mushroom Technology 2(1+1)

Mushroom and its importance as edible fungi. Methods for cultivation of Agaricus, Volvariella and Pleurotus Sps. of mushrooms. Pests and diseases of mushroom and their control. Other edible mushroom. Nutritional value of mushroom and marketability.

Practical:

Spawn and its preparation, cultivation, cultivation methods of Agaricus, Volvariella and Pleurotus Sps. and its preservation

PLP - 511 Seed pathology and post harvest diseases of plants 3(2+1)

Significance of seed borne diseases; mechanisms of seed infection; localization of pathogens in the seed and subsequent transmission for disease development; epidemiology of seed borne infections; seed deterioration, Mycotoxins, principles of controlling seed borne diseases, storage and transit diseases of important fruits and vegetables.

Practical:

Sampling and seed health testing methods. Pathogenicity of seed borne pathogens. Study of common storage and transit diseases present locally.

PLP - 512 Principles of plant disease control 4(3+1)

Disease appraisal and assessment of crop losses; disease control through alteration of cultural practices, legislation and quarantine; chemical control of plant diseases; formulations and dosage response reactions; bioassay of fungicides; major groups of fungicides and their usage; other chemical groups and antibiotics, application of plant protection chemicals to seed, soil and plants; application machinery and their usage; principles underlying breeding for disease resistance.

Practical

Acquaintance with chemicals and equipments used for plant disease control. Evaluation of plant protection chemicals used against plant pathogens in vivo and in vitro.

Contd/.../-

PLP - 513 Epidemiology and Assessment of losses in plant diseases 3(2+1)

Introduction, history and concepts of epidemiology and plant disease losses; inoculum potential, survival and dispersal of plant pathogens, role of environment, host genotype, nutrition, cultural practices and control measures in disease epidemiology; assessment of losses; disease forecasting; concept of simple and compound interest diseases; infection rate; genetic basis of epidemics; assessment of disease intensity.

Practical

Different scales, grades and diagrams for measuring disease intensity, losses and their correlation; calculation of infection rate.

COURSE IN MINOR FIELD FOR M.Sc(Ag.) PLANT PATHOLOGY STUDENTS

According to suggested regulations for M.Sc(Ag.) programme of North Eastern Hill University, a student will be required to offer 15 credit hours in relevant subjects other than his/her main subject.

A Statistics course of 4 credit hours should be compulsory for students for all subject. Out of remaining 11 credits students will take at least 6 credit hours in one department which will become his/her minor field. Remaining 5 credit he/she can offer in any other department(s).

For M.Sc(Ag.) programme in plant pathology, the following department can be taken as minor.

1. Agronomy
2. Agricultural Zoology & Entomology
3. Horticulture
4. Statistics

Contd./.../-

## DEPARTMENT OF AGRICULTURAL STATISTICS

Agricultural Statistics

Course No. 501

Credit Hours : 4(3+1)

Measures of Central tendency and dispersion, skewness and kurtosis, probability, normal distribution (Properties only), test of significance (t, Z, F, and  $X^2$  - test), regression and correlation (including partial and multiple correlations with their test of significance), Sampling theory with reference to crop estimation survey, (random, stratified and multistage sampling), analysis of variance, principles of experimental designs, completely randomized design randomized block design, latin square design, factorial experiments ( $2^3$  factorial experiments), split plot design. Analysis of covariance, missing plot technique (in R.B.D. and L.S.D. with one value missing)

Practical:

Test of significance (t, Z and F test). Applications of  $X^2$  (Chi-square) test, Linear regression and correlation. Designs Analysis of C.R.D., R.B.D., L.S.D. and split plot designs. Missing plot technique - Analysis of R.B.D. and L.S.D. with one value missing.

## DEPARTMENT OF AGRONOMY

## CEREAL CROPS

Course No. AGR-501

Credit Hrs: 3+1

Origin and history, area production, classification, improved varieties, adaptability, climate, soil, water and cultural requirements, nutrition quality components, handling and processing of the produce of cotton, jute, groundnut, rape and mustard, linseed, sesamun etc. for maximum production in India and NEH region in particular.

Contd/.../-

Practical :

Study of field operations for successful growing of rabi, crop growth development phases and other economic characters; identification of crop varieties; preparing manuring schedules; judging crop maturity and quality, visit to research/demonstrations Farms to acquaint with research activities in progress.

FIBRE AND OILSEED CROPS

Course No. AGR-502

Credit Hrs:3+1

Origin and history, area production, classification, improved varieties, adaptability, climate, soil, water and cultural requirements, nutrition quality components, handling and processing of the produce of cotton, jute, groundnut, rape and mustard, linseed sesamum etc. for maximum production in India and NEH region in particular.

Practical :

Study of field operations for successful growing of crops; study of crop growth, development phases and other economic characters; identification of crop varieties, quality, visit to University Farms to acquaint with research activities in progress.

PULSE CROPS

Course No. AGR-503

Credit Hrs:2+1

Origin and history, area and production, classification, improved varieties, adaptability, climate, soil, water and cultural requirements, nutrition, quality components, handling and processing of the produce of pigeonpea, chickpea, green gram, black gram, moth, soybean, lentil, cowpeas peas etc. for maximum production in India and NEH region in particular.

Practical:

Study of field operations for successful growing of crops; crop growth, development phases and other economic characters; identification of crops varieties, preparing manurial schedules, judging crop maturity and quality; visit to University Farms to acquaint with research activities in progress.

Contd/.../-

FORAGE CROPS

Course No. AGR-504  
Credit Hrs: 3+1

Importance of forages in animal production and factors affecting its production and distributionl classification

Practical :

Farm operations in raising forage crops; cost of cultivation, preparation of cropping schemes to get green foder throughout the year.

Department of Entomology

ENT -506 Pests of field crops: 3(2+1)

Detailed study of pests of crops like sugarcane, cereals, pulses, oilseeds fibre crops. Their identification, life history, host plants, nature, of damage and methods of recommended controle measures. Pesticide registration and phytosanitation, eradication plans and programmes in India.

Practical:

1. Recognition and life history studies of key pests of crops.
2. Visit to phytosanitation organisation.
3. Estimation of crop losses.

Course No. ENT-507  
Credits HRS:3(2+1)

1. Horticultural Entomology -I

(Pests-Tree culture, Plantation & Fruit based)

Pest development and degree-days, rainfall, wind, radiation and light penetration through the canopies. Biology, damage symptoms and methods of control of pests of temperate, sub-tropical and tropical fruits, and plantation and forestry crops with particular

Contd/.../-

emphasis on tea, coffee, rubber etc. Pest infestation of bamboo Nursery pest management, Non-insect pest management in orchards and plantations. Relationship between die-back of fruit trees and insects, and also between tree viruses and insects, Relationship between the ripening of fruits and the index of infestation. Orchards and plantation sanitation. Pollinating insects in orchards and plantation and their augmentation with encouragement

Promoting concepts of pest management in orchards and plantation with emphasis on cultural modification for pest reduction, interactions among canopy climates and infestation, spray schedules, minimizing the use of pesticides and maximizing their effects, augmentation and safeguarding natural enemies, monitoring pest infestation, damage and action thresholds, making decision, in pest control, economics of control, interactions between pests and weeds in tree forest ecosystem, socio economics aspects and training programme based on extension entomology.

Experimentation with pesticides in orchard/plantations design, data collection and analysis. Care and maintenance of pest control equipments (high volume and low volume).

2. Horticultural Entomology -II Course No. ENT-508  
Credit Hrs:3(2+1)

(Pests of Vegetables, spices and ornamentals)

Economics, damage symptoms and methods of control of pests of vegetables, spices, ornamentals and lawns. Control of termites, cutworms, white grubs, slugs, snails, millepedes and other general polyphagous pests. Rotation and its effect in pest reduction and avoidance. Property, toxicity, methods of application, use and preharvest interval, and phytotoxicity of pesticides used in vegetables, spices, ornamentals and lawns. Seed storage problems and infestation/control.

Promotion of pest management concept in both nursery and sampling, economic thresholds, natural control and integration of other control methods, minimizing the use of pesticides and maximizing the effect, decision making in pest control.

Contd/.../-

LNT -515 : Insects in relation to plant diseases 3(2+4)

Toxicogenic insects and phytotoxemia : Salivary secretion of insects, localised toxic effects, plant tissue malformations, insect galls, fruit malformation, systemic phytotoxemia; Symbiosis between insects and micro organisms and its significance in plant pathology. Plant pathogens transmitted by insects, bacterial pathogens specialised vector-bacterial relationships, fungal pathogens infection through pollination injury, contamination, exudates feeding and oviposition wounds. Plant virus transmission methods: Virus vector relations ecological aspects of plant virus transmission. Control of plant toxicogenic insects and control of plant diseases through vector control.

Practical :

Exercises on leaf hopper and aphid transmission specific plant viruses, MLO and spiroplasmas.

DEPARTMENT OF HORTICULTURE(MINOR FIELD)

1. Tropical and Sub-tropical Fruits Course No:HOR 510  
Credit Hrs:3(2+1)

Importance and scope of tropical and sub-tropical fruits in India NEH region in particular. Detailed study on the origin, history, distribution, varieties, climate and soil, propagation, depending after-care, harvesting and marketing, diseases and pests of important tropical and sub-tropical fruit crops e.g. citrus, pineapple, banana, guava, papaya, jack-fruit, litchi, mango, pomegranate etc.

Practical:

Visits to some orchards and study of major problems in the production. Acquaintance with important diseases and pests.

Temperate fruits : Course No:HOR-511  
Credit Hrs:3(2+1)

importance and scope of temperate fruits in India, NEH region in particular. Detailed study of origin, history, distribution, varieties, climate and soil, propagation and planting, after care, harvesting and marketing, diseases and pests of important temperate fruits e.g. apple, peach, plum, pear, almond, strawberry etc. Effect of environmental and nutritional factors on plant growth, induction of flowering, fruiting.

practical:

Visits of some orchards and study of special problems in the production of some fruits. Acquaintance with major insect pests.

3. Plantation crops : 5:2:1:(51) Course No.HOR-512  
Credit Hrs:4(3+1)

Importance and scope of plantation crops in India, NEH region in particular. Detailed study on origin, history, distribution, varieties, climate and soil, propagation and planting, after care, harvesting and marketing. Disease and pests of important plantation crops e.g. coffee, tea, rubber, arecanut, coconut, cardamon, black pepper etc.

Practical :

Visits to some gardens and study of special problems in their production.

Spice crops : Course No:HCR :513  
Credit Hrs:2(1+1)

Importance and scope of spices cultivation in India, NEH region in particular. Detailed study on origin, history, distribution and planting, after care, harvesting and marketing, diseases and pests of important spice crops e.g. ginger, turmeric, garlic, coriander, cumir cimamon etc.

Practical:

Study of special problem in their curing of ginger and turmeric.

5. Vegetable Crops: Course No.HOR 519  
Credit Hrs:3(2+1)

Importance and scope of vegetable in India, NEH region in particular. Detailed study on origin, history distribution, varieties, climate and soil, planting requirement, after care, harvesting and marketing of important vegetables e.g., lady's finger, Vabbage, cauliflower, beans, goods, rootcrops, Brinjal, tomato, Coldcaisla etc.

Practical:

Classification and identification of vegetables crops, study on use of growth regulators, nutritional requirements in vegetable crops. Nursery technique for vegetables propagation. Seed production technique in vegetables.

(i) Recognition of Dr. S.K. Gangwar and  
Dr. R.N. Verma, Scientists of I.C.A.R.  
as Ph.D. Supervisors -

The Academic Council in its 25th meeting considered the Bio-data of the following thirteen Scientists of the I.C.A.R. Complex, Shillong whose names were recommended by the Committee for recognition as research guides.

<u>Name</u>	<u>Designation</u>	<u>Discipline</u>
Dr. R.N.Prasad	Scientist S 4	Soil Science
Dr. N.D.Verma	" S 3	Animal disease control
Dr. R.N.Verma	" S 3	Plant Pathology
Dr. S.K.Gangwar	"	Entomology
Dr. C.S.Patel	" S 3	Agronomy
Dr. B.N.Singh	" S 3	Agronomy
Dr. V.A.Barkasarthi	" S 2	Horticulture
Dr. H.S.Gupta	" S 2	Plant Breeding
Dr. R.P.Shukla	" S 2	Entomology
Dr. R.N.Barwal	" S 2	Entomology
Dr. Y.P.Sherma	" S 2	Plant Pathology
Dr. D.N.Borthakur	Director	Plant Breeding
Dr. A.Verma	Scientist S 3	Animal Nutrition

The Council, however, approved only the names of Dr. D.N. Borthakur, Director, I.C.A.R. and Dr. R.N. Prasad, Scientist S-4 to act as Joint-Supervisor or co-guides. The Resolution of the Council reads as follows -

"The Council considered the report submitted by the Committee constituted for inspection of the I.C.A.R. Complex at Shillong for conducting research for M.Phil/Ph.D. degrees.

The Council, after careful consideration, RESOLVED to approve that Dr. D.N. Borthakur, Director, I.C.A.R and Dr. R.N. Prasad, Scientist S-4 may be allowed to act as Joint supervisors or co-guides for guiding research in the Complex. The Council further RESOLVED to recognise Research Laboratory of the I.C.A.R. Research Complex at Shillong as a Centre to guide research for M.Phil/Ph.D. degree."

The cases of Dr. S.K. Gangwar and Dr. K.N. Verma were again considered by the School Board of Life Sciences in its meeting held on the 27th June, 1988 and the Dean of the School informed that the Boards of Post Graduate Studies in Zoology and Botany have recommended their names for approval as Supervisors. He also stated that both the Scientists have made significant contribution in their respective fields, that is, Entomology and Plant Pathology.

According to Clause 4(1) and (2) of Ordinance OC-4 on the Doctor of Philosophy Programme, only a teacher of the University can be appointed as a Supervisor to guide and supervise the research work of a candidate. A Joint-supervisor or consultant need not, however, be a teacher of the University.

The matter is placed for consideration of the Council.

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## 5:5 - EXAMINATION MATTERS :

## (i) Panel of Examiners (Ph.D)

The panel of Examiners for examining the Ph.D thesis of the following candidates are placed for consideration of the Council.

<u>Name of the candidate</u>	<u>Department</u>
1. Smti. S.M.Sungoh	Education
2. Smti. Neena Chakraborty	Education
3. Shri H.I.Singh	Education
4. Mr.Julian Laloo	Khasi
5. Mrs. Streamlet Dkhar	Khasi
6. Mr. Coratton Walflang	Khasi
7. Mrs. M.B.Jyrwa	Khasi
8. Shri Subhas Saha	History
9. Mr. Balu M.P	Chemistry
10.Mr. A.C.Kalita	Botany
11.Mr. Tawninga Pachuau	Botany
12.Mrs. Jharna Rani Das	Zoology
13.Mr. Guna Sindhu Das	Zoology
14. Shri M.Konwar	Geography

5:5:2:(1)

5:5:2:(1)

(ii) (-) Panel of Examiners for M.Phil

The panel of Examiners for examining the M.Phil dissertations of the following candidates are placed before the Council for consideration.

<u>Name of the candidate</u>	<u>Department</u>
1. Mr. Davison Diengdoh	Khasi
2. Mr. T.T. Mukhim	Khasi
3. Miss Lenianey Kharmawlong	Khasi
4. Mrs. Heera Deka Borah	Zoology
5. Mrs. Mamoni Dutta	Zoology

- (iii) Constitution of a Committee to examine the powers to expal candidates adopting unfair means in exams and the quantum of punishment therefor, and its report.

In the 37th Academic Council meeting held on 5th and 6th September, 1989, the Academic Council vide resolution No.AC: 37:89:5:05(vii) and (viii), decided that various aspects concerning the powers to expal candidates adopting unfair means in exams and the quantum of punishment therefor, be examined by a Committee of the Academic Council with same more members nominated by the Vice-Chancellor. Since the Council did not indicate the names, the Vice-Chancellor constituted the Committee with following members :

1. Prof. A.L.Verma - Chairman
2. Prof. J.B. Bhattacharjee
3. Prof. R.S.Lyngdoh

The Committee has submitted its report, which is placed at Annexure - A for consideration of the Council.

5:5:3:(2)  
ANNEXURE-"A"

MINUTES OF THE MEETING OF THE SUB-COMMITTEE OF ACADEMIC COUNCIL  
ON DISCIPLINE AMONG STUDENTS IN RELATION TO UNIVERSITY EXAMINA-  
TIONS UNDER SECTION 26(G) OF NEHU ACT)

A Meeting of the Sub-Committee of the Academic Council to review this Ordinance on Discipline among students in relation to University Examinations (under Section 26(g) of NEHU Act) was held in the office chamber of the Controller of Examinations on the 16th January, 1990 at 11:00 a.m under the Chairmanship of Prof. A.L.Verma, Dean, School of Physical Sciences.

Members present :

1. Prof. A.L.Verma - Chairman
2. Prof. R.S.Lyngdoh - Member
3. Prof. J.B.Bhattacharjee - Member
4. Shri R. Kharpor - Member
5. Shri A. Patton - Convener

The Meeting started with a briefing from the Controller of Examinations, Convener of the Committee, apprising the members of the need felt by the Academic Council to review the provisions of the Regulations as there have been representations from Principals regarding the need of restoring the power of expulsion to the Officer in-charge of Examination Centres and from parents and guardians of students regarding the need of making the punishments awarded for malpractices more reformatory than destructive.

The meeting discussed at length both the issues and made the following decisions :

- a) That the power of expulsion of candidates for the entire examinations or paper as specified in Section 4 of the NEHU Ordinance OD-6 in respect of unfair means detected in the Examination Hall and the premises of the Centre shall vest in the Officer-in-charge of the Centre who shall decide the matter with the help of a Centre Discipline Committee formally constituted for the purpose and shall recommend the matter immediately to the Controller of Examinations along with all incriminating materials for the consideration of the NEHU Discipline Committee.

Contd/.../-

- b) That the Centre Discipline Committee shall be constituted by the Officer in-charge of the Centre consisting of himself/ herself as the chairman,, the Assistant Officer in-charge of the Centre and three more senior teachers of the College as members.
- c) That decisions regarding the quantum of punishment beyond one year and other reported offences shall vest in the NEHU Discipline Committee.

Consequent upon these decisions the existing Ordinance would stand and revised as given below :-

Existing Ordinance

- 6.a) The Officer in-charge of the Examination Centre shall report to the Controller of Examinations without delay and on the day of the occurrence, if possible, each case where use of unfair means in the examination is suspected or discovered with full details of the evidence in support thereof and the statement of the candidate concerned, if any, on the forms supplied by the Controller of Examinations for the purpose.
- b) A candidate shall not be forced to give a statement but the fact of his having refused to make a statement shall be recorded by the Officer in-charge and shall be got attested by two other members of the Supervisory Staff, if on duty, at the time of occurrence .

Proposed Ordinance

The power of expulsion of candidates for the entire examinations of paper as specified in Section 4 of the NEHU Ordinance OD-6 in respect of unfair means detected in the Examination Hall and the premises of the Centre shall vest in the Officer in-charge of the Centre who shall decide the matter with the help of a Centre Discipline Committee formally constituted for the purpose and shall re-recommend the matter immediately to the Controller of Examinations along with all incriminating materials for the consideration of the NEHU Discipline Committee.

A candidate shall not be forced to give a statement but the fact of this having refused to make a statement shall be recorded by the Officer in-charge and shall be got attested by two other members of the Supervisory Staff, if on duty, at the time of occurrence.

That decisions regarding the quantum of punishment beyond one year and other reported offences shall vest in the NEHU Discipline Committee.

Contd./.../-

Existing OrdinanceProposed Ordinance

- |   |   |
|---|---|
| <p>iii) The entire examination of the candidate in respect of which he is found to have used unfair means specified in clause g of paragraph 4 be cancelled and the candidate shall be disqualified from appearing at any University examination for a period of one year.</p>                                    | <p>Deleted</p>  |
| <p>iv) The entire examination of candidate in respect of which he/she is found to have used unfair means specified in Clauses h, i, j, k, l, m, n, o of paragraph 4 be cancelled and the candidate shall further be disqualified from appearing at any University examination for a period of one year (1+1).</p> | <p>The entire examination of candidate in respect of which he/she is found to have used unfair means specified in Clauses h, i, j, k, l, m, n, o of paragraph 4 be cancelled and the candidate shall further be disqualified from appearing at any University examination for a period of one year (1+1).</p> |
| <p>v) The entire examination of a candidate in respect of which he/she is found to have used unfair means specified in Clauses p and q of paragraph 4 be cancelled and the candidate shall further be disqualified from appearing at any University examination for a period of two years (1+2).</p>              | <p>The entire examination of a candidate in respect of which he/she is found to have used unfair means specified in Clauses p and Q of paragraph 4 be cancelled and the candidate shall further be disqualified from appearing at any University examination for a period of two years (1+2).</p>             |

The meeting ended at 1:00 p.m. with a vote of thanks from the Chair.

Sd/-  
 (Prof. A.L. Verma )  
 Chairman  
 Dean, School of Physical Sciences.

Sd/-  
 (A. Patton )  
 Convener  
 Controller of Examinations

.....

Existing OrdinanceProposed Ordinance

c) A candidate detected or suspected to be using unfair means in the examination, shall be permitted to answer the remaining part of the question paper, but on a separate answer book and the answer book in which the use of unfair means is suspected shall be seized by the Officer in-charge, who shall send the answer books to the Controller of Examinations with his report.

Deleted

d) All cases of use of unfair means specified in Clauses d, e, l, n, o, q of paragraph 4 shall be reported immediately to the Controller of Examinations by the Examiner, paper-setter, evaluator or the person connected with the University Examination as the case may be, with all the relevant materials.

All cases of use of unfair means specified in Clauses d, e, l, n, o, q of paragraph 4 shall be reported immediately to the Controller of Examinations by the examiner paper-setter, evaluator, tabulator, tabulator or the person connected with the University Examination as the case may be, with all the relevant materials.

i) The Examination for the session or paper in respect of which a candidate is found to have used unfair means specified in clauses (a) and (b) of paragraph 4 be cancelled.

The Examination for the session or paper in respect of which a candidate is found to have used unfair means specified in clauses (a) and (b) of paragraph 4 be cancelled.

ii) The paper or the entire examination of a candidate in respect of which he/she is found to have used unfair means specified in clauses c, d, e, f and g of paragraph 4 be cancelled.

The paper or the entire examination of a candidate in respect of which he/she is found to have used unfair means specified in clauses c, d, e, f and g of paragraph 4 be cancelled.

5:6:1:(1)

- 5:6 - Establishment of new Departments/Centres/Courses  
(i) Establishment of Post-Graduate Department  
of Commerce at Shillong.

As desired by the Academic Council in its 37th meeting, a Committee consisting of (1) Dean, School of Social Sciences, (2) Prof. R.L. Walli and (3) Dr. K. Bez was constituted by the Vice-Chancellor to examine the possibility of starting a Post-Graduate Department of Commerce in Shillong during the 8th Plan Period.

The Report submitted by the Committee is placed at Annexure - A for consideration of the Council.

Report of the Committee on P.G. Department of Commerce at Shillong.

1. The Committee noted that there has been a suggestion from the Govt. of Meghalaya and a representation from some Commerce graduates requesting the University to start the Commerce faculty in Shillong Campus which were considered by the Academic Council.
2. The Committee also noted that in Shillong there is a full fledged Commerce College and at least two other colleges with Commerce Streams.
3. The Committee found that infrastructure in Shillong is conducive at Commerce education.
4. It also found that the Commerce graduates from colleges in Shillong are not inclined to go to Kohima to join M.Com programme. In fact, during past few years they have either joined other courses (e.g. M.A. in Eco) in Shillong campus or gone to other Universities, or even discontinued their studies.

In view of the above, the Committee recommends that the University may open the Post-graduate Department of Commerce at Shillong Campus.

The Requirement during 8th Plan

A.	Faculty	:	Professor	:	2
			Reader	:	4
			Lecturer	:	4
B.	Supporting Staff	:	Jr. Steno	:	1
			L.D.C.	:	1
			Peon	:	1
C.	Library	:	Rs. 100,000		
D.	Building	:	Head's Room	:	1
	(1st Phase) Office	:		:	1
	Class Rooms	:		:	4
	Faculty Rooms	:		:	10
	Committee Rooms	:		:	1
	Common Room	:		:	1

Sd/ K.-Bez  
Head,  
Department of Economics

Sd/ R.L. Walli  
Head,  
Department of Pol. Sciences

Sd/ (J. B. Bhattacharjee)  
Dean  
School of Social Scs

5:7 - Affiliation, etc.

- (i) Introduction of new subjects in B.A., P.U., Arts and P.U. Science in Don Bosco College, Tura.

Don Bosco College, Tura has applied for permission to introduce Garo (Elective) at B.A level, Garo (Elective) and Bengali (M.I.L) at P.U. Arts and Statistics at P.U. Science level. The report of the Inspection Committee is as follows:

" We recommend that provisional affiliation may be granted to Garo (Elective), Bengali (M.I.L) and P.U. Arts level and Statistics at P.U. Science level, and upgrade Garo (Elective) to B.A level for a period of three years, from 1989-1992.

We also recommend that in view of submission of application of the College for Affiliation as early as 1987, the students may be allowed to sit in the examinations held in 1989 in Garo (Elective), Bengali (M.I.L) in P.U. Arts, Statistics in P.U. Science and Garo (Elective) in B.A.

The matter is placed for consideration of the Council.

(ii) Provisional affiliation of  
Aizawl North College, Aizawl -

Aizawl North College, Aizawl applied for provisional affiliation for starting P.U.(Arts) course. The Inspection Team recommended as follows :-

"The College may be granted provisional affiliations as it would help them to get grants and other facilities from the Government of Mizoram, however, before granting them final affiliation another inspection may be carried out to ensure that the management has rectified some of the observations made by the Inspection team."

Another inspection is yet to be carried out.

The Inspection Team also made the following observations :-

1. The number of students in PU I Year and PU II year in English, Education, Pol. Science and Mizo is very large for one section. Either they should be divided into sections or the number of new admissions restricted to about 150.
2. Subjects like History and Economics appear to attract fewer students compare to other subjects while admitting students a more equitable distribution may be attempted to avoid overcrowding in some classes.
3. The Inspection Team spoke to some Lecturers and they appear to be competent in their subjects.
4. The Library may suffice as a stop gap arrangement but must be expanded in the near future, with more emphasis on text books and subscription to all India newspapers and journals.
5. The Geography Laboratory must become functional soon in the interests of the students. The Inspection Team, however, appreciates the difficulties faced by the Principal in getting the required apparatus and is satisfied with the undertaking given by the Principal of the college."

Temporary affiliation has been granted with the approval of the Vice-Chancellor without specifying the period as subject to ratification by the Academic Council.

The matter is placed for consideration of the Council.

....

- (iii) Provisional affiliation of Nongstoin College, Nongstoin ..

Nongstoin College, Nongstoin, which was granted affiliation in 1981 for P.U.(Arts) applied for up-gradation and for affiliation for starting B.A. course with English, MIL(Khasi), Second Language(Khasi), Economics, Political Science, Education, History and Sociology. The Inspection Team recommended as follows :-

"We recommend provisional affiliation of and up-gradation to B.A.(Pass) in English, MIL(Khasi), Second Language(Khasi), Economics, Political Science, Education, History and Sociology for a period of 3(three) years, within which period the college should complete the construction of the college building and the recruitment of adequate number of teachers as laid down in the University Ordinance."

The matter is placed for consideration of the Council

...

- (iv) Provisional affiliation of  
Government Aizawl College,  
Aizawl -

The Government Aizawl College, Aizawl, which was granted provisional affiliation to conduct P.U. courses in Arts and Commerce and also B.A. has applied for starting P.U.(Science) courses. The Inspection Committee recommended as follows :-

"The Committee recommends affiliation for teaching of Science subjects at the P.U. level since the infrastructural facilities and staff are adequate.

For further improvement in the laboratory set up and the library facilities, the Committee proposed a few modifications which the Principal accepted for immediate implementation."

The matter is placed for consideration of the Council.

...

- (v) Provisional affiliation of Raid Laban College, Shillong - - - up-gradation from P.U.(Com) to B.Com. -

Raid Laban College, Shillong, which was granted provisional affiliation in 1986 to conduct P.U.(Com) course, has now sought provisional affiliation for starting B.Com. course. The Inspection Committee recommended as follows :-

" The Committee recommended for opening of degree course in Commerce leading to B.Com. degree from the coming Academic session. The college authority is prepared to appoint atleast two other lecturers in Commerce stream. Although the number of books are comparably less but basix text books are available in the library. In view of growing need of commerce graduates, the Inspection Committee felt happy with the effort of the College Authority in raising to B.Com. level."

The first proviso to Clause 9(1) of Ordinance OB-6 provides that "the request from a Pre-University College to start degree classes will be considered only if the results in the Pre-University classes in the concerned subject has been satisfactory during the three preceding years and subject to such other conditions as may have been laid down in the Regulations." As per the information furnished by the college the percentage of pass and the number of candidates in the last three years are as follows :

No. of candidates appeared	No. of candidates passed	Percentage of pass
1986 - 4	3	75%
1988 - 18	8	44.4%
1989 - 25	21	84%

The matter is placed for consideration of the Council.

...

- (vi) Provisional affiliation of  
St. Anthony's College, Shillong -

St. Anthony's College, Shillong applied for provisional affiliation for starting Geology <sup>(Hons)</sup> subject at the B.Sc. level. The Inspection Committee recommended as follows :-

" In-troduction of B.Sc.(Honours) in Geology is recommended provisionally for 3 years with effect from 1989 academic session."

The matter is placed for consideration of the Council.

....

(v.) Provisional affiliation of Public College of Commerce, Dimapur.

Public College of Commerce was established in 1985 and regular classes in P.U. Commerce started from 10.6.85 with the following subjects :

English, Alt. English, MIL, Book Keeping, Commercial Arithmetic, Business Method, Commercial Geography, Economics, Secretarial Practice, Salesmanship and Publicity.

The College applied for affiliation on 11.3.87 and an Inspection Team was sent on 21st Sept. '88. The Inspection Report received on 23rd Sept/89 recommended for provisional affiliation for 3 years with the following conditions :

1. Principal and some full time teachers to be appointed in due course.
2. Library should be strengthened.
3. The Governing Body should be reconstituted as per norms intimated to the College already- (copy of the report dt.20.3.89 enclosed).

The Secretary of the College has intimated that a full time Principal has since been appointed and Principal of the College informed that full time teachers have been appointed and Library has been strengthened with sufficient number of text books. The Governing Body of the College has been reconstituted as per NEHU norms . The College has land of its own and land and buildings of Dimapur College both East and West Blocks will be transferred to Public College of Commerce when Dimapur College is shifted to its Campus.

The matter is placed for consideration of the Council.

5:8 - Others

- (i) **Nomination of external experts in the School Board.**

In terms of clause 1(vii) of Ordinance OA-7 on the Board of Schools 5 external experts are to be nominated as members of the School Board by the Academic Council.

The panel of experts for the School Board of Social Sciences are submitted to the Council for consideration.

1. Prof. H. Horam,  
Department of Political Science,  
Manipur University, Imphal.
2. Prof. R.D. Munda,  
Department of Tribal Languages,  
Ranchi University, Ranchi.
3. Prof. K. Alam,  
Department of Economics,  
Bhagalpur University,  
Bhagalpur.
4. Prof. B. Pahi,  
Department of Philosophy,  
Rajasthan University,  
Jaipur.
5. Prof. H. S. Kulashrestha,  
Department of Commerce and Business  
Administration, H. P. U., Simla.

- (ii) Donation of Rs.25,000/- by  
Mr. Justice V.R. Krishna Iyer,  
Former Judge, Supreme Court -

Mr. Justice, V.R. Krishna Iyer, Former Judge, Supreme Court donated a sum of Rs.25,000/- to NEHU for utilisation by the University for one of the two causes. (1) The annual proceeds from investment of the amount of Rs.25,000/- may be used for a Prize to the best lady student in Political Science at the Master's Degree level. The consideration is that his wife, Late Smti. Sarada Krishna Iyer, was a student of Political Science in the Delhi University but could not complete her Degree Course because she was plucked away by death. (2) Alternatively, the interest that may be accrued from the deposit of Rs.25,000/- may be devoted for an Annual Lecture by the Nehru Club on any subject the Vice-Chancellor may choose. Mr. Justice Iyer further stated that the University's appropriate authority may choose to spend the money for one or the other of the two purposes mentioned above. The letter of Mr Justice Iyer may be seen at Annexure - A.

The matter is placed for consideration and decision of the Council.

...

5:8:2:(2) ANNEXURE-'A'

V.R.Krishna Iyer  
(Former Judge, Supreme Court)

Phone: 360088  
"Satgamaya"  
M.G.ROAD, ERNAKULAM  
COCHIN-682011

22nd November 1989

Dear Dr. Iqbal Narayan,

I write this note to express my satisfaction that by the settlement of the dispute the 'NEHU' has been liberated from litigation. Now I look forward to a future for the 'NEHU' where its energies will be constructively utilized.

You may recall that I had casually expressed the view that I would like to donate Rs.25,000/- to the NEHU to be utilized by the University for one of the two causes. Either the annual proceeds from investing this amount of Rs.25,000/- may be used for a Prize to the best Lady Student in Political Science at the Masters Degree level or the Interest from the sum of Rs.25,000/- may be devoted for an Annual Lecture by the 'Nehru Club' on any subject the Vice Chancellor chooses. The first thought of a lady student being given a prize came to my mind only because, my wife Late Smt. Sarada Krishna Iyer was herself a humble student of Political Science in the Delhi University who could not complete her Degree Course because she was plucked away by death betimes. However the University's appropriate authority may choose to spend the money for one or the other of the two purposes mentioned above. I am drawing a crossed cheque and enclosing it herewith which may kindly be received and acknowledged.

With warmest wishes to you and Prof. Michael,

Yours sincerely,

Sd/-V.R.KRISHNA IYER

Encl: cheque No.236020

To,

Dr. Iqbal Narayan,  
North-Eastern Hill University,  
Shillong.

(iii) Introduction of Higher Secondary Education (+ 2 stage) in the school system of education in Meghalaya -

The Government of Meghalaya decided to introduce the Higher Secondary Education (+ 2 stage) commencing from the academic session of 1990-91. The present Meghalaya Board of School Education will have jurisdiction over the Higher Secondary Stage of Education. The letter of the Government of Meghalaya No.EDN;397/87/53 dated 5.12.89 addressed to the Vice-Chancellor and the Notification issued by the Government may be seen at Annexures - A & B respectively.

The National Education Policy envisages reversion of the + 2 stage of education from the collegiate education to the school system of education.

The second proviso to Clause 3(2) of Ordinance OB - 6 on the Affiliation of Colleges provides that "the University may recognise the Higher Secondary School for the purpose of teaching of courses at the Pre-University level corresponding to the +2 stage of the new system till such time as the concerned Secondary Boards are able to make suitable arrangements for re-recognition of the schools and conduct of +2 examinations." The third proviso of the same Clause provides further that "after the unit decides to introduce 10 + 2 structure in the school system, the University shall not extend privilege to any college other than those already enjoying that privilege to provide instruction at the P.U. level. The colleges will gradually shed their Pre-University courses."

The matter is placed for consideration of the Council whether the +2 stage (Pre-University Education) may be passed on to the Meghalaya Board of School Education to enable the State of Meghalaya to take necessary action as per their Notification.

The Pre-University Education in the State of Nagaland will pass on to the Nagaland University as soon as it starts functioning. The State of Mizoram may also perhaps be urged upon to take over the +2 stage of education from the management of the University.

GOVERNMENT OF MEGHALAYA  
EDUCATION DEPARTMENT

No: EDN:397/87/53

Dated Shillong, the 5th December, 1989

From

Shri P.J. Bazeley, IAS,  
Spl. Secretary to the Govt. of Meghalaya,  
Education Department.

To

The Vice-Chancellor,  
North-Eastern Hill University,  
Lower Lachumiere,  
Shillong.Sub: Introduction of Higher Secondary Education(+2 stage)  
in Meghalaya.

Sir ,

I am directed to inform you that it has been decided by State Govt. to introduce Higher Secondary Education (+2 stage) in a phased manner, in Meghalaya, commencing from the Academic Session 1990-91. For such purpose, it is proposed to issue a notification under Section 4 of the Meghalaya Board of School Education Act, 1973, extending jurisdiction of the Meghalaya Board of School Education over the higher secondary stage of education. The education curriculum and syllabus of school education in the State is simultaneously being revised in keeping with the guidelines drawn up under the National Policy of Education, 1986, with introduction of Class-XI and Class-XII, in a phased manner. While it is proposed to introduce the new syllabus and curriculum in a phased manner, commencing from the academic session 1990, introduction of the new Class-XI and the new Class-XII is phased for 1993 & 1994 respectively. Consequently, it is proposed that the MBOSE should conduct the present Pre-University level examinations for the academic session 1990-91 onwards on the basis of the existing curriculum and syllabus as specified for the Pre-University level by NEHU, pending introduction of the new curriculum and syllabus as above.

It is further proposed to issue suitable instructions to all colleges undertaking Pre-University level teaching in the State calling upon them to get themselves suitably affiliated with the Meghalaya Board of School Education, in so far as the aforesaid Pre-University (+ 2 stage) of classes and conduct of examinations are concerned.

Contd/.../-

5:8:3:(3)

It is, therefore, requested that in the event of NEHU having any reservations on the measures proposed above, such a reservations may kindly be communicated to this department within a fortnight, as it is proposed to issue the proposed notification and direction in the above regard before the ensuing Christmas Holidays.

Kindly acknowledge receipt.

Yours faithfully,

Sd/-Illegible

Spl. Secretary to the Govt. of Meghalaya  
Education Department

Memo No. EDN. 397/87/53-A, Dt. Shillong, the 5th December, 1989.

Copy to:

1. Director of Public Instruction, Meghalaya, Shillong for information and necessary action.
2. Principals of all Govt./Deficit/Aided /Adhoc colleges in Meghalaya for advance information.
3. The Secretary, Meghalaya Board of School Education, Tura, for advance information.

Sd/-Illegible

Spl. Secretary to the Govt. of Meghalaya  
Education Department.

Annexure - B

GOVERNMENT OF MEGHALAYA  
EDUCATION DEPARTMENT

ORDERS BY THE GOVERNOR

NOTIFICATION

Dated Shillong, the 8th February, 1990.

No.EDN.397/87/55 - In exercise of Powers conferred under sub section (4) of section 1 of the Meghalaya Board of School Education Act, 1973 (Act No.10 of 1973), the Governor of Meghalaya is pleased to order that the jurisdiction of the Meghalaya Board of School Education shall also extend over the Higher Secondary stage of Education in the State with immediate effect.

Sd/-  
G.P. Wahlang,  
Secretary to the Govt. of Meghalaya,  
Education Department.

----

Memo No.EDN.397/87/55-A Dt. Shillong, the 8th February, 1990.

Copy to :-

1. The Director, Printing and Stationery, Meghalaya, Shillong for favour of publication in the Meghalaya Gazette.
2. The Director of Public Instruction, Meghalaya, Shillong.
3. The Vice-Chancellor, North-Eastern Hill University, Lower Lachhaumiere, Shillong.
4. The Secretary, Meghalaya Board of School Education, Tura.
5. All Principals of Colleges in the State.
6. All Inspectors of Schools in the State.

By orders etc.,

Sd/-  
Secretary to the Govt. of Meghalaya,  
Education Department.

...

Item No. 6 ADMINISTRATIVE MATTERS :

6:7 - Others -

(i) Reservation of seats for SC/ST  
in the hostels -

According to the instructions of the Govt. of India, 22½% of seats in the hostels are to be reserved for SC/ST students. The University has not so far taken a decision in the reservation of seats in the hostels. The University has, however, decided to reserve 40% of the seats for admission of SC/ST candidates in the University. In the matter of recruitment of non-teaching staff, 44% are reserved for Scheduled Tribes and 1% is for SC candidates in the State of Meghalaya. There is no reservation of seats or posts in the States of Nagaland and Mizoram for students or candidates belonging to the Scheduled Castes.

The Standing Committee on SC/ST of the University in its meeting held on the 19th February, 1990 recommended that 40% of the hostel seats may be reserved for students belonging to ST/SC. If sufficient number of SC/ST candidates <sup>from SC/ST</sup> are not available for admission in the hostels, the hostel seats will be filled by students belonging to other categories without leaving the hostel seats vacant.

The matter is placed for consideration of the Council.

....

5:8:1:(1)

(ii) School Board of Library and Information Sciences

1. Prof. P.B.Mangala,  
Department of Library and Information Science,  
Delhi University, Delhi 110 007.
2. Prof. R.K.Rout,  
Department of Library and Information Science,  
Sambalpur University, Sambalpur Orissa 768 019.
3. Prof. A.P.Srivastava,  
University Librarian, University of Delhi,  
Delhi 110 007.
4. Dr. P.B.Barua,  
Prof. and Head, Department of Library and  
Information Science, Bardwan University,  
Bardwan
5. Prof. Krishna Kumar,  
Department of Library and Information Science,  
University of Delhi, Delhi.

## (viii) Affiliation of NERIST by NEHU -

The Director, North-Eastern Regional Institute of Science and Technology, Itanagar requested NEHU by his letter dated 21. 2.90. at Annexure- 'A' to affiliate NERIST initially for a period of three years to enable the students admitted to Degree Programme to graduate with a Degree of NEHU. The Institute admitted students to the first module programme in July 1986 through an entrance test to the courses indicated below. The second batch of students were admitted in June, 1988 and admissions to third module is scheduled to be made in July, 1990.

Courses (first module)

Technology : Computer Application  
 Construction Technology  
 Maintenance Engineering (Electrical)  
 Maintenance Engineering (Electronics)  
 Maintenance Engineering (Mechanical)

Applied Science: Horticulture and Plantation Crops  
 Forestry Science.

(second module)

Electronics Engineering  
 Computer Science  
 Civil Engineering  
 Electrical Engineering  
 Mechanical Engineering  
 Agricultural Engineering  
 Forestry.

The NERIST Bill (Acts & Statutes) is still pending with the Ministry of Human Resource Development and is likely to be delayed further. The Ministry, therefore, advised that NERIST may seek affiliation with NEHU as an interim measure for a few years till NERIST Bill is passed by Parliament. The Institute has agreed to abide by the NEHU Rules and Regulations.

The request of the NERIST for affiliation is placed for consideration of the Council.

Annex - 1

NORTH EASTERN REGIONAL INSTITUTE OF SCIENCE & TECHNOLOGY.  
(Sponsored by Government of India)

ITANAGAR-791110  
ARUNACHAL PRADESH

DIRECTOR

Ref. DIR/2/89  
Date.21.2.90.

Dear Prof. Iqbal Narain,

The Government of India through the North Eastern Council is setting up North Eastern Regional Institute of Science & Technology at Itanagar, Arunachal Pradesh. This institution is conceived as an unique institution offering sequence of modular programmes leading to Certificate, Diploma and Degree in Engineering/Technology and Applied Sciences. The admission to the first module programme leading to Certificate was made in July 1986 through an entrance test in the following disciplines :

Technology : Computer Application  
Construction Technology  
Maintenance Engineering (Electrical)  
Maintenance Engineering (Electronics)  
Maintenance Engineering (Mechanical)

Applied Science : Horticulture and Plantation Crops  
Forestry Science.

The Admission to second module leading to Diploma programme was made in June 1986 in the following disciplines:

Electronics Engineering  
Computer Science  
Civil Engineering  
Electrical Engineering  
Agricultural Engineering  
Forestry.  
Mechanical Engineering

All those studying Diploma module are expected to complete in June 1990. The Certificate and Diploma programmes have been recognised by the Government of India, Department of Education. The admissions to third module leading to Degree shall be made in July 1990.

Contd.2/-

NERIST was envisaged as an autonomous institution with powers to award its own Degree/Diplomas under Act of Parliament. When the first batch of students was admitted for Base module programme four years ago, it was thought that by the time the Certificate and Diploma module students graduate, the Ministry of Human Resource Development would get the Acts and Statutes passed by the Parliament. It has, however, taken much longer than expected. The NERIST Acts and Statutes Bill is still pending with the MHRD (Dept. of Education) and there is likelihood of further delay. Since the Institute is to admit students to degree module programme in July 1990, it has, therefore, been decided by the Ministry that the NERIST may seek affiliation to a Central University, North Eastern Hill University for a few years as an interim arrangement. As soon as the NERIST Bill is passed by the Parliament, the Institute shall start functioning within the frame work of its own Act and Statutes. I am, therefore, requesting NEHU to consider our request and affiliate NERIST initially for a period of three years, so that the students who are to be admitted to Degree programme shall graduate with a degree of NEHU. It is desirable that your decision may be communicated to us as early as possible, but not later than 31.3.90. For completing the formalities the Institute will move papers according to rules and regulations of NEHU.

Thanking you and looking forward to receiving your favourable reply at an early date.

With regards,

Yours Sincerely,

Sd/-Prof.D.S.Varma.

Prof. Iqbal Narain,  
Vice-Chancellor  
North Eastern Hill University  
Shillong.

Encl : Govt. of India letter No.F.25-1/81-T.5 dt.12.9.85.  
Kindly see the portion enlightenend at para 11 of Page-4.

No.F.25-1/81-T.5  
Government of India  
Ministry of Education

New Delhi, the 12th September 1981.

To

The Secretary,  
North Eastern Council,  
Shillong-793 001

Subj:- Establishment of North Eastern Regional Institute  
of Science & Technology, Itanagar-Approval for -

Sir,

I am directed to state that the proposal of the North Eastern Council, Ministry of Home Affairs, on the above mentioned subject has been considered and approval of the Government of India is conveyed for the establishment of North Eastern Regional Institute of Science and Technology at Itanagar, Arunachal Pradesh with the necessary facilities and the stipulations as given in the subsequent paragraphs.

2. The educational programmes of the Institute have been designed on a modular pattern, consisting of two years courses at three different levels viz. certificate courses, diploma courses and degree courses. The Institute will offer the following courses in a phased manner over a period of 10 years:

- (i) 10 Certificate Courses
- (ii) 10 Diploma Courses
- (iii) 4 Degree Courses in Applied Sciences
- (iv) 11 Degree Courses in Engineering and Technology.

There will also be provision for lateral entry into the Diploma course after 10+2 of equivalent and Degree course after B.Sc. or Polytechnic Diploma or equivalent with the provision of bridge courses of specific durations. The institution of Degree Courses would be subject to appraisal and concurrence of Planning Commission and would be taken up only after the first batch of the diploma courses has passed out. The Certificate Courses would be started by the Institution in the current year.

3. The job opportunities shall be taken into account in designing the courses so that those who qualify at the various levels do not have to remain without employment once they come out of the Institution. Devetailing of skills required, whether for self-employment or jobs, with education, training and skills imparted, shall be duly ensured by the Institute.

contd.2/-

The overall Non-Recurring estimates for the establishment of the Institute will be as under :-

	<u>Rs.in lakhs(Approx.)</u>
(i) Accommodation	2004.41.
(ii) Equipment	890.00
(iii) Library	35.00
(iv) Vehicle	20.50.
(v) Furniture	84.00.
	<hr/>
	3033.91.

or say Rs.30.35 Crores.

The details of buildings, equipment, Library, furniture and vehicles are given in Annexure-I. The cost given as above was estimated at the time of the formulation of the project. The cost shall, therefore, be subject to the escalation of the prices as well as to higher cost because of hilly region and consequently upward revision as per the recommendations of the Management Committee of the Institute and the approval of the Administrative Ministry.

5. The total recurring expenditure of the Institute would be Rs.2.00 crores per annum ultimately. The recurring expenditure includes the expenditure on teaching staff, supporting technical staff, administrative staff and other recurring items of expenditure including consumables, maintenance, travelling and other allowances etc. The actual grants would be released subject to these ceilings and on fulfilment of the necessary norms and standards applicable on the various items of expenditure.

6. The Institute will be established as a Central Sector Scheme of the Ministry of Education with the funding being done through the North Eastern Council for which appropriate linkages would be established between the Ministry of Education, Ministry of Home Affairs and North Eastern Council. The recurring expenditure at the end of each Plan period would be taken over by the Ministry of Education and included in its normal Non-Plan budget of the Central Schemes. The recurring expenditure for each Plan period, however, would be borne by the North Eastern Council. The manner in which the transfer of funds from North Eastern Council to Ministry of Education would be best done shall be decided at the first inter-Departmental meeting between the Ministry of Education, Ministry of Home Affairs and North Eastern Council which shall be convened immediately.

7. There will be an intake of 30 students for each course at all levels i.e. Certificate, Diploma and Degree. However, in the case of Degree courses the intake could be increased, wherever necessary, depending upon the increased requirement so as to avoid the duplication of these costly facilities somewhere else. The increase in intake in the degree courses may also help in maintaining the effective teacher student ratio of 1:8. The initial intake in the Institute would be 124 students and when the Institute fully develops the total enrolment is expected to be 2250 or more.

8. The Courses at the two lower levels, i.e., Certificate and Diploma will be terminal and at the same time there will be continuity at both these levels. Certain percentage of students will be siphoned out either voluntarily or compulsorily. At the same time, others who are keen and have the necessary capability can go up the ladder, through appropriate bridge courses, to the degree level.

9. Faculty of the proposed Institute would be as follows.

(i) Director	1
(ii) Deans/Professors	62
(iii) Asst. Professors/ Heads of Departments	123
(iv) Lecturers/Others	310
	<hr/>
	496

The full complement of posts proposed to be created may be seen at Annexure-II. The student-teacher ratio has been kept on the lower side because of the fact that the Institute would be conducting, besides the regular courses, appropriate bridge courses to enable some students to join the next level of higher courses. In addition, the Institute would have to cater to the diverse requirements of the Region for which a large

number of electives would be offered in the courses at all level, i.e., Certificate, Diploma and Degree. Adding all these additional loads, the ratio would come up to the acceptable norm generally obtaining in other technical institutions of the same level in the Country. However, at the time of sanctioning the necessary staff the Management Committee of Institution, Ministry of Education and all other concerned will ensure that the effective teacher student ratio for the various courses would be as follows :

(i) Certificate Courses	1:12
(ii) Diploma Courses	1:10
(iii) Degree Courses	1:8

The full complement of staff will be recruited subject to the fulfilment of the above teacher student ratio. As such the recruitment of the faculty at any point of time will be as per the student strength. Total complement of faculty, mentioned above, would act as a ceiling. The inter-se ratio of teachers shall be as recommended by the Madan Committee on staff structure in technical institutions. So far as Degree courses are concerned, the ratio of Prof: Asstt. Prof : Lecturer will be 1:2:4. In respect of Diploma and Certificate Courses, the ratio of senior teacher; junior teacher will be 1:3. The grouping of teachers among senior and junior shall be as per general norms and recommendations of the Management Committee.

10. The non-teaching, administrative and supporting staff shall be as given in the project report of the Institution. The expenditure on the non-teaching and other supporting and administrative staff shall, however, not exceed 40% of the expenditure on the teaching staff.

11. The Institute will be autonomous in character and registered as a Society under the Societies' Registration Act. The administrative and Academic matters of the Institute will be managed by a Board of Governors (Management Committee). The Management Committee shall consist of representatives of the 7 States/ Union Territories of the Region and concerned Departments of the Government of India, besides eminent scientists/technologists. There will also be a close association between the Institute and the other Universities/ Institutions in the North East Region to correlate the courses with the well-defined and well established needs and to avoid duplication and overlapping. // Pending the attainment of Statutory status, the qualifications awarded by the Institute shall be recognised by the Ministry of Education through notifications at the appropriate time.

12. Recommendations of the Management Committee of the Institute, wherever necessary, will be discussed in the inter-Departmental meetings among the Ministry of Education, North Eastern Council and Ministry of Affairs, before releasing grants or taking any other major decision.

13. All other requirements, facilities and related matters of the Institute, not specified herein, shall be governed by the position given in the project report subject to the modifications, wherever considered necessary, by the Management Committee and as approved by the Nodal Ministry.

14. This issues with the approval of Integrated Finance Division of the Ministry.

=  
Kindly acknowledge receipt.

Yours faithfully,

sd/-S.K.HANDA  
DEPUTY EDUCATIONAL ADVISER(T)

// In due course, the Institute will be conferred University status through an Act of Parliament so that it can award its own degrees and other qualifications.

Contd.5/-

Copy to:

1. Lt. Governor, Arunachal Pradesh, Itanagar.
2. Ministry of Home Affairs,  
(Shri. R. Vasudevan, Joint Secretary  
Miss Neeru Nanda, Deputy Secretary)  
North Block,  
New Delhi.
3. Planning Commission,  
(Shri. J. Veeraraghavan, Adviser (Education)  
Dr. Bhupinder Singh, Adviser (SP)  
Yojana Bhavan,  
New Delhi.
4. Department of Science & Technology,  
New Mehrauli Road,  
Technology Bhavan,  
New Delhi.
5. The Director  
(Dr. P. R. Singupta)  
North Eastern Regional Institute of Science &  
Technology, Itanagar (Arunachal Pradesh).
6. All Regional Offices of the Ministry at Calcutta  
Bombay, Kanpur & Madras.
7. Integrated Finance Division with reference to  
their U.O. No. 9754-G/85-IFD dated. 10th September  
1965.

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