

Part-II

**AGENDA PAPERS FOR THE 88th MEETING OF THE ACADEMIC COUNCIL
TO BE HELD ON 21st June, 2012**

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5:1:6: (1)

Item No. 5 ACADEMIC MATTERS :

5:1: Statute~~s~~/Ordinance/Regulation & Rules

(vi). Amendment of Statutes/Ordinances – NEHU.

In term of provisions laid down under Statute 41 (5) & (6) of the NEHU, Act, 1973, the Ordinances /Regulations were notified vide notification No. F.Conf/ 13-5/ Ord /99 (Vol. IV) – 169, dated 21st November, 2011.

Meanwhile a comments received on the Ordinance /Statute- NEHU from Ministry/ UGC is placed at Annexure 'A'.

The matter is placed before the Council for consideration.

S: 1:6(2)

Annexure 'A' 1207/127

Bv Speed Post/Fax

No F. 8-4/2011-Desk U
Government of India
Ministry of Human Resource Development
Department of Higher Education

New Delhi Dated 14.05.2012.

✓ To,

Sh. L. Roy,
Registrar,
North Eastern Hill University,
NEHU Campus, Shillong- 793022.

DR (Conference)

Sub: Amendment of Statutes / Ordinances – North Eastern Hill University

Sir,

I have been directed to refer to your letter no. Conf/13-5/Ord/99(Vol.IV) of different dates on the subject mentioned above and to say that comments of the University on Serial no. 7 of UGC letter no. 7-4/2007 (CU) dated 26.12.2011, sent vide undersigned letter dated 14.02.2012 (copy enclosed) has not been received so far. Further, UGC vide their letter dated 16.04.2012 (copy enclosed) has also advised some modifications/ additions on the amendments proposed by University in the Statutes/ ordinances.

It is therefore, requested that comments of the University may kindly be furnished at the earliest to enable the Ministry to process the proposal of University and submit the same for consideration and approval of the Visitor. It is also requested that proposal of amendment in Statutes/ Ordinances, incorporating the advice/ suggestion of UGC may please be furnished in following format.

Statute / Ordinance No.	Existing Statute / Ordinance	Proposed amendment	Statute/ Ordinance after amendment

Amendments may also provided through mail ramjipandey.edu@nic.in.

Encl : As above

Yours faithfully

(Ramji Pandey)

Under Secretary to the Govt. of India

Tel: 011-23384412

S:1:6(3)

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Bv Speed Post/Fax

No F. 8-4/2011-Desk U
Government of India
Ministry of Human Resource Development
Department of Higher Education

New Delhi Dated 14.02.2012.

To,

Sh. L. Roy,
Registrar, NEHU,
Shillong- 793022.

Subject: Amendment of Ordinances / Statute – North Eastern Hill University

Sir,

111(c) P-10
I have been directed to refer to your letter no. Conf/13-5/Ord/99(Vol.IV)-154 dated 19.10.2011 on the subject mentioned above and to request that comments of the University on Serial no. 7 of UGC letter no. 7-4/2007 (CU) dated 26.12.2011 (copy enclosed) may kindly be furnished at the earliest to enable the Ministry to process the proposal of University and submit the same for consideration and approval of the Visitor.

Yours faithfully

Encl : As above

(Ramji Pandey)
Under Secretary to the Govt of India
Tel: 011-23384412

S: 1: 6(4)

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23236735/ 23239437/23235733 23232701 23237721/ 23232317/23234116/ 23236351 UGC website- www.ugc.ac.in	 ब्रह्म-विज्ञान विमुक्तये	UNIVERSITY GRANTS COMMISSION BAHADURSHAH ZAFAR MARG NEW DELHI-110002 विश्वविद्यालय अनुदान आयोग बहादुरशाह जफर मार्ग नई दिल्ली - 110 002
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No.F. 7-4/2007(CU)

April, 2012

✓ Snri Ramji Pandey
Under Secretary,
Government of India,
Ministry of Human Resource Development,
Department of Higher Education,
Shastri Bhawan,
New Delhi 110 001

16 APR 2012

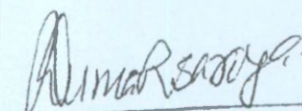
Sub:- Amendment of Ordinance / Statute – North Eastern Hill University.

Sir,

With reference to your letter No.F.8-4/2011-Desk(U) dated 07.07.2011 on the subject mentioned above, I am directed to enclose herewith the comments of the UGC for your perusal and necessary action at your end.

Yours faithfully,

Encl: As above



(A. K. Saroya)
Under Secretary

Statute 20 (2) (D) Career Advancement	As per UGC Regulation 2010 under CAS, there is a procedure for the "Screening cum Evaluation Committee" for CAS promotion of Assistant Professor / equivalent cadres in Librarian / Physical Education from one AGP to the other higher AGP. However, University has not incorporated this procedure in the proposed amendment. Therefore, University may be advised to incorporate this procedure in the proposed amendment.
Statute 20 (2) (E) Principal of a College	The Selection Committee for the post of Principal of a College is not as per UGC Regulation, 2010.
Statute 20 (2) (F) Teachers of Colleges maintained by the University	The Selection Committee for the post of Teachers of a College is not as per UGC Regulation, 2010.
Statute 20 (2) (G) Teachers of Colleges maintained by the University	UGC has no objection to the changes suggested by the University.
(3) and (4)	UGC has no objection to the changes suggested by the University.
(5)	No change has been suggested by the University.
(6)	UGC has no objection to the changes suggested by the University.
(7)	UGC has no objection to the changes suggested by the University.

Proposed Amendments to OA-6, OA-7, OA-8, OA-9, OA-11*, OA-13, OA-14, OB-5, OB-13, OC-4*, OC-5*, OC-13 and OD-9

OA-6 – on the Board of Research Studies	UGC has no objection to the changes suggested by the University.
OA-7 – on the Board of the Schools	UGC has no objection to the changes suggested by the University.
OA-8 – on the Board of Post Graduate Studies	UGC has no objection to the changes suggested by the University.
OA-9 – on the Board of Under Graduate Studies	UGC has no objection to the changes suggested by the University.
OA-13 – on the Board of Studies for Professional courses	UGC has no objection to the changes suggested by the University.
OA-14 – on the University Science Instrumentation Centre	UGC has no objection to the changes suggested by the University.
OB-5 – on the functioning of Academic Departments in the University	UGC has no objection to the changes suggested by the University.

5:11,6(6)

University Grants Commission

Amendment of Ordinance / Statute – North Eastern Hill University

Statues / Ordinances	Comments of the UGC
Statute 7 (Clause 2)	UGC has no objection to the changes suggested by the University as the changes are as per UGC Regulations, 2010 except the word "Reader" may be replaced by the word "Associate Professor".
Statute 8 Clause (1) and (2)	UGC has no objection to the changes suggested by the University.
Statute 10 A Clause xii	
Statute 12 Clause 1(v)	
Statute 13 Clause 2 (i) and 2 (ii)	
Statute 14 Clause x	
Statute 21 Clause 1	UGC has no objection to the changes suggested by the University. It is observed at in placed of "Associate Professor" a word 'A' is written due to typical error.

Proposed Amendment of the Statute 20 of North Eastern Hill University on Selection Committee :-

Statute 20 (1)	UGC has no objection to the changes suggested by the University except that the University has inserted new clause in the proposed amendment i.e. "The Selection Committee shall have the power to recommend higher initial pay or advance increments to be offered to a selected candidate in exceptional cases" which should be replaced as under. "The Selection Committee shall have the power to recommend higher initial pay or advance increments to be offered to a selected candidate in exceptional cases as per the instructions issued by Govt. of India".
Statute 20 (1) (A)	UGC has no objection to the changes suggested by the University.
Statute 20 (1) (B)	At present the Merit Promotion Scheme (MPS) do not exist. Therefore, the word "Merit Promotion Scheme (MPS)" should be deleted.
Statute 20 (2) (A)	UGC has no objection to the changes suggested by the University.
Statute 20 (2) (B)	
Statute 20 (2) (C)	

	Report" to the University with a copy to UGC. Besides, the University will furnish half-yearly feed back report to UGC.
	Any changes in the guidelines/norms/selection procedure etc of UGC/Govt. of India in future on the Adjunct Faculty shall be automatically adopted by the NEHU from time to time.
OC-13 – on correspondence course	UGC has no objection to the changes suggested by the University.
OD-9-on the North Eastern Hill University Women's Cell	No changes have been suggested by the University.

Proposed Amendment of OE-2 on the Terms and Conditions of Service of the Registrar

OE-2 – on the Terms and Conditions of the Registrar	The UGC has not formulated the Regulations on the Terms and Conditions of Services of the Registrar so far. However, as per the qualification prescribed for the post of Registrar in UGC Notification, 1998 the clause (b) should be modified as under :- "At least 15 years of experience as Lecturer (Sr. Scale / Assistant Professor with AGP of `7000 with eight years of service in Associate Professors Grade alongwith experience in educational administration". The Rest is in order.
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Proposed Amendment of OE-3 on Selection Committee Procedure

OE-3 – on Selection Committee Procedures	UGC has no objection to changes suggested by the University except that the following para may also be added under para 8 of this ordinance as under:- The selection procedure for selection of different categories of post as given in the UGC Regulation on minimum qualifications for appointments of teachers and other academic staff in Universities and colleges and measures for the maintenance of standards in Higher Education, 2010 shall be followed by the University.
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OB-13 – on Adjunct Faculty members

Para 1 to 4 of this ordinance may be replaced as under:-

Relatively younger and Mid-career professionals and specialists from such organization those under the AEC, ICSSR, CSIR, ICAR etc. With post graduate or doctoral qualification and with academic and Research credentials will be eligible for appointment as Adjunct faculty in a University Deptt. Professionals and specialists from PSU, and business corporations, especially those in their R & D cells, will also be eligible for these positions. There will be a tenure appointment for one academic year, or for two semesters. They will be offered upto Rs. 1500/- per teaching hours/session, subject to a maximum of Rs. 30,000/- per month and as amended by the UGC/Government of India from time to time. Besides the University will provide them suitable office-space to facilitate their working and interaction with student and peers.

Search/Selection procedures:-

The University shall set up search/selection committee to evaluate and finalize the name of Professionals and experts to be offered the position of Adjunct Faculty.

Assignment Description:-

During their tenure Adjunct Faculty will be expected:-

- i. To conduct a united number of P.G. classes.
- ii. To interact with P.G., M.Phil and /or Ph.D student
- iii. To conceive new area for project and M.Phil/Ph.D Research work.
- iv. To invite and participate in campus seminars and workshop
- v. To deliver a few public lectures on contemporary issues on the campus.

Monitoring:-

At the end of assignment, every Adjunct Faculty will submit a "performance

OE-4 – on Notification of vacancies and Preliminary Selection

The existing para may be replaced as under:-

The process of selection under career advancement scheme for Associate Professor, Professor shall involve inviting the 'Biodata with duly filled performance based appraisal system (PBAS) performance developed by the University based on Academic Performance Indicator (API) criteria based PBAS set out in the UGC Regulation on minimum qualification for appointment of teachers and other academic staff in universities and colleges and measures for the maintenance of standards in Higher Education, 2010.

Proposed Amendment of OE-5 on Service Conditions, Salary scales, classification and Qualification of Teachers

OE-5 On service conditions, salary and Qualification of Teachers

UGC may have no objection to the changes suggested by the University except Under clause (13, Retirement Benefit), the following may be added :
Teachers appointed on or after 1.1.2004 will be covered under the New Pension Scheme and Retirement Benefits shall be provided as per the provisions in the New Pension Scheme.

Proposed Amendment to OE-6 on Governing Leave to Teachers of the University

OE-6 – on Governing Leave to Teachers of the University

A. Permanent Teachers

UGC may have no objection to the changes suggested by the University except the following:

Under clause (4) Duty Leave, a teacher can be granted duty leave of the maximum of 30 days in an academic year. This provision has not been incorporated in the ordinance. The University may be advised to incorporate this provision in the said ordinance.

Under clause (5) (i)

Clause 5 (i) (b) is to be deleted as it is not covered in UGC regulations on Duty Leave,

5.1.6(10)

	Study Leave, Sabbatical Leave. Under clause (ii) Earned leave is not in accordance with the rules framed in the UGC Regulations, 2010. The maximum earned leave that may be sanctioned at a time shall not exceed 60 days. While the University has proposed 120 days and in the note below clause II the word "duration" is to be replaced by "amount". Under clause (8) (v) Extra – Ordinance Leave, the sentence "Extra-ordinary leave shall always be without pay", should be replaced as "Extra-Ordinary leave shall always be without pay and allowances". Under clause (11) (ii) Sabbatical Leave it should be specified "any kind of training programme of duration one year or more". Under clause (12) (iii) Maternity Leave may be combined with Earned Leave, Half Pay leave or extraordinary leave or any leave applied for in-continuation of Maternity Leave may be granted upto 2 years without medical certificate. Under clause (14) Child Care Leave the sentence "Child Care Leave can be availed only if there is no Earned Leave at credit" may be deleted. Under clause (21) (xv) for the purpose of this Ordinance, unless otherwise specified the term year shall mean as calendar year.
B. Teachers appointed on Probation	UGC has no objection to the changes suggested by the University.
C. Temporary Teachers	As per observation indicated under part (A).
D. Teachers appointed on contract	UGC has no objection to the changes suggested by the University except
E. Honorary and Part-Time Teachers	UGC vide its letter No. F.2-9-97 (PS) dated 21 st march, 1999, it was informed to all Universities that the Commission decided that no new part-time teachers be

	appointed and whenever required Guest Faculty could be appointed on per lecture basis. Therefore, there is no need to frame the Ordinance for Part-time teachers.
F. General	Under clause 22(v), under Leave Salary, the City Compensatory Allowance has also been indicated which has been discontinued from the 6 th CPC. This allowance should be deleted from this clause.

Proposed amendment of OE-8 on Terms and Conditions of service of Finance Officer

OE-8 – on the Terms and Conditions of Service of the Finance Officer	UGC has not formulated the Regulations on the Terms and Conditions of Services of the Finance officer so far. However, as per the qualification prescribed for the post of Finance Officer in UGC Notification 1998 the clause (b) should be modified as under :- “At least 15 years of experience as Lecturer (Sr. Scale) / Assistant Professor with AGP of `7000 with eight years of service in Associate Professors Grade alongwith experience in educational administration”. The post of Finance Officer is a tenure post and this provision has not been included in this Ordinance. Therefore, the following provision may be included in this Ordinance :- “The appointment for the post of Finance Officer should be on tenure basis for 5 years which may be renewed for a similar term”. The following may also be added under clause (9), “The Finance Officer appointed after 1.1.2004 will be covered under New Pension Scheme”.
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Proposed Amendment of OE-9 on Terms and Conditions of service of the Controller of Examination

OE-9 – on the Terms and Conditions of Service of the Controller of Examinations	UGC has not formulated the Regulations on the Terms and Conditions of Services of the Controller of Examinations. However, as per the qualification prescribed for the post of Controller of Examinations in UGC Notification 1998 the clause (b) should be modified as under :- “At least 15 years of experience as Lecturer (Sr. Scale / Assistant Professor with AGP of `7000 with eight years of service in Associate Professors Grade alongwith experience in educational administration”. The following may also be added under clause 6: “The controller of examination appointed after 1.1.2004 will be covered under New Pension Scheme”.
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Proposed Amendment of OE-14 on Minimum Qualifications for Direct Recruitment to the post of Librarian, Deputy Librarian and Assistant Librarian / Deputy Registrar and Assistant Registrar / Director of Physical Education / Deputy and Assistant Director of Physical Education.

OE-14 University Librarian – 1	In addition to proposed amendments, the following may also be added: “Notwithstanding anything contained in clause I to iii above, the minimum academic performance requirement and screening/selection criteria of UGC Regulation on Minimum qualification for appointment of teachers and other academic staff in universities and colleges and measures for the maintenance of standards in Higher Education, 2010 shall be applicable.
University Deputy Librarian – 2	In addition to proposed amendments, the following may also be added: “Notwithstanding anything contained in clause I to iii above, the minimum academic performance requirement and screening/selection criteria of UGC Regulation on

	Minimum qualification for appointment of teachers and other academic staff in universities and colleges and measures for the maintenance of standards in Higher Education, 2010 shall be applicable.
University Assistant Librarian / College Librarian / Documentation Officer – 3	In UGC Regulations, 2010, the post of Documentation Officer has been deleted. Therefore, the post of documentation Officer may be deleted from this Ordinances.
Deputy Registrar – 4	UGC has not formulated the Regulations on the Terms & Conditions of Services of the post of Deputy Registrar. However, as per the qualification prescribed for the post of Deputy Registrar in UGC Notification 1988, the clause (ii) should be modified as under:- “Five years experience as a Lecturer / Assistant Professor in a College or a University with experience in educational administration”.
Assistant Registrar – 5	UGC has no objection to the changes suggested by the University.
University Assistant Director of Physical Educational and Sports / College DPEs	UGC has no objection to the changes suggested by the University except that the University may add the following in appropriate place. “Service requirement, minimum academic performance requirement and screening/selection criteria shall be as per UGC Regulation on minimum qualification for appointment of teachers and other academipcp staff in universities and colleges and measures for the maintenance of standards in Higher Education, 2010 shall be applicable.
University Deputy Director of Physical Education / College DPEs	UGC has no objection to the changes suggested by the University.
University DPEs	UGC has no objection to the changes suggested by the University.

Proposed Amendment of OE-15 on Career Advancement Scheme

OE-15 – Career Advancement Scheme	UGC has no objection to the changes suggested by the University.
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5:1:7 (1)

- (vii) Proposed Amendment of Ordinance OC-1 on the Admission of Students to the University including its affiliated Colleges and Regulation on Admission of Foreign Students RC-19.

The Dean Students' Welfare has submitted proposed amendment of Ordinance OC-1 on the Admission of Students to the University including its Affiliated Colleges and Regulation Admission of Foreign Students RC-19 at Annexure 'A' and 'B' respectively.

The matter is placed before the Council for consideration.

OC-1

**ON THE ADMISSION OF STUDENTS TO THE UNIVERSITY
INCLUDING ITS AFFILIATED COLLEGES**

Under Section 26(1) (a) of the NEHU Act, 1973

Existing Provisions:

1. Without prejudice to the provisions of the Act and Statutes, and other rules of the University, a student shall be eligible for admission to any Under-Graduate or Post-Graduate Course of study under the University if he has passed the examination or examinations prescribed by the University for admission to the concerned course or courses.
2. The candidates seeking admission to a course of study in the University including the affiliated colleges, must satisfy the concerned rules and conditions.
3. Foreign students may be admitted to various programmes of study under the following categories :
 - A) Cultural Exchange Fellowship programme of Govt. of India;
 - B) Self-financing students;
 - C) Short-term programmes (not leading to award of any degree/diploma/certificate).

New Clause Proposed to be added:

4. All aspects of admission of foreign students, including procedure of admission, reservation of seat, qualification, fee structure, etc., shall be prescribed in a separate regulation.

Proposed Regulations
On Admission of Foreign Students
(Under OC – 1)

1. **Eligibility:** All foreign students seeking admission to any programme of study at NEHU or colleges affiliated to it shall have to fulfill the minimum eligibility criteria as provided for in relevant ordinance/regulation etc. for that particular programme of study. For short-term programmes (not leading to award of any degree/diploma/certificate) (Category C under OC-1(3)) or training/internship, the eligibility criteria shall be decided by the faculty members of the department to which admission is sought.
2. **Equivalence:** The equivalence of Degrees/Diplomas from foreign universities, boards of higher education, etc. shall be as per the Association of Indian Universities (AIU) norms. In case of any confusion in the matter, the view of the Equivalence Committee of NEHU shall be final.
3. **Reservation:** All foreign students shall be admitted under supernumerary category only. A maximum of 10% of available seats in the Bachelor/Master/M. Phil./Ph. D. programmes of study in a particular department can be created for admitting foreign students in each academic year.
4. **Application for admission:** Foreign students seeking admission under categories A & B (OC -1 (3)) shall send their applications along with all supporting documents, either directly or through the Indian Council of Cultural Relations (ICCR) or other sponsoring agencies to the office of Dean, Students' Welfare, NEHU by 15th May. Applications under category C (OC-1(3)) may be made any time during the year. Incomplete applications shall not be considered.
5. **Procedure of admission:** After initial screening of the application, the entire application materials shall be forwarded to the concerned department for consideration of the Departmental Admission Committee (DAC) on the suitability of the applicant, including equivalence of the degree and minimum eligibility criteria. The department shall send back the application materials to the Dean, Students' Welfare with its recommendation.
6. **Central Admission Committee:** A Central Admission Committee (CAC) shall then look into all applications and recommend (or not) grant of 'Provisional Admission' to foreign students. The basis of CAC decision shall be:
 - a. Recommendations of the concerned department;
 - b. Submission of a medical certificate to the effect that the candidate does not suffer from any contagious disease issued by a competent medical authority of the concerned foreign country;
 - c. Any other condition deemed fit by the CAC.

The decision of the CAC shall be communicated to the concerned Head of the Department who shall issue the offer of provisional admission to the student and communicate it through ICCR or other sponsoring agency or applicants directly via

email/air mail. The application materials shall thereafter be maintained in the office of the concerned department.

7. Constitution of CAC: The CAC shall be constituted as follows:

- a. Senior-most Professor – Chairman
- b. Three Professors, one each from sciences, social sciences and humanities to be recommended by the Vice-Chancellor – Members
- c. Finance Officer - Member
- d. Dean, Students' Welfare – Ex-officio Member cum Convener

8. Final admission: The final admission shall be granted to a foreign student by the concerned Head of Department on the following additional conditions :-

- a. Verification of all original documents;
- b. Proof of payment of prescribed fee as per the rate approved by the university from time to time (Annexure I; for ICCR/GOI sponsored candidates this condition shall be in accordance with the institutional arrangement);
- c. Possession of valid visa/travel documents for the purpose issued by Indian consulate abroad or Residence Permit issued by competent authority in India.

9. Academic calendar: The admission of foreign student shall be governed by the same Academic Calendar as in operation in the university. The academic provisions of appropriate Ordinance relating to a programme of study shall apply to foreign students as well.

10. Registration with Police Department: All foreign students shall register themselves with the Foreigners' Registration Office, Shillong within 30 days of admission and the same shall be intimated to the Head of the concerned Department and the office of the Dean, Students' Welfare.

11. Accommodation: Accommodation for foreign student is available in the International Students' Hostel on first come first served basis. For this they may contact the office of Dean, Students' Welfare on receipt of provisional admission. The allotment of accommodation shall be subject to payment of hostel fee as per rate approved by university from time to time (Annexure - 1).

12. Requirement of migration certificate for registration: A migration certificate issued by the competent authority from foreign university/country of origin may be submitted for registration. In case the foreign university/country of origin does not have this practice, registration may be granted based on the visa/travel document.

13. Maintenance of discipline: All foreign students admitted to NEHU shall be governed by the same Ordinances/Regulations/Rules regarding discipline as applicable to other students of the university.

14. Removal of difficulties: All matters related to foreign students not covered above shall be resolved by the Vice-Chancellor on the recommendation of CAC.

— 7 —

5:1:8 (1)

(viii). Proposed amendments of Ordinance OD-5 on Representation of the Students of the University on the Academic Council.

The Dean Students' Welfare has submitted a proposal for amendment of Ordinance OD-5 on representation of the Students of the University on the Academic Council at Annexure 'A'.

The matter is placed before the Council for consideration.

Agenda note for amendments of the Ordinance :**ON REPRESENTATION OF THE STUDENTS OF THE UNIVERSITY
ON THE ACADEMIC COUNCIL(OD-5)**

Clause 2 (1) provides that criteria for selection should be marks of 1st & 2nd Semesters taken together. Delay in declaration of results cause delay in finalizing nominations. PG students also cease to be members in July every year when they finish their MA/MSc. studentship as per OD-5:4(1). This, therefore, has been creating problems in representation of students in Academic Council every year.

If, however, we take highest marks criteria for qualifying examination, students admitted to UG/PG/Ph. D. programmes in July-August every year would be eligible. This will enable student representation in Academic Council for full 1(one) year.

Existing Ordinance	Proposed amendments
OD-5	OD-5
ON REPRESENTATION OF THE POST-GRADUATE STUDENTS OF THE UNIVERSITY ON THE ACADEMIC COUNCIL	ON REPRESENTATION OF THE STUDENTS OF THE UNIVERSITY ON THE ACADEMIC COUNCIL
Under Clause (1) (xiii) of Statute 14	Under Clause (1) (xiii) of Statute 14
General 1. The selection of two Post-Graduate students of the University, one from Science and one from Humanities and one Research Scholar shall be made in accordance with the provisions of this Ordinance.	1. General The selection of one Under-Graduate, one Post-Graduate and one Research Scholar, one each from Science Schools (odd years) and Humanities/Social Science Schools (even years), shall be made in accordance with the provisions of this Ordinance.
Procedure for Selection 2 (1) One student each, securing the highest aggregate Grade Point Average and/or marks at the first and second semester examinations taken together, shall be selected from the following groups.	2. Procedure for Selection (A) One student each, securing the highest marks at the qualifying exam level, admitted to the programme in the preceeding academic year, shall be selected from the following groups :
(i) the students of humanities comprising the School of Social Sciences, Languages, Education and such other schools as may be notified by the University from time to time.	(i) the students of humanities & social sciences comprising the Schools of Social Sciences, Humanities , Education , Human and Environmental Sciences, Economics , Management & Information Science and such other schools as may be notified by the University from time to time.
(ii) the students of science comprising the schools of Physical Sciences, Life Sciences, Environmental Sciences and such other schools as may be notified by the University from time to time. Provided that students from the same School will not be eligible for selection in any two consecutive terms. In case students from the same School score highest marks a student	(ii) the students of sciences comprising the Schools of Physical Sciences, Life Sciences, Technology and such other schools as may be notified by the University from time to time. Provided that students from the same School will not be eligible for selection in any two consecutive terms. In case students from the same School score highest marks a student from another School securing highest marks as

from another School securing highest marks as referred to earlier will be selected.

(2) One research scholar who has worked for atleast one year full time for his Ph.D/M.Phil degree and who has obtained First Class/ Grade at the M.A./M.Sc./M.Ed. examinations and highest grade in the credit programmes of M.Phil/Ph.D. in the preceeding academic year shall be selected by rotation from amongst the students of humanities comprising the Schools of Social Sciences, Languages, Education and such other schools as may hereafter be notified, taken together, and from amongst students of science comprising the Schools of Life Sciences, and such other schools as may hereafter be notified, taken together.

Limitations as to Attendance in Meetings

3. (1) No member referred to in 2(1) and 2(2) above shall have the right to be present at the meeting of the Academic Council when it takes up for consideration any of the following subjects :

(a) Faculty positions, recruitment, condition of service and academic freedom ;

(b) Actual process of evaluating of academic performance and merit of students including appointment of examiners, paper setters, moderators, etc.

Term of Office 4. (1) The term of a student member of the Academic Council shall be one year provided that a student member shall cease to be a member of the Academic Council when he ceases to be a student of the University and nostudent member shall be eligible for selection to the Council for a second term.

(2) The term of the student members shall commence on such date as may be notified.

Disqualifications 5. No student member shall be a member of the Academic Council and the Court of the University simultaneously.

referred to earlier will be selected.

(B) One research scholar who has worked for atleast one year full time for his Ph.D degree and who has obtained highest marks/grade in the qualifying (M.A./M.Sc./M.Ed.) examinations shall be selected by rotation from amongst the students of humanities/ social sciences comprising the Schools of Social Sciences, Humanities , Education , Human and Environmental Sciences, Economics , Management & Information Science and such other schools as may hereafter be notified, taken together, and from amongst students of science comprising the Schools of Life Sciences, Physical Sciences, Technology and such other schools as may hereafter be notified, taken together.

3. Limitations as to Attendance in Meetings

(1) No change

(i) No change

(ii) No change

4. Term of Office (1) No change

(2) No Change

(3) Nomination shall be made in July every year for the membership.

5. Disqualifications . No Change

5:2:6(1)

- (vi) Revised Syllabus for M.Sc in Environmental Science.

The School Board of Human and Environmental Sciences in its meeting held on 27th April, 2012 considered and approved the Revised Syllabus for M.Sc Environmental Sciences under CBCS as placed at Annexure 'A'.

The matter is placed before the Council for consideration.



**Department of Environmental Studies
North-Eastern Hill University, Shillong- 793022**

SYLLABUS

**M. Sc. Environmental Science (Two Years Course)
Under Choice Based Credit System**

1. The total duration of the M. Sc. Course in Environmental Science shall of four Semesters of total 72 credits.
2. Candidates having a graduate degree with major in any of the following subjects: Environmental Science/ Botany/ Zoology/ Forestry and Geology shall be eligible to take admission.
3. The total number of seats will be 25.
4. Course shall comprise of Core papers of 60 credits and Open papers of 12 credits.
5. In order to complete M. Sc. Environmental Science students have to earn 60 credits from Environmental Science core papers and remaining 12 credits from open choice courses offered by the Department/ other departments of the University.
6. The open courses offered by the Department shall be notified well in time.

Semester I

<u>Code</u>	<u>Course</u>	<u>Credit</u>
ENVC-101	Environment, Ecology and Ecosystem Dynamics	4
ENVC-102	Forestry and Water Resources	4
ENVC-103	Environmental Pollution	4
ENVC-104	Practicals	6

Semester II

ENVC-201	Environmental Microbiology, Biotechnology and Toxicology	4
ENVC-202	Environmental Impact Assessment and Environmental Policies	4
ENVC-203	Practicals	4
ENVO-204	<i>Remote Sensing and Geographical Information System</i>	4
ENVO-205	<i>Environmental Law</i>	2
ENVO-206	<i>Radiation Biology</i>	2
ENVO-207	<i>Natural Resource Management</i>	4

Semester III

ENVC-301	Environmental Geoscience and Energy	4
ENVC-302	Research Methods, Techniques and Statistical Analysis	4
ENVC-303	Practicals	4
ENVO-304	<i>Disaster Management</i>	4
ENVO-305	<i>Environmental Issues and Problems of North East India or</i>	2

Semester IV

ENVC-401	Environmental Economics and Sociology	4
ENVC-402	Forest Management and Biodiversity Conservation	4
ENVC-403	Practicals	4
ENVC-404	Project Work and Field work/ Study Tour	6

ENVC- Core Paper

ENVO- Open Choice Paper

SEMESTER I

ENVC-101 Environment, Ecology and Ecosystem Dynamics	Credits- 4
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Unit I: Concept of environment, scope of Environmental Science, environmental components, scope and subdivisions of ecology, ecological principles pertaining to population, community, ecosystem and biome.

Unit II: Population dynamics and population regulations, concept of carrying capacity, population fluctuations, population dispersion, r and k selection, ecotypes and ecophene, habitats and niches.

Unit III: Energy in ecosystem, Primary and secondary production, Biomass, Methods of measuring productivity, Pattern of primary production in the major ecosystems of the world, Energy flow in ecosystems, Feedback and control mechanism, Pathways of energy transfer- grazing and detritus food chain, Ecological efficiency and ecological pyramids.

Unit IV: Biogeochemical cycles: nutrient cycling in the ecosystems, Gaseous cycles (Carbon and Nitrogen) and sedimentary cycles (Phosphorus and Sulphur), Impact of man on nutrient cycles; Major ecosystems of the world: A general idea of forest, grassland, desert, wetland, freshwater and marine ecosystems.

Suggested Readings:

1. Botkin, Daniel B. (2011) *Environmental Science: Earth as a Living Planet*, John Wiley and Sons, New Delhi.
2. Miller, G. Tyler and Scott Spoolman (2011) *Essentials of Ecology*, Brooks/Cole Learning, USA.
3. Odum, E. P. (1996) *Fundamentals of Ecology*, Nataraj Publisher, Dehra Dun.
4. Dakshini, K.M.M. (1999) *Principle and Practices in Plant Ecology*, CRC, Boston.
5. Dash, M.C. (1994) *Fundamentals of Ecology*, Tata McGraw Hill, New Delhi.
6. Molles Jr, M. C. (1999) *Ecology- Concepts and Application*, McGraw Hill, New Delhi.
7. Ingegnoli, V. (2002) *Landscape Ecology: a widening foundation*, Springer, Bonn.
8. Kormondi, E.J. (1999) *Concepts of Ecology*, Prentice Hall of India, New Delhi.
9. Chapman, J. L. and Reiss M. J. (2005) *Ecology Principles and Applications*, Cambridge University Press, London.
10. Odum, E.P. and G. W. Barrett (2005) *Fundamentals of Ecology*, Thomson Asia Pvt. Ltd., Singapore.
11. Rana, S.V.S. (2005) *Essentials of Ecology and Environmental Science*, Prentice Hall of India, New Delhi.
12. Chapin, III, F. Stuart, Matson, Pamela A., Vitousek, (2012) *Principles of Terrestrial Ecosystem Ecology*, Springer
13. Reddy, Anji M. (2005) *Textbook of Environmental Science and Technology*, BSP Books Pvt. Ltd., Hyderabad.
14. Anjaneyulu, Y. (2009) *Introduction to Environmental Science*, BSP Books Pvt. Ltd., Hyderabad.

ENVC-102 Forestry and Water Resources	Credits- 4
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Unit I: Forest: definition, growth stages, crown differentiation, forest types of India, measurement of height and girth of trees, form factor, estimation of volume of logs, Role of plantation forestry in environmental conservation.

Unit II: Social Forestry: Origin, definitions, objectives, scope, place of social forestry in National Forest Policies., Multipurpose tree species (MPTs), Nitrogen fixing tree species (NFTs), characteristics of MPTs, NFTs. Community participation in social forestry programme, Pattern of planting, calculation of number of plants (line, square, triangular and quincunx), Ecorestoration of eroded hill slopes and degraded *Jhum* land. Tree species suitable for different edaphic conditions

Unit III: Agroforestry: Origin and definition, type, gains of agro forestry system, Tree and crop management, Production potential of alley cropping, Agroforestry models developed for hill farming system- Three tier system, Tree-greenhedge-crop Farming system and Contour- Tree-Greenhedge-Crop Farming system, Acidic, Saline and alkaline soils and their reclamation techniques.

Unit IV: Water resources: Hydrologic cycle, distribution and extent, water availability and uses, freshwater shortages, impact of climate change on freshwater resources, Management and conservation of water resources, Role of forestry in watershed management.

Suggested Readings:

1. Khanna, L.S. (1985) *Forest Mensuration*, Intl. Book Distributors, Dehradun.
2. Agrawal, P.(2008) *Forest Mensuration*, Bishen Singh Mahendrapal Singh,Dehradun
3. Ghosh, S.K. and Singh, R. (2003) *Social Forestry and Forest Management*, Global vision publication, Delhi.
4. Dwivedi, A.P. (2003) *A Text Book of Silviculture*, Intl. Book Distributors, Dehradun.
5. Jha, L.K. and Sen Sarma, P.K. (2008) *Forestry for the people*, APH publishing corporation, New Delhi
6. Jha, L.K. and Sen Sarma, P.K. (2008) *Agroforestry: Indian Perspectives*, APH publishing corporation, New Delhi.
7. Jha, L.K. (2009) *Advances in Agroforestry*, APH Publication Corporation, New Delhi
8. Jha, L.K. (1995) *Shifting Cultivation*, APH Publishing Corporation, New Delhi.
9. Majumdar, D.N. (1994) *Shifting cultivation in North East India*, Om Sons Publications, New Delhi
10. Singh, G., Arora, Y.K. Narain, P. and Grewal, S.S. (1990) *Agroforestry Research in India and Other Countries*, Surya Publication, Dehra Dun.
11. Biswas, A. K. (2007) *Water resources: Environmental Planning, Management, and Development*, McGraw-Hill, New Delhi.
12. Fai Fung, C. and Ana Lopez, Mark eds (2011) *Modelling the Impact of Climate Change on Water Resources*, Wiley Blackwell,
13. Kenneth, D. Frederick (1997) *Water Resources and Climate Change*, Edward Elgar,
14. Chatterjee, S.N. (2008) *Water Resources, Conservation And Management*, Atlantic Publishers & Dist,
15. David Keith Todd, Larry, W. Mays (2004) *Groundwater Hydrology*, John Willey and Sons, New York.
16. Vedula, S., P. P. Majumdar (2007) *Water Resources Systems modeling techniques and analysis*,
17. Elizabeth, M. Shaw, Keith J. Beven, Nick, A. Chappel, Rob, Lamb. (1994) *Hydrology in Practice*, John Willey and Sons, New York.

ENVC-103 Environmental Pollution

Credits - 4

Unit I: Types and sources of air, water and soil pollution, monitoring of air and water pollution, noise pollution, impact of pollution on human health, environment and assets; Water Pollution

control technologies: Waste water treatment, primary treatment, secondary treatment and Advance treatment.

Unit II: Air pollution control technologies and devices: Limestone injection and fluidized bed combustion, Desulfurization; Catalytic converter and control of vehicular emission, Gravity settling chamber, Centrifugal collectors- cyclone collector and dynamic precipitators; Electrostatic precipitators; Fabric filters.

Unit III: Solid, Toxic, and Hazardous waste management; solid waste disposal methods – open dumps, ocean dumping, Landfills, Incineration; Recycling and reuse, Organic pollutants; pesticides-organochlorine insecticides, organophosphates and carbamates; fertilizers, Hazardous waste disposal and management corporate social Responsibility.

Unit IV: Electronic waste (E-waste): Sources and types, constituents of E-wastes, recycling of e-waste and its environmental consequences, Transboundary movement and management of e-wastes, Basel convention, Radioactive wastes: Types, hazards, storage and management.

Suggested Reading:

1. Botkin, Daniel B. (2011) *Environmental Science: Earth as a Living Planet*, John Wiley and Sons, New Delhi.
2. Cunningham, W.P. and W.B. Saigo (2005) *Environmental Science*, McGraw Hill, New York.
3. Bell, J.N.B. (2002) *Air Pollution and Plant Life*, (II ed.), John Wiley and Sons, New Delhi.
4. Cheremisinoff, N. P. (1996) *Biotechnology for Waste and Wastewater Treatment*, William Andrew Publishing, New York.
5. Fellenberg, G. (1999) *Chemistry of Pollution*, John Wiley and Sons, New Delhi.
6. El-Halwagi, M. M. (1997) *Pollution Prevention through Process Integration*, Academic Press, Washington.
7. Tirvedi, R. K. and Geol, P. K. (2010) *An Introduction to Air Pollution*, (II Ed), DVS Publication, New Delhi.
8. Kush, S. (2001) *Automobile Pollution*, Sarup Publications, New Delhi.
9. Finlayson-Pitts, (1986) *Atmospheric Chemistry: Fundamentals and Experimental Techniques*, John Wiley and Sons, New Delhi.
10. Arya, S.P. (1999) *Air Pollution Meteorology and Dispersion*, Oxford University Press, London.
11. Reddy, P. Jayarama (2011) *Pollution and Global Warming*, BSP Books Pvt. Ltd, Hyderabad.
12. De, A. K. (2000) *Environmental Chemistry* New Age International P. Ltd., New Delhi.
13. Rao, M. N. and Sultana, R. (2011) *Solid and Hazardous Waste Management*, BPS Books Pvt. Ltd, Hyderabad.
14. Santra, S. C. (2001) *Environmental Science*, New Central Book Agencies, Pvt., Ltd. Kolkata
15. Abbasi, S. A. and E., Ramasami (1999) *Biotechnological Methods of Pollution Control*, University Press, Hyderabad.
16. Reddy, Jayarama P. (2011) *Municipal Solid Waste management: Processing, Energy Recovery Global Examples*, BSP Books Pvt. Ltd, Hyderabad.

ENVC- 104

Practicals

Credits- 6

Part-A

1. Study of community structure in terrestrial ecosystem by frequency, density, abundance and IVI.
2. Study of species composition in terrestrial and aquatic ecosystems.
3. Measurement of primary productivity of a grassland and pond ecosystems.

4. Estimation of moisture, pH and conductivity of soils under different land uses.
5. Inventorization of multipurpose trees (MPTs).
6. Inventorization of Nitrogen fixing trees (NFTs).
7. Comparative study of NPK content of soils under different land uses.

Part-B

8. Estimation of temperature, pH, conductivity and turbidity of water samples.
9. Determination of SPM in Ambient air by Respirable dust sample.
10. Estimation of dissolved oxygen (DO) and biochemical oxygen demand (BOD) of water samples.
11. Estimation of chloride, nitrate, sulphate and phosphate in water samples.
12. Measurement of noise pollution.
13. Study of composition of municipal solid waste.

Suggested Reading:

1. Misra, R. (1968) *Ecology Workbook*, Oxford & IBH Publications Co., New Delhi.
2. American Public Health Association (2012) *Standard Methods for Examination of Water and Wastewater*, APHA, AWWA, WPCF, American Public Health Association Inc., Springfield, New York.
3. Maiti, S.K. (2003) *Hand Book of Methods in Environmental Studies*, Vol. I & II, ABD Publishers, Jaipur.

SEMESTER II

ENVC-201	Environmental Microbiology, Biotechnology and Toxicology	Credits - 4
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Unit I: Scope and importance of microorganisms; Microorganism in different environments- soil, water, air and extreme environments, Reproduction and growth, methods for determining bacterial numbers, Role of microorganisms in waste treatment, Anaerobic (methanogenesis) and aerobic (trickling filter, activated sludge, oxidation pond) treatment of wastewater, production of enzymes and alcohol.

Unit II: Basic techniques in genetic engineering: Nucleic acid hybridization and polymerase chain reaction as sensitive detection methods, Gene cloning, Introduction of cloned genes into new hosts using plasmids and phage vector systems, expression of genes in new host, Genetically Modified Organisms (GMOs) and their possible environmental implications.

Unit III: Principles in toxicology; Toxicants and toxicity, Factors affecting concentration of toxicants in environment, Toxicity tests and concepts of LD₅₀ and LC₅₀, Sources and types of toxicants and their health hazards, Dose-effect and Dose response relationship, Absorption, translocation and excretion of toxicants.

Unit IV: Global dispersion of toxic substance, Dispersion and circulating mechanisms of pollutant, degradable and non-degradable toxic substances in food chain, Ecosystem influence on fate and transport of toxicants, Bio-absorption of heavy metals and Bio-accumulation, Biomagnification.

Suggested Readings:

1. Atherly Alan G, Jack R. Girton and John F. McDonald (1998) *The Science of Genetics*. Saunders College Publishing, New York.
2. Alberts, Bruce, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts, and Peter Walter. (2002) *Molecular Biology of the Cell* (IV ed.), Garland Science, New York.
3. Verma, P.S. and Agarwal, V.K. (1998) *Cell Biology, Genetics, Evolution and Ecology*. S. Chand and Co. Ltd., New Delhi.

4. Abbasi, S. A. and E Ramasami (1999) *Biotechnological methods of Pollution control* University Press, Hyderabad.
5. Alan Scrogg (2005) *Environmental Biotechnology*, (II ed.), Oxford University Press, New York.
6. Jemba, P.K. (2004) *Environmental Microbiology*, Science Publishers, USA.
7. Srivastava, M. L. (2003) *Basic Environmental Microbiology*, Manohar Books, New Delhi.
8. Raina, M., I. Pepper and C. Gerba (2006) *Environmental Microbiology*, Academic Press, New York.
9. Alan, Scrogg (2005) *Environmental Biotechnology* (II ed.), Oxford University Press, New York.
10. Murugesan, A.G. and Rajakumari. C. (2006) *Environmental Science and Biotechnology*, MJP Publishers, Chennai.
11. Pery, G. (1980) *Introduction to Environmental Toxicology*, Elsevier, Amsterdam.
12. Hayes, W. A. (2001) *Principles and Methods of Toxicology*, CRC, USA.
13. Wright, D. A. and Welbourn, P. (2002) *Environmental Toxicology*. Cambridge University Press, London.
14. Klaassen, C. D and Watkins, J.B. (2003) *Essentials of Toxicology*, McGraw-Hill Professional, New Delhi.
15. Jacobson-Kram, D. (2006) *Toxicological Testing Handbook: Principles, Applications and Data Interpretation*. Taylor & Francis, New York.
16. Pelczar, Jr. M. J, Chan, E.C.S. and Krieg, N. R. (2009) *Microbiology*, (V Edition), Tata McGraw-Hill New Delhi.
17. Walker, C. H. , R. M. Sibly, S.P. Hopkin, and D. B. Peakall (2012) *Principles of Ecotoxicology*, (IV Edition), CRC Press, New York.
18. Bommanna, G. Loganathan and Paul Kwan-Sing Lam (2011) *Global Contamination Trends of Persistent Organic Chemicals*, CRC Press, New York.

ENVC-202 Environmental Impact Assessment, Environmental Policies and Ethics Credits- 4

Unit I: Introduction to environmental impact assessment (EIA), origin and development of EIA, Environmental impact statement and environmental management plan. EIA Notifications & Guidelines 1994, 2006, and 2009, Stages of granting Environmental Clearance: Screening, Scoping, Public consultation, Appraisal & recommendations and grant of environmental clearance and its validity.

Unit II: Components of an EIA report Generation of baseline data & preparation of EIA report, procedure for reviewing EIA report, Authorities/ Institutions involved in granting environmental clearance at Central & State Government levels.

Unit III: Environmental policy 2006, Environmental policy resolution, Legislation, Public policy strategies in pollution control, International and National Conservation agencies, policies and strategies, Convention on biodiversity, Convention on Climate change, Kyoto protocol, Carbon credit and Carbon trading.

Unit IV: Concept of environmental ethics, philosophies of biocentrism and ecocentrism, application of ethics to environmental issues, eastern and western philosophical traditions/religious treatises on the relationships between humans, animals, and the natural environment, value of wilderness.

Suggested Readings:

1. Charles, H. Eccleston (2011) *Environmental Impact Assessment*, CRC Press, New York.
2. Anjaneyulu, Y. and Manickam W. (2010) *Environmental Impact Assessment Methodologies*, BSP Books Pvt. Ltd., Hederabad
3. Lawrence, D. P. (2003) *Environmental Impact Assessment: Practical Solutions to Recurrent Problems*, John Wiley and Sons, New Delhi.
4. Glasson, Therivel and Chadwick (1999) *An Introduction to Environmental Impact Assessment*, UCLA, Los Angeles.
5. Morris, P. and R. Therivel (2001), *Methods of Environmental Impact Assessment*, Spoon Press.
6. Carter, L. (1996) *Environmental Impact Assessment*, McGraw Hill, New Delhi.
7. Anjaneyulu, Y. (2002) *Environmental Impact Assessment Methodologies*, B.S. Publications, New Delhi.
8. Weston, J. (1997) *Planning and EIA in Practice*, Longman.
9. Jos Arts and Angus Morrison-Saunders (2004) *Assessing Impact - Handbook of EIA and SEA follow-up*, Earthscan, London.
10. website of MoEF, GOI, New Delhi
11. Srivastava, D. C. (2005) *Readings in Environmental Ethics: Multidisciplinary perspectives*, Rawat Publications, Jaipur.

ENVC-203**Practicals****Credits- 4**

1. Estimation of microflora in soil and water through dilution plate method.
2. Determination of heavy metal toxicity by germination and seedling growth tests.
3. Measurement of toxic effect of pesticides on soil organisms.
4. Determination of LC₅₀/LD₅₀ value of a toxicant.
5. Comparative study of soil biodiversity in polluted and unpolluted site.
6. Study of an EIA report.
7. Visit to Industrial/Mining sites and preparation of report.
8. Analysis of air, water and soil quality data of an EIA report.
9. Study of socio-economy of an area with the help of Census data.

Suggested Readings:

1. Gurumani, N. (2006) *Research Methodology for Biological Sciences*, MJP Publishers, Chennai.
2. Jacobson-Kram, D. (2006) *Toxicological Testing Handbook: Principles, Applications and Data Interpretation*. Taylor & Francis, New York.
3. Gurumani, N. (2006) *An introduction to Biostatistics*, MJP Publishers, Chennai.
4. Murugesan, A.G. and Rajakumari. C. (2006) *Environmental Science and Biotechnology*, MJP Publishers, Chennai.

ENVO-204**Remote Sensing and Geographical Information System****Credits- 4**

Unit I: Remote sensing: definition and scope; Electro-magnetic radiation: characteristics, interaction with matter and spectral regions. Aerial photos: Types, Scale, Resolution; Stereoscopy; Geometric properties of aerial photos; Stereoscopic parallax; Relief displacement.

Unit II: Types of remote sensing; Remote sensing regions and bands. Indian and foreign Remote Sensing Satellites: LANDSAT, IRS, IKONOS, QUICK BIRD, CARTOSAT; Platforms and sensors-principles and geometry.

Unit III: Image classification procedures; supervised and unsupervised classifications; Elements of aerial photo-interpretation, Elements of Visual Interpretation. Satellite Imageries and its application in Environmental Monitoring, Landuse Mapping, Habitat Analysis, Drought Monitoring and Flood Studies, Soil Conservation and Watershed Management, Urban sprawl, Landslide hazard zonation and geosciences.

Unit IV: GIS: Introduction, components and software modules. Geographic data: spatial and non-spatial. Data structure. Application of GIS in Land use Mapping, Habitat Analysis, Urban sprawl and Landslide hazard zonation. GIS as a decision support system; Global positioning system: Basic principles, instruments, components and applications of Global Positioning System (GPS) Measurement of coordinates using GPS, Demonstration of GIS Software module.

Suggested Readings:

1. Lillesand, T.M. and Kiefer, R.W. (1987) *Remote Sensing and image interpretation*, John Wiley, Cambridge.
2. Chang, Kang-tsung (2000) *Introduction to GIS*, Tata Mc Graw Hill, New Delhi.
3. Panday, Shiv N. (1987) *Principles and applications of Photogeology*, Wiley Eastern Limited, New Delhi.
4. Rao D.P. (ed.) (1998) *Remote Sensing for Earth Resources*, Association of Exploration Geophysicist, Hyderabad.
5. Basudeb Bhatta (2011) *Remote Sensing and GIS*, Oxford University Press, New York.
6. Susan L. Ustin (2004) *Remote Sensing for Natural Resource Management and Environmental Monitoring*, John Wiley & Sons.
7. Eric Charles Barrett, Leonard Frank Curtis (1992) *Introduction to Environmental Remote Sensing*, Routledge, Taylor and Francis, New York.
8. Wing, Michael G., Pete Bettinger (2008) *Geographic Information Systems: Applications in Natural Resource Management*, Oxford University Press, New York.
9. Alberto Carrara, Fausto Guzzetti (1996) *Geographical Information Systems in Assessing Natural Hazards*, Kluwer Academic Publishers, Netherlands.
10. Conway, Eric D. (1997) *An Introduction to Satellite Image Interpretation*, Maryland Space Grant Consortium.
11. Johnson, Arnold Ivan, C. Bernt Petterson (2008) *Geographic Information Systems (GIS) and Mapping: Practices and standards*, ASTM International.
12. Ahmed El-Rabbany (2002) *Introduction to GPS: The Global Positioning System*, Artech House
13. Remote, John R Jensen (2000) *Sensing of the Environment*, Prentice Hall
14. Reddy, M Anji (2008) *Textbook of Remote Sensing and Geographical Information Systems* (2nd edition), Book Syndicate

ENVO-205	Environmental Law	Credits - 2
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Unit I: Basics of Law: Rights and Privileges ,Article 21 of the Constitution of India, Acquisition of Rights Indian Penal code; Laws of Criminal procedure ,Cognizable and non –cognizable offences, Search warrant; Indian Forests Act 1927: Application of Indian Penal code (Act XLV of 1860 to forest offences, Land Acquisition Act ,1894 Forest Act :Salient features and amendments.; Classification of forests as per IFA, 1927:Reserved forests (Sections 3, 4, 6, 7, 9, 10, 11, 13, 20, 23, 25, 26 and 27); Village forests (Section 28) and Protected forests (Sections 29, 30, 32), Biological Diversity Act (2002) Forest (Conservation) Act, 1980.with explanations (amendments made on the

basis of verdict of the High Court and Apex court) Sixth schedule and Article 371A of the Constitution of India: Vis-a Vis Forest Conservation Act, 1980: A critical appraisal.

Unit II: Environment (Protection) Act, (1986) and Rules (1986); Water Prevention and control of Pollution Act, 1974; Air Prevention and control of Pollution Act, 1981, Disaster management act 2005; Disaster management and administrative reforms. Salient features of Wildlife (Protection) Act, 1972: Protection of specified plants (Sections 17A to 17H). Sanctuaries, National parks and Closed areas (Sections 18 to 38). Trade in wild animals, animal articles and trophies (Sections 39 to 41). Major amendments of Wildlife (Protection) Act, 1972.

Suggested Readings:

1. Basu, D. D. (2003) *Introduction to the Constitution of India*, Wadhwa and Company Law Publisher, New Delhi.
2. Sands, P. (2003) *Principles of International Environmental Laws*, Cambridge University Press, London.
3. Choudhury, S.K. (1996) *Environmental Legislation in India*, Oxford IBH, New Delhi.
4. Trivedi, R.K. (2010) *Handbook of Environmental Laws, Acts, Guidelines, Compliance and Standards*, Vol I & II, B.S. Publications, Hyderabad.
5. Negi, S.S. (2000) *Forest law with explanation*, Bishen Singh Mahendrapal Singh Pal, Dehradun.

ENVO-206	Radiation Biology	Credits-2
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UNIT I: Types of radiation, natural and man-made radiations; Radiation interaction with water/matter, units of radiation; Radiation interaction with biological materials: Nucleic acids (DNA & RNA), proteins, carbohydrates, lipids and membranes; Radiation as a mutagen.

UNIT II: Target theories, acute and delayed cellular effects by radiation, radiation syndromes, chromosomal aberrations; Applied aspects of radiation: cancer therapy, food preservation, alternative energy sources.

Suggested Readings:

1. Uma Devi, P., A. Nagarathnam, B. S. S., Rao (2000) *Introduction to Radiation Biology*, B. I. Churchill Livingstone, New Delhi.
2. Kiefer, Jurgen (1990) *Biological Radiation Effects*, Springer-Verlag, Giebel, Germany.
3. Alper, Tikvah (1979) *Cellular Radiation*, Cambridge University Press, London.
4. Altman, Kurt I., Georg, B. Geber and S. Okada (1970) *Radiation Biochemistry*, Academic Press, New York.
5. Casarett, Alison P. (1968) *Radiation Biology*, Prentice-Hall, Inc., New Jersey.

ENVO-207	Natural Resource Management	Credits-4
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Unit I: Natural resources: Concept and major types of natural resources, Land Resources: Land use and land cover, land use change, drivers of land use change, impact of land use change on environment; Soil resource: soil types, profile and composition, degradation of land and soil; environmental effects of mining.

Unit II: Mineral Resources and Energy: Types, distribution and reserves of mineral resources, environmental effects of mining; Definition of Energy; Sources of energy; Energy units; Energy Resources: Oil and natural gas, coal, solar and wind energy, biomass energy, geothermal energy, hydropower; Environmental implication of energy use.

UNIT III: Water Resources: Introduction of water resources, distribution and supply: Global, national and regional; hydrological cycle, Water resource type: surface water, ground water; Causes of water resource depletion: Use and over use of water resources, Methods for managing water resources: Ground water recharging, rain water harvesting; Watershed management: Concept, and objectives, land use planning, flood control; Wetlands: definition, importance and classification.

Unit IV: Forest and Biodiversity: Forest as natural resource: importance, classification and extent of forests in India; deforestation and conservation strategies; Role of forests in carbon management; forest fragmentation, national forest policy; Biodiversity: introduction, levels, importance, threats to biodiversity, modern and traditional biodiversity conservation strategies, global biodiversity hotspots; threatened and endemic species.

Suggested Reading:

1. Daniel, D. Chiras and Reganold, John P. (2009) *Natural Resource Conservation: Management for a Sustainable Future* (X Ed.), Addison Wesley, Boston.
2. Thapar, S. D. (1975) *India's Forest Resources*, Macmillan India, New Delhi.
3. Flintan, F. and Tedla, S. (2010) *Natural Resource Management: The impact of gender and Social Issues*, IDRC, New Delhi.
4. Verhoeven, J. T. A. (2006) *Wetland and Natural Resource Management*, Springer, New York.
5. Rajora, Rajesh (1998) *Integrated Watershed Management: A Field Manual for Equitable, Productive and Sustainable Development*, Rawat Publications, Jaipur.
6. Tripathi, R. P. and Singh, H. P. (1993) *Soil Erosion and Conservation*, Wiley Eastern Limited, New York.
7. Quentin Grafton, R. and Hussey, Karen (2011) *Water Resources Planning and Management*, Cambridge University Press, London.
8. Sinha, P. C. and Mohanty, R. (2002) *Wetland: Management Policy and Law*, Kanishka Publications, Bhubaneswar.
9. Abbasi, S. (1997) *Wetlands of India: Ecology and Threats*, (vol: I-III), Discovery Publishing House, New Delhi.
10. Kesler, P. (2002) *Mineral resources: Economics and Environment*, CBS Publishers & Distributors, New Delhi.
11. Tiwari, G.N. (2005) *Solar Energy*, Narosa Publishing, New Delhi.
12. Devins, D. W. (1982) *Energy: Its Physical Impact on the Environment*, John Wiley and Sons Inc., New York.
13. Nakicenovic, N. (1998) *Global Energy Perspectives*, Cambridge University Press, London.
14. Fowler, J. M. (1984) *Energy and the Environment*, McGraw Hill.
15. Ravindranath, N. H., Usha Rao, K., Natarajan, B. and Monga, P. (2000) *Renewable Energy and Environment - A Policy Analysis for India*, Tata-McGraw Hill, New Delhi
16. Brooks, K. N. (2003) *Hydrology and Watershed Management*, Iowa State Press, New York.
17. Kumar, Arun, Sati, J. P., Tak, P.C., and Alfred, J.R.B. (2005) *Handbook on Indian Wetlands and Their Conservation*, Zoological Survey of India, Kolkata.
18. Collins, W.W. and Qualset, C.O. (1998) *Biodiversity in Agro-ecosystem*, CRC, Boston.
19. Krishnamurthy, V.K. (2003) *Text Book of Biodiversity*, Science Publisher, Chennai.
20. Singh, O.P. (2006) *Environment and Natural Resources*, Regency Publications, New Delhi.

21. Das, A. P. (2002) *Prospectives of Plant Biodiversity*, Bishan Singh Mahendra Pal Singh, Dehradun.
22. Singh, N. Irabanta (2008) *Endemic Bioresources of India*, Bishan Singh Mahendra Pal Singh, Dehradun.

SEMESTER III

ENVC- 301	Environmental Geoscience and Energy	Credits- 4
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Unit I: Primary differentiation and formation of core, mantle, crust, atmosphere and hydrosphere; Geomagnetism: remnant magnetization, paleomagnetism. Gravity and figure of the Earth: mass inhomogeneties and associated gravity anomalies; Stress and Strain: Definition, classification and types. Behavior of rocks under of stress and strain.

Unit II: Seismology: causes and space distribution of earthquakes; seismic waves; (body and surface waves), Precursors to the earthquakes. Sea floor spreading; Plate tectonics theory: types of plate boundaries, processes and corresponding geophysical and geological signatures; Himalayan tectonics.

Unit III: Energy resources and their exploitation. Energy: Conventional and non-conventional energy sources. Renewable sources of energy- hydroelectric power, solar, tidal, wind, geothermal energy, biomass and biofuels. Environmental impacts of conventional and renewable energy. Sun as source of energy, nature of solar radiation, heat budget of the earth, earth's temperature and atmosphere, Photovoltaics and Solar collectors. Energy use pattern in India and the world.

Unit IV: Concept of Minerals and Rocks. Atomic minerals as a source of energy. Atomic fuel, radioactive wastes and their management, Fossil fuels- physico-chemical characteristics and energy content of coal, petroleum and natural gases, Petroleum and coal deposits of Northeast India.

Suggested Readings:

1. Valdiya, K.S., (1998) *Dynamic Himalaya*, University Press, Hyderabad.
2. Summerfield, M.A. (2000) *Geomorphology and Global Tectonics*, Springer Verlag, Berlin.
3. Nandy, D.R., (2003) *Geodynamics of Northeastern India and the Adjoining Region*, ABC Publications, New Delhi.
4. Parasnis, D.S. (1975) *Principles of Applied Geophysics*, Chapman and Hall, London.
5. Sharma, P.V. (1986) *Geophysical Methods in Geology*, Elsevier, Amsterdam.
6. Smith, C. (2001) *Environmental Physics*. Routledge, London.
7. Keller, E.A. (1978) *Environmental Geology*. Bell & Howell, Washington D. C.
8. Subramaniam, V. (2001) *Textbook in Environmental Science*. Narosa International, New Delhi.
9. Chandra, D., Singh R.M., and Singh, M.P. (2000) *Textbook of Coal*, Tata Book Agency, Varanasi.
10. Holson, G.D. and Tiratsoo, E.N. (1985) *Introduction to Petroleum Geology*, Gulf Publication. Houston.
11. Durrance, E.M. (1986) *Radioactivity in Geology – Principles and application*, Ellis, Hoorwood.
12. Dahlkamp, F.J. (1993) *Uranium ore deposits*, Springer Verlag, Berlin.
13. Cunningham, W.P. and W.B. Saigo (2005) *Environmental Science*, McGraw Hill, New York.
14. Boyle, G., Bob Everett and J. Ramage (2003) *Energy System and Sustainability*, Oxford Univ. Press, New York.
15. Sudhakara Reddy, B. P. Balachandra (2006) *Energy, Environment and Development*, Narosa Publishing House Pvt. Ltd., New Delhi.

16. Websites of UNEP, IPCC, USEPA and MoEF, GOI.
17. Marinos, Paul G. (1997) *Engineering Geology and the Environment*, Taylor & Francis.
18. Gubbins, David and Emilio Herrero-Bervera (2007) *Encyclopedia of Geomagnetism and Paleomagnetism*, Springer
19. David, D. Pollard and Raymond C. Fletcher (1986) *Fundamentals of Structural Geology*, Cambridge University Press
20. Shearer, Peter M. (1999) *Introduction to Seismology*, Cambridge University Press
21. Seth Stein and Michael Wysession (2002) *An Introduction to Seismology, Earthquakes, and Earth Structure*, Wiley-Blackwell
22. Billings, M P (1972) *Structural Geology* 3Rd Ed, Prentice Hall College Div
23. Darlene R. Stille, Roger Larson, Terrence E. Young, Jr. (2006) *Plate Tectonics: Earth's Moving Crust*, Compass Point Books
24. Valdiya, Khadg Singh (2004) *Himalaya: Emergence and Evolution*, Universities Press

ENVC-302	Research Methods, Techniques and Statistical Analyses	Credits- 4
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Unit I: Definition of applied science and research. Classification of research. Critical appraisal of research studies, Planning research projects, Advance planning and its value, Methods of data collection and analysis, interpretation and presentation.

Unit II: Sampling techniques: Sampling of air, water and soil, sampling of plant and animal populations, concept of species area curve, concept of random and stratified sampling, Methods of Social Science research, PRA.

Unit III: Population and sample, frequency table, mean, mode, median, measure of dispersion, standard deviation, variance, correlation, regression and prediction, multivariate analysis. Test of significance- (Z & T test) variance in one and two sample cases. Test of equality of K- variance (Bartlett's test).

Unit IV: Basic principles of field experimentation: Randomization, Replication and Local Control. Lay out and analysis of data of completely Randomized block design, Latin square designs, Factorial design, Split plot and Strip plot designs.

Suggested Readings:

1. Chadda, A. (1989) *Agricultural Statistics in India*, Suman Book House, New Delhi.
2. Date, C. J. (1986). *An Introduction to database system*, Addison Wesley, U.K.
3. Dear, K.J.B., Mead, R and Rilay, J. (1987) *Statistical Tools for Agroforestry Research*, ICRAF, Kenya.
4. Medhi, J. (1992) *Statistical Methods*. Wiley Eastern, New Delhi.
5. Gurumani, N. (2006) *Research Methodology for Biological Sciences*, MJP Publishers, Chennai.
6. Barnett, Vic (2006) *Environmental Statistics: Methods and Applications*, John Wiley and Sons, New Delhi.

ENVC-303	Practical	Credits- 4
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1. Calculation of strain in rocks.
2. Study of structural features formed due to stress in rocks.
3. Study of properties of common rocks.

4. Study of coal, including peat, lignite, bitumen, oil shale.
5. Study of ore of atomic mineral.
6. Demonstration of seismometer and interpretation of seismograph.
7. Study of seismic zonation map of the world.
8. Study of map of a landslide hazard zone.
9. Calculation of the mean deviation, SD and standard error of mean.
10. Estimation of Test of significance.
11. Calculation of regression coefficient.

Suggested Readings:

1. Shryock, H.S. (1976) *The methods and Materials of Demography*, Academic Press, New York.
2. Gurumani, N. (2006) *Research Methodology for Biological Sciences*, MJP Publishers, Chennai.
3. Chadda, A. (1989) *Agricultural Statistics in India*, Suman Book House, New Delhi.
4. Vogelsang, D. (1995) *Environmental Geophysics – A Practical guide*, Springer-Verlag, Berlin.

ENVO-304

Disaster Management

Credits- 4

Unit I: Introduction and Concept of disasters and hazards related to Earthquakes, Tsunami, Volcanic eruption, Cyclones, Floods, Drought, Landslides, Forest fires, Avalanches and Pest infestation. Prediction and perception of hazards and adjustments to hazardous activities; Rates of natural cycles and residence time.

Unit II: Landslide: causes, prevention and correction. Landslide hazard mitigation. Earthquakes: intensity and magnitude of earthquakes; geographic distribution of earthquake zones; precursors to the earthquakes, seismic waves, travel-time and location of epicentre; nature of destruction; ground subsidence; protection from earthquake hazards; do's and don'ts during earthquake; Tsunamis-causes and consequences.

Unit III: Floods: Causes, nature and frequency of flooding; nature and extent of flood hazard; urban floods, environmental effects of flooding; flood mitigation methods. Tropical cyclone- formation and consequences. Coastal erosion; sea level changes and its impact on coastal areas. Drought: Nature and effect on plant and animal systems. Study of pattern and mitigation of forest fires.

Unit IV: Geological and environmental investigations for the construction of dams, bridges, highways and tunnels. Impact of major geotechnical projects on the environment. Disaster Management: Capability-Vulnerability- risk- preparedness and mitigation- Disaster management cycle; Disaster Risk Reduction and Resilience; Disaster Management Act and Policy.

Suggested Readings:

1. Krynine, D.S. and Judd, W.R. (1998) *Principles of Engineering Geology*, CBS, New Delhi.
2. Smith, K. (1992) *Environmental Hazards*, Routledge, London.
3. Bell, F.G. (1999) *Geological Hazards*, Routledge, London.
4. Bryant, E. (1985) *Natural Hazards*, Cambridge University Press. London.
5. Nagarajan, R. (2001) *Landslide Disaster – Assessment and Monitoring*, Anmol Publications, New Delhi.
6. Cutter, Susan L. (1999) *Environmental risks and hazards*, Prentice Hall of India, New Delhi.

7. Bill Mc Juire, Ian Mason and C. Killburn (2002) *Natural hazards and Environmental change*, Oxford University Press, New York.
8. Gupta, Harsh K. (2003) *Disaster Management*, Universities Press (India) Pvt. Ltd
9. Coppola, Damon P. (2006) *Introduction to International Disaster Management*, Butterworth-Heinemann
10. Jha, Madan Kumar (2010) *Natural and Anthropogenic Disasters: Vulnerability, Preparedness and Mitigation*, Springer
11. Glade, Thomas, Malcolm G. Anderson, Michael J. Crozier (2005) *Landslide Hazard and Risk*, edited Springer
12. Singh, Surendra, Leszek Starkel, Hiambok Jones Syiemlieh (2008) *Environmental Changes and Geomorphic Hazards*, Bookwell.

ENVO-305 Environmental Issues and Problems of North East India	Credits- 2
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Unit I: Population growth, urbanization, growth of vehicles and its impact on air quality. Changes in forest cover, biodiversity loss and conservation measures, issues and concerns related to sacred forests and sacred groves. Impact of introduction of high yielding varieties, use of fertilizers and pesticides, issues and problems associated with shifting agriculture; Industrialization: environmental impacts of oil refineries, cement plants, paper mills, wood based industries and tea industry.

Unit II: Environmental impacts of coal and lime stone mining, quarrying of sand from hills and rivers, Extraction of petroleum and natural gas; Environmental and socio-economic implications of mega hydro electric projects; Issues relating to conservation of Ramsar sites of north-east India: Loktak lake, Deepor beel, Impact of tourism, social conflicts and environment.

Suggested Readings:

1. Singh, O.P. (2006) *Environment and natural resources*, Regency Publications, New Delhi.
2. Tiwari, B.K. and C. Kumar (2008) *Forest Products of Meghalaya*, Regional centre, NAEB, Shillong.
3. Singh, O.P. (2005) *Mining Environment*, Regency Publications, New Delhi.
4. Ramakrishnan, P.S., K.G. Saxena S. Patnaik and S. Singh (2003) *Methodological issues in Mountain research*, Oxford & IBH Publishing, New Delhi.
5. Tiwari, B.K., S.K. Barik and R. S. Tripathi (1999) *Sacred forests of Meghalaya*, Regional Centre, NAEB, Shillong.
6. Ramakrishnan, P.S., A. N. Purohit, K.G. Saxena, K.S. Rao and R.K. Maikhuri (1996) *Conservation and management of biological resources in Himalaya*, Oxford & IBH Publishing, New Delhi.
7. Saxena, K. G., Luohui Liang and K. Rerkasem (2007) *Shifting agriculture in Asia*, BS MPS Dehradun
8. Ramakrishnan, P.S. (2000) *Mountain Biodiversity, Land Use Dynamics and Traditional Ecological Knowledge*, Oxford and IBH, New Delhi.

SEMESTER IV

ENVC-401	Environmental Economics and Sociology	Credits- 4
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Unit I: Introduction to Environmental Economics and Natural Resource Accounting; Natural Goods and Services; Valuation methods of Natural Resources; Valuation of tangibles and intangibles; Accounting of Forest, Land and Water resources; Natural Resource Accounting and sustainable development; System of Environmental and Economic Accounting, and Green Accounting.

Unit II: Population growth of humans; Malthusian theory of population; factors affecting human population growth and distribution; Impact of human population growth on natural resources and environment, city and village ecosystem.

Unit III: Environmental sociology: concept of culture, inequality, gender and equity, interaction between society and environment, environmental problems in historical perspective, individual interaction with environment and impact thereof, social movements influencing environmental protection, society and resources management, decision making.

Unit IV: Communication: definition, models, characteristics, process and approach, learning experience, principles and types, learning in groups, group defined, group size and characteristics, task and techniques: Snowball groups and Buzz group. Motivation: definition, models; Training-concept, type and steps required to be followed to train different level of functionaries.

Suggested Readings:

1. Botkin, Daniel B. (2011) *Environmental Science: Earth as a Living Planet*, John Wiley and Sons, New Delhi.
2. Markandya, A. (2006) *Environmental Accounting and Sustainability*, Edward Elgar Publishing Ltd. U.K.
3. Charles, P. and J.R. Vincent (2003) *Natural Resource Accounting and Economic Development: Theory and Practice*, Edward Elgar Publishing Ltd. U.K.
4. Haab, T. and Mc Connell K.E. (2003) *Valuing Environmental and Natural Resources*, Edward Elgar Publishing Ltd. U.K.
5. Harper, C. (1996) *Environment and Society*, Prentice Hall, Washington D.C.
6. Barry, J. (1999) *Environmental and Social theory*, Routledge, London.
7. Riley, E. Michelson, W.C. (Ed.) (1998) *Hand Book of Environmental Sociology*, Westport Greenwood Press, USA.
8. Adame, M.E. (1987) *Agricultural Extension in Developing Countries*, Longman, London.
9. Sen Sarma, P.K. and Jha, L.K. (2008) *A manual of Forestry Extension education*, APH Pub. Corp., New Delhi.
10. Massimo Livi-Bacci (2012) *A Concise History of World Population* (V Ed.), Wiley-Blackwell
11. Yaukey, D., Anderton, D.L. and Landquist, J. H. (2007) *Demography: The Study of Human Population*, Wavelength Pres Inc. IL. USA
12. Miller Katherine (2004) *Communication Theories: Perspectives, Processes, and Contexts*, McGraw Hill, New York.
13. Stephen W. Littlejohn and Karen A. Foss (2007) *Theories of Human Communication*, Cengage Learning, New Delhi
14. King, Leslie and Deborah McCarthy (2009) *Environmental Sociology: From Analysis to Action*, (II Ed.), Rowman and Littlefield, USA.
15. Mayerfeld Michael Bell (2012) *An Invitation to Environmental Sociology*, (IV Ed.), Pine Forge Press, SAGE, Landon.

ENVC-402 Forest Management and Biodiversity Conservation

Credits- 4

Unit I: Management: definition, principles of forest management, objectives of forest management, Rotation: kinds of rotation, Land expectation value, Normal forest, Estimation of normal growing stock. Silviculture systems: definition, characteristics, scope and classification; Clear felling systems, Clear strip system. Alternate strip system: (methods of obtaining regeneration, advantages and disadvantages.

Unit II: Uniform system: definition, pattern of felling- seeding felling, secondary and final fellings, Regeneration period, Periodic block,: allotment of area to fixed/ permanent of floating periodic blocks, preparatory fellings, (examples , advantages and disadvantages). Indian Irregular Shelterwood system and Selection system: definition, methods of obtaining regeneration, conditions of application, pattern of felling, advantages and disadvantages. Management of clump and non clump forming bamboo species), traditional forest management systems in northeast India.

Unit III: Biodiversity: Major categories, ecosystem diversity, species diversity, genetic diversity, natural biodiversity vs agricultural biodiversity, determinants of species diversity. Definitions: endemic, extinct, endangered, vulnerable, rare. Status of species diversity in India, distribution of biodiversity, hotspots. Biodiversity loss and strategies for conservation: Factors affecting biodiversity, ex-situ and in-situ conservation at the species and ecosystem levels. Protected areas: National parks, wildlife Sanctuaries and Biosphere Reserves. Traditional biodiversity conservation practices.

Unit IV: Value and significance of biodiversity: Tangible benefits- food, fiber, fodder, medicines, construction material. Intangibles- pollination, pest control, soil development and maintenance of soil fertility, soil and water conservation, nutrient cycling. Human-animal conflicts, existing conservation projects: Tiger, Rhino, Elephant, Turtles, Crocodiles, Birds; Coral reefs and Mangroves.

Suggested Readings:

1. Negi, S.S.(1985) Management of forests, M/S Bishen Singh Mahendrapal Singh,Dehradun
2. Maslekar, A.R. (2008) *A Handbook for foresters*, Bishen Singh Mahendra Pal Singh, Dehradun.
3. Khanna, L.S. (2004) *Theory and Practice of Indian Silviculture*, Khanna Bandhu, Dehra Dun.
4. Prakash, R and Khanna, L. S. (1983) *Theory and Practice of Silvicultural Systems*, Intl. Book Distributors, Dehradun.
5. Sharma,L.C.(1998) *Forest economics and management*, M/S Bishen Singh Mahendrapal Singh, Dehradun.
6. A. Dutta (2001) Biodiversity and Ecosystem Conservation, Kalyani Publisher, Kolkata.
7. S.K. Agarwal *et al* (1996) *Biodiversity and Environment*, APH, Dehra Dun.
8. S.S. Negi (1993) *Biodiversity and its Conservation in India*, Indus Publications, New Delhi.
9. W.W. Collins and C.O. Qualset (1998) *Biodiversity in Agro-ecosystem*, CRC, Boston.
10. V.K. Krishnamurthy (2003) *Text Book of Biodiversity*, Science Publisher, Chennai.
11. P.S. Ramakrishnan (2000) *Mountain Biodiversity, Land Use Dynamics and Traditional Ecological Knowledge*, Oxford and IBH, New Delhi.
12. Ghosh, Ashish (2009) *Biodiversity Conservation*, APH Publications, New Delhi.
13. Ladle, Richard and Richard J. Ladle (2009) *Biodiversity and Conservation: Response to biodiversity loss*, Taylor and Francis

ENVC-403 Practicals	Credits- 4
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1. Inventorization of local NTPFs.
2. Market survey for forest products.
3. Rapid study of environmental impact of tourism.
4. Study of forest management systems (JFM, CFM and Sacred Groves).
5. Measurement of height and girth of trees.
6. Estimation of volume of logs.
7. Estimation of species diversity in aquatic and terrestrial ecosystems.
8. Study of floristic composition of a forest ecosystem.

S.2:6(18)

Suggested Readings:

1. Charles, P. and J.R. Vincent (2003) *Natural Resource Accounting and Economic Development: Theory and Practice*, Edward Elgar Publishing Ltd. U.K.
2. Haab, T. and Mc Connell K.E. (2003) *Valuing Environmental and Natural Resources*, Edward Elgar Publishing Ltd. U.K.
3. Khanna, L.S. (2004) *Theory and Practice of Indian Silviculture*, Khanna Bandhu, Dehra Dun.
4. Khanna, L.S. (1985) *Forest Mensuration*, Intl. Book Distributors, Dehradun.
5. Ghosh, S.K. and Singh, R. (2003) *Social Forestry and Forest Management*, Global vision publication, Delhi.

ENVC-404 Project work and Field work / Study Tour or Industrial exposure	Credits- 6
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(Project work will be assigned in the previous semester however will be evaluated in this semester)

5:2:7 (1)

(vii). Revised Syllabus of post Graduate Diploma in Computer Application (PGDCA).

The Principal St. Anthony's College, Shillong, has submitted the Revised Syllabus of Post Graduate Diploma in Computer Application dully approved by the First meeting of the Board of Studies for PGDCA at Annexure 'A'.

The matter is placed before the Council for consideration.

5:2:7(2)

Annexure 'A'

(112)

PROPOSED SYLLABUS

FOR

POSTGRADUATE DIPLOMA IN COMPUTER APPLICATIONS

NORTH EASTERN HILL UNIVERSITY

SHILLONG

EFFECTIVE FROM 2012

SYLLABUS

for

POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS

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PREAMBLE

This one year Post Graduate Diploma in Computer Applications (PGDCA) course aims to give adequate expertise to a student to enable him/her to utilise computers for maximum benefit in an Office or Business environment. It will also enable a student to develop programs of his/her own to enhance productivity in such an environment. It will further equip the successful candidate to be able to teach Computer Applications in Higher Secondary Schools. It will provide the necessary skills to make the successful candidates proficient in software development, paving the way for self-employment. The course is oriented more towards Programming and Software than to Hardware.

Eligibility

This course is open to graduates of Arts, Science and Commerce streams. It does not presuppose that the applicant has had prior exposure to Computer Science. However, a good academic record and an aptitude for this subject as indicated by one's ability to analyse a problem and identify the sequence of steps required to arrive at a solution would be an essential requirement.

Duration

The Duration of the course is one academic year consisting of two semesters of 5 months each. Each semester should have a minimum of 100 working days for the purpose of class room teaching and excludes the days of examination and other works.

Examination

The course is based on the credit system of marking. For theory papers, one credit is assigned for every one hour of class in a week. For practical papers, one credit is assigned for every two hours of class in a week. There must be a minimum of 14 teaching weeks per semester.

The question papers of the external examination will be out of a maximum of 75 marks. However, the marks scored will be converted to grades according to the scheme given below.

Marks Obtained (%)	Grade	Grade Points
90 and above	O	10
80 to 89	A+	9
70 to 79	A	8
60 to 69	B	7
50 to 59	C	6
40 to 49	D	5
Below 40	F (Fail)	

A student has to complete 34 credits for the award of the Diploma.

Calculation of SGPA and CGPA and Conversion of CGPA to percentage

From the grade obtained by a student in each paper, the SGPA (Semester Grade Point Average) and CGPA (Cumulative Grade Point Average) will be calculated.

$$SGPA = \frac{\sum_{i=1}^n GP_i \times NC_i}{\sum_{i=1}^n NC_i}$$

GP_i = Grade Points earned in the i^{th} paper
 NC_i = Number of Credits for the i^{th} paper
 n = Number of papers in the semester

Preamble

$$CGPA = \frac{\sum_{i=1}^n SGPA_i \times NSC_i}{\sum_{i=1}^n NSC_i}$$

SGPA_i = Semester Grade Point Average of the ith semester
NSC_i = Number of Credits in the ith semester
n = Number of semesters

$$\text{Percentage} = CGPA \times 10 - 5$$

Requirements for Passing

For all subjects the passing requirement shall be that the candidate secures minimum 40 percent (Grade D) in the Internal Assessment as well as in the Semester Examinations. Only the candidates passing in Internal Assessment may be allowed to appear for the Semester Examination.

The marks for internal assessment for each paper are to be given on the basis of

- tests given during the course (3 tests may be given for each subject, and the best two marks may be considered for internal assessment)
- assignments submitted and/or seminars given
- laboratory record book in the papers applicable

A record of this may be maintained in the College.

Practical Record Book : In the papers involving practicals, a standard set of problems have been listed. These and/or others similar to them are to be done as practical work and submitted by the student in a laboratory record book. For each problem, the following sections are to be recorded :

- problem definition
- pseudocode and/or flowchart,
- sample test data
- source code, and
- sample input/output screens.

Classification of Successful Candidates

The successful candidates will be given marksheets that will contain the grades they have scored in each paper, as well as the SGPA and CGPA.

Candidates shall have to pass all the Papers within a period of 3 years from the date of admission to the First Semester to qualify for the award of the Diploma.

OUTLINE OF SYLLABUS

for

POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS

Semester	Paper		Class Hours	Marks		Credits	Hours
	No	Name		Internal Assessment	Semester Exam		
1	DCA-101	Digital Logic and Computer Organisation	50	25	75	3	3
	DCA-102	Data Communications and Networking	50	25	75	3	3
	DCA-103	Database Management Systems	50	25	75	3	3
	DCA-104	Programming in C	50	25	75	3	3
	DCA-105	Accounting and Financial Management	50	25	75	3	3
	DCA-106	Practical 1 : Programming in C	50	25	75	2	3
2	DCA-207	Programming in Visual Foxpro	50	25	75	3	3
	DCA-208	Programming in Visual Basic	50	25	75	3	3
	DCA-209	Software Engineering	50	25	75	3	3
	DCA-210	Practical 2 : Programming in Visual Foxpro	50	25	75	2	3
	DCA-211	Practical 3 : Programming in Visual Basic	50	25	75	2	3
	DCA-212	Project	100	25	75	4	Viva
			630	300	900	34	

DCA-101 : DIGITAL LOGIC AND COMPUTER ORGANISATION

Objective

This paper aims to cover some of the basic concepts of computer organization. It also provides an introduction to digital logic devices and Boolean algebra. The topics included here should enable a student to understand how data is represented and processed within a computer system.

Outline of the Course

Minimum Class Hours	Exam Time Hours	Marks		
		Theory	Internal	Total
50	3	75	25	100

Units	Topics	Class Hours	Marks
1	Introduction	10	15
2	Digital Devices	10	15
3	Boolean Algebra	14	20
4	Control unit	10	15
5	I/O and Memory units	6	10
Total		50	75

Detailed Syllabus

Unit 1:

10 Hours

Introduction:

Number systems: Bit, Byte, Nibble, Word, Binary Number, Binary Addition, Binary Subtraction, Binary Multiplication, Binary Division, 1's, 2's, 9's & 10's complements. Use of complements to represent negative numbers. Octal, Decimal & Hexadecimal number systems, Conversion of numbers from one number system to another e.g. Conversion of a binary integer to a decimal (base 10) integer and vice versa, Conversion of a binary fraction to a decimal (base 10) fraction and vice versa, BCD, EBCDIC, ASCII & Gray codes.

Unit 2:

10 Hours

Digital devices: Logic gates (AND, OR, NOT, NAND, NOR, XOR and XNOR), Realization of other logic functions using NAND/NOR gates. Drawing logic diagrams for different types of Boolean expression derived from truth tables; A brief introduction to Combinational and Sequential circuits. Differences between Combinational and Sequential circuits; Arithmetic circuits: Half-adder, Full-adder, Subtractor, Encoders, Decoders, Multiplexer, Demultiplexers; Definition of Flip-flops, Registers. Counters: Asynchronous counters, Synchronous counters.

Unit 3:

14 Hours

Boolean Algebra: AND, OR, NOT, NAND, NOR, EXOR, EXNOR operations.

The following Theorems of Boolean Algebra

$X+0 = X$, $X.1 = X$, $X+1 = 1$, $X.0 = 0$, $X+X = X$, $X.X = X$, $X+X' = 1$, $X.X' = 0$, $X.(Y+Z) = X.Y+X.Z$, $X+YZ = (X+Y).(X+Z)$, $X+XY = X$, $X(X+Y) = X$, $X+X'Y = (X+Y)$, $X(X'+Y) = XY$, $XY+XY' = X$, $(X+Y).(X+Y') = X$, $XY+X'Z = (X+Z)(X'+Y)$, $(X+Y)(X'+Z) = XZ+X'Y$, $XY+X'Z+YZ = XY+X'Z$, $(X+Y)(X'+Z)(Y+Z) = (X+Y)(X'+Z)$ & De Morgan's theorems.

Simplification of Boolean expression by algebraic method. Complement of a Boolean expression, Sum Of Products and Product Of Sums forms of logic expression, Canonical form of a logic expression, Conversion of Products Of Sums expressions into Sum Of Products form and vice versa. Conversion of Sum of Products expressions into canonical form, Conversion of Products of Sums expressions into Canonical forms. Boolean expression (in Sum Of Products form and Products Of Sums form) from a given Truth Table, Problems on how to obtain Boolean expressions in Product Of Sums or Sum of Products form from a

given Truth Table. Implementing logic expression with logic gates (logic expression can either be in Sum Of Product form or Products Of Sums form). Using universal gates to represent any Boolean expression. Convert a logic diagram that uses different types of gates (e.g. AND, OR, NOT gates) into a diagram that uses only one type of universal gate (either ONLY NAND or ONLY NOR gate).

Problems on minimizing Boolean expressions: Minimization using Karnaugh map for two, three and four variables, Realization of the Product of sums expression from Karnaugh map, Realization of the Sum of Products expression from Karnaugh map. Don't Care Conditions- problems using Don't care conditions, benefit of using Don't care conditions.

Unit 4:

10 Hours

Control unit

Block diagram of a computer.

Brief overview of the use of the following terms- Assembly Language, Machine Language, CPU, ALU, Accumulator, Program Counter, Registers; Instruction Format, Opcode, Operand, Source Operand, Destination Operand, Next Instruction, Stacks. Examples of 0-Addressing, 1-Addressing, 2-Addressing, 3-Addressing. Some Addressing Modes- viz. Immediate, Direct, Indirect, Register and Register-Indirect. Logical shifts- Logical Left, Logical Right, Arithmetic Left, Arithmetic Right, Rotate Left, Rotate Right.

Unit 5:

6 Hours

I/O unit: One (1) type of I/O operation viz. DMA (Direct Memory Access)- DMA Controller and DMA Transfer.

Memory unit: Stored program concept; Use of Main(RAM, SD RAM, DDRAM, ROM PROM, EPROM, EEPROM), Cache and Secondary memory; L1 & L2 Cache; Numerical problems on Hard Disks.

Instructions to Paper Setter

Questions should be set according to the following scheme. Each question can have parts.

Unit	Questions		Marks	Exam Hours
	To be set	To be answered		
1	2	1	15	3
2	2	1	15	
3	3	2	20	
4	2	1	15	
5	2	1	10	

Books For Study:

Text:

1. Mano, M Morris, *Digital Logic Design*, Prentice Hall of India, NewDelhi-110001
2. Mano, M Morris, *Computer System Architecture*, Prentice Hall of India, NewDelhi-110001

References:

1. Malvino and Leach, *Digital Computer and applications*, Tata McGraw Hill, New Delhi.
2. Ram, B., *Fundamentals of Microprocessors and Microcomputers*, Dhanpat Raji & Sons, Delhi, 1995.
3. Hamacher, V. Carl, *Computer Organization*, McGraw-Hill, New York, Fourth Edition, 1997.
4. Bartee, Thomas C, *Digital Computer Fundamentals*, Mc. Graw Hill, New York.

DCA-102 : DATA COMMUNICATIONS AND NETWORKING

Objective

Data communications and computer networks have become a topic of utmost significance to the present day information based society. This paper intends to provide students an understanding to the basic concepts and mechanisms underlying data communications and networking.

Outline of the Course

Minimum Class Hours	Exam Time (Hours)	Credits	Marks		
50	3	3	External	Internal	Total
			75	25	100

Unit	Topic	Minimum Class Hours	Marks
1	Introduction to Computer Networks; Physical Layer	10	15
2	Data Link Layer and Medium Access Control Sublayer	10	15
3	Network Layer	10	15
4	Transport Layer	10	15
5	Application Layer and Network Security	10	15
TOTAL		50	75

Detailed Syllabus

Unit 1: Introduction To Computer Networks and Physical Layer 10 hours

Introduction to Computer Networks

Uses of Computer Networks; Network Hardware – LAN, MAN, WAN; Wireless Networks; Network Topology; OSI Reference Model – Outline, Protocol hierarchies; TCP-IP Reference Model; Comparison between the two reference models

Physical Layer

Guided Transmission Media- Magnetic, Twisted pair, Coaxial cable, Fibre Optics; Wireless transmission- Radio transmission, Microwave Transmission; Communication Satellite, Frequency Division and Time Division Multiplexing

Unit 2: Data Link Layer and Medium Access Control Sublayer 10 hours

Data Link Layer

Framing, Error Control, Flow Control; Error Detection and Correction – Error Correcting Codes, Error-Detecting Codes; Elementary Data Link Protocols – Unrestricted simplex protocol, Simplex stop-and-wait protocol, Protocol for Noisy Channel; Sliding Window protocols – One bit sliding window, Go Back n protocol, Protocol using Selective Repeat;

Medium Access Control Sublayer

The channel Allocation problem; The Aloha Protocols – Pure ALOHA and slotted ALOHA. Local Area Network Protocols: Persistent and Non-persistent CSMA, CSMA with Collision Detection, Collision-Free Protocols, Wireless LAN protocols – MACA, MACAW

Unit 3 : Network Layer 10 hours

Design Issues – Internal Organization of the Network Layer; Routing Algorithms – Shortest Path Routing, Flooding, Distance Vector Routing, Link State Routing, Routing for Mobile Hosts; Congestion Control

Algorithms – General Principles, Load shedding, Jitter control, Leaky Bucket Algorithm, Token Bucket Algorithm; Internet Protocol – IP addresses, Subnets;

Unit 4 : Transport Layer

10 hours

Quality of service; Transport protocols – Addressing, Connection Establishment and Release, Flow Control and Buffering, Multiplexing, Crash Recovery
Internet Transport Protocols : TCP Service Model, Protocol, Header, Connection Management, Transmission Policy, Congestion Control; UDP

Unit 5 : Application Layer

10 hours

Application Layer

Domain Name System – name space, resource records, name servers; Electronic Mail- architecture and services, user agent, Message formats – MIME, Message Transfer - SMTP, Email Gateways, Message Delivery – POP3 and IMAP

Instruction to Paper setter

Unit	Questions		Marks
	To be set	To be answered	
1	2	1	15
2	2	1	15
3	2	1	15
4	2	1	15
5	2	1	15
Total	10	5	75

Recommended Books

Text

1. Andrew S. Tenenbaum, *Computer Networks (Third Ed.)* Prentice Hall of India, New Delhi, 2000

Reference

1. Behrouz A. Forouzan , *Data Communications and Networking(Second Ed.)* Tata McGraw Hill Edition
2. Sudakshina Kundu, *Fundamentals of Computer Networks*, Prentice Hall of India, New Delhi, 2005

DCA-103 : DATABASE MANAGEMENT SYSTEM

Objective

The objective of this paper is to introduce to the students the fundamental concepts necessary for designing, using and implementing database systems and applications. The paper stresses on database modeling and design, physical file storage techniques and language facilities provided by database management systems. The students are also provided with an overview of some of the emerging database technologies and applications.

Outline of the Course

Minimum Class Hours	Credits	Exam Time (Hours)	Marks		
50	3	3	Semester Exam	Internal	Total
			75	25	100

Unit	Topic	Hours	Marks
1	Introduction and Conceptual Data Modeling	12	20
2	Relational Data Model and Normalization	18	24
3	Structured Query Language	10	15
4	File Organization	10	16
Total		50	75

Detailed Syllabus

Unit 1: Introduction and Conceptual Data Modeling

12 Hours

Introduction: Introduction to databases, characteristics of the database approach, database users and designers, role of a DBA, advantages of using a DBMS, data models, schemas, instances, DBMS architecture (Three-Schema Architecture)

Conceptual Data Modeling: Phases of database design, entity type, entity set, attributes, keys, value sets, relationships, relationship types, relationship sets, relationship instances, relationship degree, role names, recursive relationships, constraints on relationship types, attributes of relationship types, weak entity types, ER Diagram, naming conventions and design issues.

Unit 2 : Relational Data Model and Normalization

18 Hours

Relational model concepts: Domain, attribute, tuple, relation, characteristics of relations, relational databases, relational database schemas, relational constraints (Domain constraint, constraints on null), entity integrity, referential integrity, foreign keys. ER to Relational mapping algorithm

Relational Algebra: basic relational algebra operations-SELECT, PROJECT, UNION, INTERSECTION, SET DIFFERENCE, Cartesian PRODUCT, JOIN, Aggregate functions

Normalization: Functional Dependencies, First Normal Form, Second Normal Form, Third Normal Form, Boyce-Codd Normal Form, Denormalization

Unit 3 : Structured Query Language 10 Hours

SQL: Characteristics of SQL, Data types in SQL, Types of SQL commands

Data Definition Commands: CREATE SCHEMA, CREATE TABLE, DROP TABLE, ALTER TABLE

Single table query commands: SELECT, SELECT with WHERE, SELECT with ORDER BY, SELECT with GROUP BY, SELECT with HAVING, SQL built-in functions - SUM, MIN, MAX, COUNT, AVG

Multi-table query commands: Retrieval using sub-query, JOIN, EXIST and NOT EXIST

Special operators: IS NULL, IS NOT NULL, BETWEEN..AND, IN, LIKE, ANY, ALL

Data changing commands: INSERT, DELETE, UPDATE

Unit 4 : File Organization

10 Hours

Storage Devices: Introduction to storage hierarchies, hardware descriptions of disk devices, Magnetic Tape Storage Devices, RAID technology (Raid Level 0, Level 1 and Level 2).

File Organization: Organization of file records on disk (record and record types, Fixed- length records, variable-length records, record blocking, spanned and unspanned records, allocating file blocks on disk, file headers, primary methods of file organization -Heap Files, Sorted Files, Hashed Files.

Indexing methods: Primary Indexes, Clustering Indexes, Secondary Indexes, Multilevel Indexes.

Instructions to Paper Setter

Questions should be set according to the following scheme. Each question may have parts.

Unit	Questions	
	To be set	To be answered
1	3	2
2	3	2
3	2	1
4	2	1

Recommended Books

Text:

1. R.Elmasri, S.B Navathe, *Fundamentals of Database Systems*, Addison, Wesley (Third Edition) 2000.

Reference:

1. A. Silberschatz, H.F Korth, S Sudarshan, *Database System Concepts*, Tata- McGraw Hill, 1997.
2. Bipin Desai, *An Introduction to Database Systems*, Galgotia Publications (West Publishing), 1991.
3. D.M Kroenke, *Database Processing: Fundamentals, Design and Implementation*, Prentice-Hall of India. (Eighth Edition) 2002.
4. G.W Hansen, J.V Hansen, *Database Management and Design*, Prentice-Hall of India, (2nd Edition) 2001.
5. Thomas M Connolly, Carolyn E Begg, *Database Systems, A Practical Approach to Design, Implementation and Management*, Addison Wesley Longman Ltd. 1999.

DCA -104 : PROBLEM SOLVING & PROGRAMMING USING C**Objective**

The objective of the course is to introduce the fundamentals of C programming language and develop the skills for solving problems using computers. The course will enable a student to design and program real world problems using C.

Minimum Class Hours	Exam Time (Hours)	Credits	Marks		
50	3	3	Semester Exam 75	Internal 25	Total 100

Unit	Topic	Hours	Marks
1	Introduction to Algorithms, C fundamentals	20	25
2	Functions, Storage Class, Arrays and Pointer	15	25
3	Structure, Union and Files	15	25
Total		50	75

Detailed Syllabus**Unit 1: Introduction to Algorithms, C Fundamentals****20 Hours**

Definition of Program & Algorithm, Pseudocode, Flowchart, Implementation of algorithms

C Fundamentals: The C character set, identifiers and key words, Data types, constants, variables and arrays, declarations, expressions, statements, symbolic constants, Operators and Expressions, Arithmetic operators, unary operators, relational, logical and bitwise operators, assignment operators, library functions.

I/O functions: Preliminaries, getch, getche, getchar, putchar, scanf, printf, gets, puts. Control statements: Preliminaries, while, do.. while, for, if..else, switch, break, continue, goto statements. The C Preprocessor: Macro Expansions.

Unit 2 : Functions, Storage Classes, Arrays and Pointers**15 Hours**

Functions: A brief overview, defining a function, accessing a function, passing arguments to a function, specifying argument data types, function prototypes, recursion, call by value, call by reference.

Program Structure: Storage classes, Automatic, Register, External, Static Variables.

Arrays and Pointers : Defining an array, processing an array, passing array to a function, multidimensional arrays, arrays and strings, pointer declarations, passing pointer to a function, pointer and one dimensional arrays, Operation on pointers, pointers and multidimensional arrays.

Unit 3 : Structures, Unions and Files**15 Hours**

Structures and Unions : Defining a structure, processing a structure, user defined data types, structures and arrays, structures and pointers, passing structures to a function, self referential structures, Union.

Data files: File opening modes, Formatted console I/O functions, checking file opening error, closing data files. Command line parameters, low level disk I/O. Enumerations, typedef.

Instructions to Paper Setter

Questions should be set according to the following scheme. Each question may have parts.

Unit	Questions	
	To be set	To be answered
1	3	2
2	3	2
3	3	2

Recommended Books

Text: Yashavant Kanetkar, *Let us C*, BPB Publication

References:

1. Byron S. Gottfried, *Theory and Problems of Programming with C*, Tata McGraw Hill Publication
2. E. Balaguruswamy, *Programming in ANSI C*, Tata McGraw Hill publication

Paper DCA-105: Accounting And Financial Management.

DCA-105 : ACCOUNTING AND FINANCIAL MANAGEMENT

Objective

The objective of this paper is to make the students familiar with the basic accounting and financial management concepts. This takes into account the knowledge of accounting that a student may require when faced with the task of developing or maintaining any package for any business/financial institutions as well as for non profit organisations.

Outline of the Course

Minimum Class Hours	Credits	Exam Time (Hours)	Marks		
			Internal	External	Total
50	3	3	25	75	100

Unit	Topics	Minimum Class Hours	Marks
1	Fundamentals Principles of Accounting	12	12
2	Final Accounts	12	20
3	Financial Management	12	15
4	Techniques of costing	8	14
5	Budget and Budgetary Control	6	14
Total		50	75

Unit 1 :

12 Hours

Accounting principles, concepts and conventions, Double entry system of accounting, journal, ledger, trial balance, cash book, single double and triple column cash book, preparation of Bank Reconciliation statement.

Unit 2 :

12 Hours

Capital and Revenue Expenditure, construction of trading, profit and loss accounts and balance sheet of sole proprietorship concerns with adjustments, manufacturing account, simple problems on final accounts of companies.

Accounts of non trading institutions-preparation of income and expenditure account from receipts and payments account, balance sheet.

Unit 3 :

12 Hours

Meaning and Role of Financial Management, Ratio Analysis – Meaning, Advantages, limitations, types of ratios and their usefulness, problems on ratio analysis.

Fund Flow Statement- meaning of the term funds, flow and fund flow, preparation of fund flow statement.

Unit 4 :

8 Hours

Concept of cost, costing and cost accounting, classification of cost, preparation of cost sheet.

Marginal costing – Basic concepts, break-even analysis, construction of break-even chart, problems on marginal costing, application of marginal costing in decision making.

Unit 5 :

6 Hours

Budget and Budgetary Control – Meaning, importance, types of budget, preparation of flexible budgets and cash budgets.

Paper DCA-105: Accounting And Financial Management.

Instructions For Paper Setter:

The number of questions to be set from each unit and the number of questions that the student has to answer are specified in the table below. Each question may have parts.

Unit	To be set	To be answered
1	2	1
2	2	1
3	2	1
4	2	1
5	2	1
Total	10	5

Books For Study :**Text :**

1. Dr. Jawahar Lal, Accounting for Management, Himalaya Publishing House, Mumbai

Reference :

1. C. Mohan Juneja, R.C. Chawla, K.K.Saksena, Double Entry Book Keeping, Kalyani Publishers, Ludhiana.
2. S.P.Jain, K.L.Narang, Cost Accounting, Kalayani Publishers, Ludhiana.
3. Shukla, Grewal, Gupta, Advanced Accounts, Schand & Sons, Delhi

DCA -106 : Practical 1
(PROBLEM SOLVING & PROGRAMMING USING C)

Minimum Class Hours	Exam Time (Hours)	Credits	Marks		
50	3	2	Semester Exam	Internal	Total
			75	25	100

Unit	Topic	Hours	Marks
1	C fundamentals, Functions, Storage Class, Arrays and Pointer	35	50
2	Structure, Union and Files	15	25
Total		50	75

Detailed Syllabus :

Same as DCA-104

Instructions to Paper Setter

For the examination in practicals, the problems need not be restricted to those given in the syllabus. However, they should be of similar standard. For evaluation of practical examination, the following points may be considered :

* Logic (pseudocode, sourcecode, error trapping)	Weightage	40 percent
* Coding and syntax	Weightage	10 percent
* I/O Design	Weightage	10 percent
* Completion	Weightage	20 percent
* Result	Weightage	20 percent

Questions should be set according to the following scheme.

Unit	Questions	
	To be set	To be answered
1	4	2
2	2	1

Practical Assignments

(Questions may not be restricted to this list)

- Write a program to display the message "Welcome to the C programming world" on the screen.
- Write a program to find out the sum of two integer values and display the result on the screen. Input the two values from the keyboard.
- Write a program to find out the greatest of three numbers.
- Write a program for swapping the two numbers with / without using another variable.
- Write a program to find whether the given year is a leap year or not (use % modulus operator)
- Write a program to find out the real roots of quadratic equation, $Ax^2+Bx+C=0$.
- Write a program to convert the given temperature in Fahrenheit to Celsius using the following conversion formula, $C=(F-32)/1.8$.
- Write a program to generate Fibonacci sequence. (0,1,1,2,3,5,8,13, ...)
- An employee is paid 1.5 times the normal rate for every hour beyond 40 hours worked in a week. Write a program to calculate the weekly wage of an employee.
- Write a program to check whether a given string is palindrome or not.
- The total distance traveled by a vehicle in t seconds is given by
Distance = $ut + (at^2)/2$

5.2.7(14)

Paper DCA-106: Practical 1 – Problem Solving and Programming using C

Where u is the initial velocity (meters per second), a is the acceleration (meters per second²). Write a program to evaluate the distance traveled at regular intervals of time, given the values of u and a . The program should provide the flexibility to the user to select his own time intervals and repeat the calculations for different values of u and a .

12. For a certain electrical circuit with an inductance L and resistance R , the damped natural frequency is given by

$$\text{Frequency} = \sqrt{[1/LC - R^2/4C^2]}$$

It is desired to study the variation of this frequency with C (capacitance). Write a program to calculate the frequency for different value of C starting from 0.1 in steps of 0.01.

13. Write a program to read the following numbers, round them off to the nearest integers and print out the results in integer form:

35.7 50.21 -23.73 -46.45

14. Admission to a professional course is subject to the following conditions:

(a) Marks in mathematics ≥ 60

(b) Marks in physics ≥ 50

(c) Marks in chemistry ≥ 40

(d) Total in all three subjects ≥ 200

Or

Total in mathematics and physics ≥ 150

Write a program to search of admission of students. The user has to enter the marks from the keyboard of the corresponding subjects.

15. Write a program to calculate the monthly telephone bill according to the following rules:

(a) Rural subscribers:

Upto 250 calls	Free
251 calls to 450 calls	0.60
451 calls to 500 calls	0.80
501 calls to 1000 calls	1.00
above 1000 calls	1.20

(b) Urban subscribers:

Upto 150 calls	Free
151 calls to 400 calls	0.80
401 calls to 1000 calls	1.00
above 1000 calls	1.20

(c) The rental for urban subscribers depends on the number of calls upto 400 calls the rental will be 200/- and above 400 calls the rental will be 240/-. For rural subscribers the rental is always 200/-.

16. Write a C program to input the Name, City Type (whether Metro or Non-Metro) and Basic Pay of an employee and calculate the salary according to the following rules:

(a) Dearness allowance (DA)

(i) Upto Rs. 3500 110% of basic pay

(ii) Above Rs.3500 90% of the basic pay subject to a minimum of Rs. 3850 (i.e. DA should be at least Rs. 3850).

(b) House Rent Allowance (HRA) is 15% of the basic pay subject to a maximum of Rs. 800 (i.e. never more than Rs. 800)

(c) If City is Metro, City Compensatory Allowance (CCA)=800 else if it is Non-Metro, CCA=600.

(d) Provident Fund (PF) is 12% of the basic pay.

(Total Salary=Basic Pay +DA+HRA+CCA-PF)

The output should be in the following format (Example only)

Example Name	ABCDEF
Basic Salary	5000
Dearness Allowance	4500
HRA	750
CCA: Non-Metro	600
PF	600
Total Salary	10250

17. Write a program to sum the following series:

a) The first n natural numbers

b) The first n odd natural numbers

c) The first n even natural numbers

18. Write a program to sum the series : $2 * 3 - 3 * 5 + 4 * 7 + \dots$ to n terms
19. Given a number, write a program using while loop to reverse the digits of the number. For example, the number 12345 should be written as 54321. (Hint: Use modulus operator to extract the last digit and the integer division by 10 to get the n-1 digit number from the n digit number.)
20. Write a program for sorting the elements of an array by using Selection sort, Bubble sort, Insertion sort.
21. Write a program to generate positive prime numbers.
22. Write a program to display the multiplication table of a given number for a given range.
23. Write a program to find the biggest and smallest number and its position in the given array.
24. Write a program to find add, subtract and multiply two matrices using function.
25. The factorial of an integer m is the product of consecutive integers from 1 to m. That is, Factorial $m = m! = m * (m-1) * (m-2) * \dots * 1$.
26. Write a program to find the sum of row, column, and diagonals of the given matrix.
27. Write a program to find the largest number of the given matrix using function.
28. Write a program to sort all the elements of a matrix using function.
29. Write a program to input a string and perform the following tasks without using library functions: (a) to find its length, (b) to change it to upper case / lower case (c) to extract the left most n characters, (d) to extract the right most n characters (e) to extract n characters from it starting from position p, (f) to insert another string in it at position p (g) to replace n characters in it starting at position p with a given string
30. Write a program to search a pattern in a given text.
31. Write a program to search a pattern in a given text and replace every occurrence of it with another given string.
32. Write a program to write a given number in words using function.
33. Write a program to display the text in a FILE. (TYPE command in DOS).
34. Write a program to copy the contents of one text file to another using command line arguments.
35. Write a program to merge the two text files into a third text file.
36. Write a program to copy the contents of one text file to any number of given files using command line arguments.
37. Write a program to count the number of characters, lines and words in a text file.
38. Write a program to print every line of a text file containing a given pattern.
39. Write a program to input, sort, and display n names using array of pointers.
40. Write a menu driven program to create records of students with marks in various subjects and store them in a file. Make provision for viewing all the records, searching a particular record, editing a particular record, deleting a particular record and listing a particular group of records.

S: 2:7(19)

DCA-207 : PROGRAMMING IN VISUAL FOXPRO

Objective :

The main objective of this paper is to expose the student to real-life Relational Database Applications using Graphical User Interface. Visual FoxPro is an excellent tool in this learning process. Focus is clearly on programming fundamentals and basic FoxPro commands and functions. However, for producing today's slick GUI applications, visual programming tools are included.

Outline of the Course

Minimum Class Hours	Credits	Exam Time (Hrs)	Marks		
			External	Internal	Total
50	3	3	75	25	100

Unit	Topic	Minimum Class Hours	Marks
1	FoxPro Fundamentals	14	20
2	Library Functions & SET Commands	6	10
3	Programming in FoxPro	12	18
4	Relational Databases & SQL and Form Designer	12	18
5	Reports, Menus and Project Manager	6	9
TOTAL		50	75

Unit 1 : FoxPro Fundamentals

14 Hours

Introduction : DBMS, RDBMS, Database, Table, Record, Field; Introducing the FoxPro Menu Structure, Working with the Command Window; Creating and maintaining a Data Table : Understanding Table Structure (Field names, Field Types & Widths), Constants, Variables, Operators, Expressions, Data types, FoxPro file extensions

Fundamentals: Creating a Table, Adding Data Records, Using the Change/Browse Mode, Editing existing Data, Database/Record Menu, Deleting a Data Record, Copying & Modifying a Table Structure; Syntax and use of Commands: USE, CREATE, MODIFY STRUCTURE, APPEND, BROWSE, EDIT, DISPLAY, LIST, REPLACE, DELETE, RECALL, PACK, ZAP, COPY, COPY STRUCTURE, QUIT; ?, CLEAR, CLOSE, AVERAGE, COUNT, DIR, SUM

Record Pointer, Moving record pointer, GO/GOTO, SKIP Commands; Clauses common to commands: Scope (NEXT, REST, ALL, RECORD), FOR, WHILE, FIELDS, Work Area & Table Alias

Sorting & Indexing, their differences, SORT Command, Types of Indexes (Single & Compound, Structural & Non-Structural, Candidate), Creating Indexes using the Index Dialog Box & Structure Dialog Box,

Syntax and use of Index related Commands : INDEX ON, SET ORDER TO, SET INDEX TO, REINDEX, SEEK, LOCATE, CONTINUE

Unit 2 : Library Functions and SET Commands

6 Hours

String Functions : ALLTRIM(), ISALPHA(), ISBLANK(), ISDIGIT(), ISLOWER(), ISUPPER(), LEFT(), LEN(), LOWER(), LTRIM(), PROPER(), REPLICATE(), RIGHT(), RTRIM(), SPACE(), STR(), STRTRAN(), SUBSTR(), TRIM()

Numeric Functions : ABS(), INT(), MAX(), MIN(), MOD(), ROUND(), SQRT(), VAL()

Date & Time Functions : CDOW(), CMONTH(), CTOD(), DATE(), DATETIME(), DAY(), DMY(), DOW(), DTOC(), DTOS(), HOUR(), MDY(), MINUTE(), MONTH(), SEC(), SECONDS(), TIME(), YEAR()

Miscellaneous Functions : BOF(), DELETED(), DBF(), EOF(), FOUND(), RECCOUNT(), RECNO(), RECSIZE(), SEEK(), IIF()

SET Commands : SET ALTERNATE, SET CENTURY, SET DATE, SET DECIMALS, SET DEFAULT, SET DELETED, SET EXACT, SET EXCLUSIVE, SET FILTER, SET FIXED, SET INDEX, SET MEMOWIDTH, SET ORDER, SET PRINTER, SET PROCEDURE, SET RELATION, SET SAFETY, SET SYSMENU

Unit 3 : Programming in FoxPro

12 Hours

Command Files, Comments, Indentation, Compiling and executing, File extensions; Control Structures: IF ... ELSE ... ENDIF, DO WHILE ... ENDDO, DO CASE ... ENDCASE, FOR ... ENDFOR, SCAN ... ENDSCAN, EXIT, LOOP

Memory Variables, their type, range of values and their scope (PUBLIC, PRIVATE), Macro Substitution, Name Expression

Debugging: Launching the FoxPro Debugger, Types of Bugs, Trace Window, Watch Window, Locals Window, Step Into, Step Out and Step Over, Run to Cursor, Break Points, Break Points Dialog Box, Conditional Break Points

Procedures & User-Defined Functions, Passing parameters by reference and by value; PROCEDURE, FUNCTION, PARAMETER Commands; Using Arrays as Structured Sets of Memory Variables (Dimensioning, Re-dimensioning, Assigning values to arrays, Accessing array elements); SCATTER, GATHER, APPEND FROM ARRAY, COPY TO ARRAY Commands

Commands: ?, ??, @..CLEAR, CLEAR ALL, DIMENSION, DISPLAY MEMORY, DISPLAY STATUS, MODIFY COMMAND, RELEASE, RELEASE ALL, RETURN, WAIT, MESSAGEBOX()

Unit 4 : Relational Databases & SQL and Form Designer

12 Hours

Relational Databases :

Working with the View/Query Window, Query and View Designer Toolbars, Query Menu Commands (Add Table, Remove Table, Remove Join, Fields, Join, Filter, Group By, Order By, Query Destination, View SQL), Saving Views and Queries, CREATE/MODIFY QUERY

SQL Commands : CREATE TABLE, ALTER TABLE (ADD | ALTER | DROP COLUMN), SELECT (ALL | DISTINCT, FROM, INTO, WHERE, GROUP BY, HAVING, ORDER BY, UNION), INSERT, DELETE, UPDATE

Form Designer : Object Oriented Programming : Objects, Properties, Methods, Events, Visual FoxPro Form, Form Controls Toolbar, Object Naming Conventions, Properties Window and its parts, Adding to / Removing from a Form user-defined Properties and Methods, Formatting Controls on a Form, Setting Tab Order of Controls, Managing the code window

Important Controls (Label, TextBox, ListBox, ComboBox, EditBox, OptionButtons, CheckBox, Spinners, Grid, OLEBound Control, PageFrame, CommandButton, Timer)

Important Properties (Name, Caption, Enabled, Visible, FontName, FontSize, FontBold, FontItalic, TabIndex, TabStop, ShowToolTip, ToolTipText, Format, InputMask, Value, ControlSource, RowSource, RowSourceType, Sorted, RecordSource, RecordSourceType, ScrollBars, SelText, SelectOnEntry, PasswordChar, Text, Century, DateMark, DateFormat, Hours, TerminateRead, Closable, AutoCenter, ControlBox, BorderStyle)

Important Methods (AddItem, Refresh, Release, RemoveItem, SetFocus, Show, Reset, Requery),

Important Events (Load, Init, Show, Activate, When, GotFocus, Valid; LostFocus, Destroy, Unload; Click, DblClick, RightClick, DragOver, KeyPress)

Unit 5 : Reports, Menus & Project Manager

6 Hours

Reports & Labels : The Process of Producing Reports, Parts of a report, Report Controls Toolbar, Report Title / Summary Dialog box, Data Grouping Dialog Box, Report Variables, Creating sub-totals and Report Totals, CREATE/MODIFY REPORT, REPORT FORM command

Menu Builder : Some Terms (Menu Bar, Menu Pad, Menu Prompt, Pop up Menu, Hot-Keys), Menus and Shortcuts, Menu Files and their extension, Launching the Menu Designer, Designing a Menu System, Generating the Program Code and compiling and executing it

S:2:7(2)

Paper DCA-207: Programming In Visual Foxpro.

Using Project Manager and Building Applications & EXE Files, CREATE/MODIFY PROJECT, BUILD PROJECT, BUILD APP, BUILD EXE

Instructions For Paper Setters

The question paper will be set according to the following scheme. Each question may have parts.

Unit	Questions for Theory			
	To be set	To be answered	Marks	Time
1	3	2	20	3 hrs
2	2	1	10	
3	3	2	18	
4	3	2	18	
5	2	1	9	

Books For Study :

Text :

Bazian, Booth, et al, *Using Visual FoxPro 6.0*, Prentice Hall of India, 1999

Reference :

Anne Taussig (Ed), *Microsoft Visual FoxPro 6.0 Language Reference*, Microsoft Press, 1998

DCA-208 : PROGRAMMING IN VISUAL BASIC

Outline of the Course

Minimum Class Hours	Credits	Exam Time (Hours)	Marks		
50	3	3	External	Internal	Total
			75	25	100

Unit	Topics	Minimum Class Hours	Marks
1	Introduction to Visual Basic	8	15
2	Starting with Visual Basic Programming	8	15
3	Procedures and Error Handling in Visual Basic	8	15
4	Menu Design and Other Controls	8	15
5	Database programming through Visual Basic	18	15
Total		50	75

Objective

The main objective of this paper is to give a strong foundation in related to the concept of Visual programming including Crystal Report, Menu Design & DataBase Management. It helps to understand how to develop powerful applications with less programming effort.

Unit 1 : Introduction

8 Hours

Creating Working Directory, Project, Forms, Module, Project window, Object, Event.
Controls & Properties : PictureBox, Label, TextBox, Frame, CommandButton, CheckBox, OptionButton, ComboBox, ListBox, HScrollBar, Timer, DriveListBox, DirListBox, FileListBox, Shape, Line, Image, Graph, Mhstate, Outline and their Corresponding Properties

Unit 2 : Starting with Visual Basic Programming

8 Hours

Basic Programming Building Blocks : Variables, Data types, Logical testing, Arithmetic and Relational Operators, Branching with if, Select Case, GoTo, For...Next, Do Loops, While... Wend, Arrays(ReDim), On...GoSub, On...OnGoTo, InputBox, MsgBox, InputBox, String Functions like Space, Space\$, Str, Str\$, Len, Trim, Ltrim, Rtrim, Trim\$, Mid, Mid\$, Left, Left\$.

Unit 3 : Procedures and Error Handling in Visual Basic

8 Hours

Procedures : Procedures (Sub and Fun), Attaching an Event procedure to a Form or Control, Creating a General procedure.

Testing & Debugging: Errors & Watches, Error Trapping

Unit 4 : Menu Design and Other controls

8 Hours

Menu Design : Creating a Menu Bar, Menu Design Window Keys, Adding Control to Menu Controls, Setting Caption, Name, Index, WindowList, Checked, Enabled, Visible, HelpContextID, Next, Insert, Delete & Adding Shortcut Keys. Rich Text Box control, Common Dialog Box control, MsFlexGrid and Crystal Report (Generating the Crystal Report)

Unit 5 : Database Programming through Visual Basic

18 Hours

Data Control :

Data Access (Creating Database, Designing Database, Managing the Database)

Methods (Field, Index, Indexes, Table, AddNew, Close, Edit, Delete, FindFirst, FindLast, FindNext, FindPrevious, ListFields, MoveFirst, MoveLast, MoveNext, MovePrevious, Update)

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Properties (BOF, Connect, DatabaseName, *DataField, DataSource, EOF, Recordset, Record Source, Updatable)

Introduction to ADO Model: Understanding OLE DB/ADO Architecture, Properties of ADO: Connection string, Command Text, Command Types, Cursor Locations, Cursor Types, Lock Types, Mode Types; ADO data control and its properties; How to open and ADO connection string and specifying an OLE DB provider, creating an ADO Recordset and manipulating with it.

Instructions For Paper Setter:

The question paper will be set according to the following scheme. Each question may have parts.

Unit	Theory		Marks
	To be set	To be answered	
1	2	1	15
2	2	1	15
3	2	1	15
4	2	1	15
5	2	1	15

Books For Study :**Text :**

1. Paul Sheriff's *Teaches Visual Basic*, Prentice, Hall India.
2. Jeffrey P. McManus, *DataBase Access with Visual Basic 6: The Authoritative Solution*, Tech Media, Sams Publishing.

Reference :

1. Evangelos Petroutsos, *Mastering Visual Basic 6*, BPB Publications, 1998.
2. Micheal C Amundsen and Curties L. Smith, *Teach Yourself Database Programming with Visual Basic 5 in 21 days*, TechMedia 1997.
3. Peter Norton, *Peter Norton's Guide to Visual Basic 6*, TechMedia, 1999.
4. Perry, *Teach Yourself Visual Basic 6 in 21 days*, Techmedia 1999.

DCA-209 : SOFTWARE ENGINEERING

Objective

Software Engineering is a fast developing field. We can view Software Engineering as the engineering approach to developing software. The objective of this paper is to provide a broad understanding of system development concepts. It provides the students with a sense of confidence to develop new systems.

Outline of the Course

Minimum Class Hours	Exam Time (Hours)	Credits	Marks		
50	3	3	Semester Exam	Internal	Total
			75	25	100

Unit	Topic	Minimum Class Hours	Marks
1	Introduction To Software Engineering Software life cycle models	8	15
2	Software project management, requirements and design	18	25
3	Function Oriented Software Design and user interface Design	14	20
4	Testing, software reliability and maintenance	10	15
TOTAL		50	75

UNIT 1

8 hours

Introduction: - Evolution of an art to an engineering discipline. Solution to the software crisis. Computer systems engineering.

Software Life cycle models: - Importance of a life cycle model, waterfall model (feasibility study, requirement analysis and specification, design, coding and unit testing integration and system testing, maintenance), prototyping model, evolutionary model, spiral model, Comparison of different life cycle models.

UNIT 2 :

18 hours

Software project management: Responsibilities of a software project manager, project planning, project estimation techniques, COCOMO, Scheduling (work breakdown, Activity Networks and critical Path Method, Gantt Charts, PERT Charts, project Monitoring and control), Organization and team structures (Organization structure, team structure), Risk management (Risk identification, risk assessment, Risk Containment), Software configuration Management (Necessity of software Configuration Management, Configuration Management Activities, Source code control system and RCS).

Requirement Analysis and specification: Requirement gathering and analysis, Software requirements specification (Content of the SRS document, Functional Requirements, how to identify the functional requirements, how to document the functional requirements, traceability, characteristics of a good SRS document, techniques for representing complex logic).

Software Design: introduction of a good software design, cohesion and coupling (classification of cohesiveness and coupling), Software design approaches (function-oriented design, Object-oriented Design).

UNIT 3

14 hours

Function Oriented Software Design: Overview of SA/SD methodology, Structured Analysis, data Flow Diagrams (DFDs)(primitive symbols used for constructing DFDs, important concepts associated with designing DFDs, developing the DFD Model of a system, Shortcomings of the DFD Model), Extending DFD technique to real-time systems, Structured Design (flow chart vs. structure chart, transformation of a DFD model into a structure chart), Detailed Design, Design Review.

User Interface Design: characteristics of a good user interface, basic concepts (user guidance and online help, mode-based vs. Modeless Interface, Graphical User Interface (GUI) vs. Text-based User Interface), Types of user interfaces (command language-based Interface, Menu-based Interface, direct manipulation Interface), Component-Based GUI Development (Window system, Types of widgets, an overview of X-window/Motif, X-Architecture, Visual programming), User interface methodology (Design, a GUI design methodology, Task and object modeling, selecting a metaphor, interaction design and rough layout, user interface inspection).

UNIT 4

10 hours

Coding and Testing: coding standards and guidelines, code review (code walkthroughs, code inspection, clean room testing, software documentation), Testing (testing, verification vs. validation, design of test cases), Testing in the large, Testing in the small, unit testing, black-box testing, White-box testing, debugging, program analysis tools, integration testing, system testing.

Software Reliability: Software reliability, statistical testing, software quality, and software quality management.

Software Maintenance: Characteristics of software maintenance (types of software maintenance, characteristics of software evolution, special problems associated with software maintenance), software reverse engineering, software maintenance process models, estimation of maintenance cost.

Instruction to Paper Setter

Unit	Questions	
	To be Set	To be Answered
1	2	1
2	2	1
3	2	1
4	2	1
Total	8	4

Recommended Books

Text:

1. Rajib Mall, *Fundamentals of Software Engineering*, Prentice Hall of India Private Limited, New Delhi.

References:

2. Carlo Ghezzi, Mehdi Jazayeri, Dino Mandrioli, *Fundamentals Of Software Engineering*, Second Edition, Prentice Hall of India Private Limited, New Delhi, 2002.
3. Richard E Fairley, *Software Engineering Concepts*, Tata McGraw Hill Publishing Company Limited, New Delhi, 1997.

DCA-210 : Practical 2 (PROGRAMMING IN VISUAL FOXPRO)

Minimum Class Hours	Exam Time (hours)	Credits	Marks		
			External	Internal	Total
50	3	2	75	25	100

Unit	Topic	Minimum Class Hours	Marks
1	FoxPro Fundamentals	10	75
2	Library Functions & SET Commands		
3	Programming in FoxPro	30	
4	Relational Databases & SQL and Form Designer		
5	Reports, Menus and Project Manager	10	
TOTAL		50	50

Detailed Syllabus :

Same as DCA-207

Instructions to Paper Setter

For the examination in practicals, the problems need not be restricted to those given in the syllabus. However, they should be of similar standard. For evaluation of practical examination, the following points may be considered :

* Logic (pseudocode, sourcecode, error trapping)	Weightage	40 percent
* Coding and syntax	Weightage	10 percent
* I/O Design	Weightage	10 percent
* Completion	Weightage	20 percent
* Result	Weightage	20 percent

Questions should be set according to the following scheme. There can be parts for each question.

Unit	Questions		Time (Hours)	Marks
	To be set	To be answered		
1	2	1	3	50
2				
3				
4				
5				

Practical Assignments : Sample Programs For Foxpro

(Questions may not be restricted to this list)

PART I : Command Window Exercises

structure of file BOOKS.DBF

Field	Field Name	Type	Width	Dec	Index	Remark
1	TITLE	Character	40		Yes	Title of book
2	AUTHOR	Character	20		Yes	Author of book
3	KEYWORD	Character	40			Indicates subject
4	CONTENT	Memo	10			Content of book
5	YEAR	Character	4			Year of Publication
6	PRICE	Numeric	7	2		Cost of book
7	NUMBER	Numeric	8		Yes	Accession Number
8	AVAILABLE	Logical	1			Whether available
9	RECVDATE	Date	8			Date of Receipt

With reference to the structure of BOOKS.DBF given above, write FoxPro command or commands to:

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- 1) Show one screen at a time, only the fields NUMBER, TITLE and AUTHOR, (in that order), listing the records in the alphabetical order of the TITLE of the books.
- 2) BROWSE through the file, limiting the fields shown to TITLE, NUMBER, COST (in that order), in ascending order of NUMBER, showing only the books having "COBOL" as a KEYWORD
- 3) Delete permanently all books whose price is 0
- 4) Increase the price of all books by 5%
- 5) Find the number of books on "FOXPRO" bought in 2004.
- 6) List only the TITLE, AUTHOR, DATE of the books bought in the last 20 days
- 7) List the books that have word "BASIC" anywhere in the TITLE field
- 8) Find the total number of books written by "KANETKAR" having COST between 200 and 300 (both inclusive).
- 9) Change the DATE OF PURCHASE of all books bought after 01/01/96 to today's date
- 10) Edit the last record in the file
- 11) Increase the ACCESSION NUMBER of the last 50 records in the file by 1
- 12) Change the TITLE of all the books to upper case (i.e. CAPITAL LETTERS)
- 13) Copy the records of books PUBLISHED in the year 2001 to a file called BOOK01.DBF
- 14) Sort the file according to PRICE in DESCENDING ORDER and browse through the sorted records
- 15) List the TITLE, AUTHOR and DATE OF PURCHASE of books bought on the 1st of May of any year.
- 16) Create a file called NEWBOOKS.dbf with a structure identical to that of BOOKS.dbf.
- 17) Change to PROPER case the names of all authors.
- 18) List the names of the authors of books on BIOTECHNOLOGY, using the fields TITLE, KEYWORD
- 19) Copy to a file called STAT.dbf all the books that have to do with STATISTICS in any way and whose price is between 100 and 200 and which were published after 1990.
- 20) Find the average price of all the books on BASIC and DBASE
- 21) List the TITLE, AUTHOR, and PRICE of all the books so that books having the same title appear only once:
- 22) Find the average, maximum and minimum price of books other than on computer science.

PART II : Programming Exercises

1. The Department of Telecommunications would like to computerise their billing operations. The bill of a consumer is calculated according to the following rules. The rent for Rural subscribers is 400 while for Urban subscribers it is 300.
For the Urban subscriber, the first 180 calls are free. The next 220 calls are billed at the rate of Re 0.80, the next 300 at the rate of Re 1.00, the next 300 at the rate of Rs. 1.20 and the calls beyond 1000 at the rate of Rs. 1.50.
For the Rural subscriber, the first 200 calls are free, the next 300 at the rate of Re. 0.80, the next 500 at the rate of Re. 1.00 and calls beyond 1000 at the rate of Re 1.20.
A service tax of 5% on the call charges and rental has to be paid by all subscribers.
Write a program in FoxPro to calculate the bill of a subscriber.
2. **BRILLIANT SCHOOL, GOLDEN CITY**, wants to prepare a student information file. The data to be recorded for each student is specified by the following table structure

STUDENTS.DBF

Field	Type	Width	Dec	Indexed
Name	C	25		Y
Rollno	N	6	0	Y
Birthdate		D	8	
Gender	C	1		
Class	N	2	0	
Place	C	25		
Town	C	25		
District	C	20		
State	C	20		
Admdate		D	8	

The following validation must be done for input data:

- a) The name must be stored in upper case and cannot be blank.
- b) The class can be a number from 1 to 10 only
- c) The roll number must be generated automatically. It is unique for each student in the school.
- d) The gender can be only 'M' or 'F'
- e) Place, Town, District and State should be in upper case

- f) The birth date (BIRTHDATE) should be such that students older than 35 years are not admitted as well as students younger than 5 years.
- g) The admission date (ADMDATE) should be the current date

Data entry should be allowed as long as required. Correction of input data should be allowed as many times as required. The users should be permitted to exit from the program without storing the currently entered data. Write a program in Foxpro to add records to the above table. Enter at least 5 records through your program.

- 3. Write a program in FOXPRO to edit a record of a database, called EMPLOYEE.dbf, given the employee number.

FIELD	TYPE	WIDTH	DEC
EMPNO	C	5	
NAME	C	20	
YEARJOINED	N	4	0
BASIC	N	5	0
METROCITY	L		
DA	N	8	2
HRA	N	3	0
CCA	N	3	0
PF	N	7	2
GROSS	N	8	2

The following validation of input data should be done:

- a) NAME should not be blank and must be stored in upper case
- b) BASIC must be between 1000 and 40000
- c) YEARJOINED must be between 60 years from the current year and the current year.

The following fields are to be calculated automatically as follows:

- d) DA (Dearness allowance)
 - Upto Rs. 3500 110% of BASIC
 - Above Rs. 3500 90% of BASIC subject to a minimum of Rs. 3850 and a maximum of Rs 18000.
- e) HRA (House Rent Allowance) is 15% of BASIC subject to a maximum of Rs. 800.
- f) CCA (City Compensatory Allowance) : If City is Metro, = 500 else if it is Non-Metro, CCA = 200
- g) PF (Provident Fund) is 12% of the BASIC.
- h) * GROSS = BASIC + DA + HRA + CCA - PF

Editing of records should be possible as long as the user wants. Correction of data should be allowed before storing the data. You must create the employee.dbf and add some records to it to test your program.

- 4. Telephone Directory of your personal friends contains the following details about your friends:
Name, Address (place, state, pin code), Telephone number, Birthday.

Write a program in FoxPro to add records to this directory.

Note:

- a) Input to character fields should always be stored in upper case.
- b) Input to date fields should be in the dd-mm-yy format.
- c) Pin code is a character field of width 7, the 4th character being a space, that should be automatically stored without the user having to type it.
- d) The Telephone number should incorporate the STD code that has standard 4 digits and is separated from the number by a hyphen, which also should be stored.
- e) The Data entry should be allowed as long as the user decides to continue. Provision should be given for correction of mistakes just before the data is appended.
- f) Enter at least 5 records including the following sample data.

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Name	Place	State	Pin Code Number	Phone	Birthday
ABCD	MAWLAI	MEGHALAYA	793 008	0364-111111	23/11/80
KLMN	DAMRA	ASSAM	781 125	0361-123456	01/10/55
EFGH	KOIHIMA	NAGALAND	774 545	0354-444444	11/12/78
AAAA	TURA	MEGHALAYA	794 123	0362-555555	01/11/75
BBBB	AIZAWL	MIZORAM	777 555	0367-666666	15/11/63

Using the database created in above, write a program to display the name and birthday of your friends whose birthday occurs in a given month. The names must be listed in the order of the day of the month. Appropriate message should be displayed if there is nobody born in the given month.

- 5) A college wants to prepare a student information file. The following data are to be recorded for each student:

Name, Class, Roll Number, Date of birth, Address(Place, Town, District, State, Pincode), Phone Number

The following validation must be done for input data:

- The name must be stored in upper case
- The class must be selected from the records available from CLASS.DBF (The fields for this table are : Class (N, 2), FirstRoll(N,3,0), LastRoll (N,3,0))
- The roll number must be generated automatically and sequentially according to the class: the first 4 digits are those of the year corresponding to the year of admission, the next two digits correspond to the class field, and the next three should be a number within FirstRoll and LastRoll of the corresponding class. If the last three digits exceed the LastRoll value, a message should be given stating that no more seats are available in that class.
- Place should be in upper case and cannot be left blank
- Town should be in upper case, but is optional
- District should be selected from the records available from DISTRICT.DBF (The fields are: DNAME(C,20), DCODE(N,3), SCODE(N,2). Only the corresponding DCODE should be stored, but the district name should be displayed.
- The state name should be displayed (taken from STATE.DBF, the fields being : SNAME(C,20), SCODE(N,2), but only the corresponding SCODE should be stored for each each student. The state would be automatically selected as soon as the district is selected.
- The Pincode has 6 digits, with a space in the middle, which however should not be stored.
- The birth date should be in dd-mm-yyyy format. The student is not less than 15 years of age and not more than 40 years old.

You will also have to create the databases CLASS, DISTRICT, STATE and write programs to add records to these with proper validation(every entry is unique and in upper case).

- 6) Write a program in FoxPro to edit the details of a student of a class (as entered in problem no. 5 above) given the roll number.
- Get input for roll number.
 - If there is no such roll number, print a relevant message.
 - For a valid roll number show the details already entered, and allow the user to make the changes as long as required. Obviously you cannot allow changes to the roll number itself, nor the class to which the student is admitted.
 - For the data being edited, the validation checks as in problem no.5 above are applicable.
- 7) Write a program in FOXPRO to append records to a database containing information about the customers of a bank. The following details are to be entered:

Account Number, Account Type, Date of opening the account, Customer's name, Date of Birth, Address (place, Town, District, State), Phone Number, Opening Balance

The following validation of input data should be done:

- The account number consists of : the first four digits correspond to the current year, and the remaining four digits are unique to an account of a given year. The account number must be generated automatically.
- The account type should be S(avings) or C(urrent) only and cannot be left blank
- The account holder's name should be obtained always in upper case and cannot be left blank
- The details of the address should be stored in upper case; only the field TOWN may be left blank. The other entries should not be left blank

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- e) The date of birth should be such that the customer cannot be more than 100 years old nor be younger than 15 years.
 - f) The date of opening the account should be the current date and should be stored automatically in the database
 - g) The opening balance should be a minimum of Rs 500.00
 - h) The Telephone number should incorporate the STD code and is separated from the local code by a hyphen, which also should be stored.
- 8) With reference to problem no.7, write a program to allow banking transactions for a given account number. You have to create a new table containing the account number, a one character code to indicate Deposit or Withdrawal, the amount of the transaction, mode of payment(cash/cheque/DD), date of transaction, balance. The following validation must be done:
- a) Before proceeding with the transaction, you must confirm the customer's identity by displaying the relevant information about the account holder
 - b) The transaction date is to be stored automatically from the system date, but must be displayed.
 - c) The balance after withdrawal must be at least Rs.500.
 - d) After the transaction, the balance field of the database created in problem 7 must be updated to reflect the current balance.
- 9) With reference to problem nos. 7 and 8 above, write a program to delete an account if the user wants to, given the account number. You must confirm the customer's identity, withdraw whatever is the balance remaining, delete the record from the bank database and copy it to an archival bank database. You must also delete all the transactions of that account from the transaction database, and store those deleted records in another archival transaction database.
- 10) Write a program to display the pass book of a customer, given the account number.
- 11) Write a program to get a report of all customers having a current balance between two limits specified by the user. The report must contain the account number, account type, name, part of the address, date of opening, current balance
- 12) Generate a report to enable the manager to view the transactions of a given day, and display the net cash balance. The report has a heading indicating the Bank Identity and the Transaction Date, and should contain the account number, name, account type, type of transaction, mode of transaction, amount of transaction. The report has a footer indicating the cumulative totals on each page for each relevant column.
- 13) Write a program to record the marks of the students (refer to problem no.5) of particular class. There are 4 subjects for all classes, namely, English, Economics, Accountancy, Computer Science. You have to create a new database which will have fields for recording the marks for each of the subjects and the roll number. Get input for the class and the subject, and then obtain the marks for the students of that class only (The Roll number and Name must be automatically displayed for each student of that class) for the given subject. The marks must be in the range 0 to 100.
- 14) Write a program to print out the result of the students of a given class (refer to problem 13). The report has a header indicating the institution, the class and the name of the examination. It must contain the roll number, name, marks in each subject and four more columns (Result, Total, Division, Percentage). The reporter footer should indicate the total number of students in the class, the number of those who passed, with division break up, the percentage of pass. A minimum of 30 marks in each subject and at least 35% in the total are required to pass. First division is 60% and above, second division 45% (included) to 60%, and third division 35% (included) to 45%. Division and percentage are indicated only for those who pass.
- 15) Design and implement a menu that gives access to each of the program that you have implemented earlier (examples 1 to 14). Arrange the menu in a logical order that reflects the hierarchy of the options. Provide convenient keyboard shortcuts and helpful comments in the status bar for each of the menu options.

DCA-211 : Practical 3 - PROGRAMMING IN VISUAL BASIC**Outline of the Course**

Minimum Class Hours	Credits	Exam Time Hours	Marks		
50	2	3	External	Internal	Total
			75	25	100

Unit	Topics	Minimum Class Hours	Marks
1	Starting with Visual Basic Programming	15	25
2	Using Procedures and Functions	15	25
3	Creating Menus, using Rich Text Box and Common Dialog Box Control, MsFlexGrid and Database Programming	20	25
Total		50	75

Objective:

The main objective of this paper is to give a strong practical foundation in Visual programming including Crystal Report, Menu Design & DataBase Management. It helps to develop powerful applications with less programming effort. It will be the stepping stone to the next generation programming.

(Note: Practical problems need not be restricted to these lists)

Unit 1 : Starting with Visual Basic Programming**15 Hours**

- Solve the quadratic equation.
- Determine whether the given number is odd or even.
- Finding the sum of n numbers.
- List of 'n' odd numbers and even numbers.
- List of prime numbers in 'n' numbers.
- Find the sum of 'n' odd numbers.
- Find the sum of 'n' even numbers.
- Find out the length of a string.
- Reverse the given string.
- Find the sum of the digits of a number and reversing the number.
- Determine whether the given string is Palindrome or not.
- Determine whether a given number is an Armstrong number or not.
- Sorting a list of numbers in ascending and descending order.
- Design a form with suitable controls to input a single digit number and write appropriate event handlers to check if the number is automorphic or not. A number is automorphic if the last digit of the square of the number is same as the number itself (e.g. 6).
- Calculate the Simple Interest on a given principal using the formula $SI = \frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100}$. Note the Principal, Rate and Time should be entered by the user.
- Convert a given temperature value from Fahrenheit to Celsius and vice versa.
- Find the factorial of a given number.
- Convert a given line of text from uppercase to lowercase and vice versa.
- Convert a given line of text from any case to Proper case (e.g. HeLLo wORLD should be Hello World).
- Determine the number of vowels, consonants and words in a given line of text.
- Select a Visual Basic file and load it (using DriveListBox, FileListBox, TextBox, CommandButton).

Unit 2 Using Procedures and Functions**15 Hours**

- Write a function that converts a given temperature taken as argument that converts from Celsius to Fahrenheit and vice versa.

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2. Write a procedure for determining the number of vowels, consonants, spaces and words in a given line of text.
3. Write a function that converts a given line of text from uppercase to lower case and vice versa.
4. Write a function that converts a given line of text from any case to proper case.
5. Write a recursive function that finds out the factorial of a given number.
6. Write a function to find the value of a given number 'a' raised to a given base 'b' (e.g. 2^3).

Unit 3 : Creating Menus, using Rich Text Box and Common Dialog Box Control, MsFlexGrid and Database Programming

20 Hours

1. Process a Marksheet (Progress Report) for any particular student.
2. Generate a Menu Driven Program for Calculating Result, Pass/Fail, Percentage, Highest/Lowest Marks, etc.
3. The following information is to be maintained regarding the users of electricity. Name, code and units consumed. Write a program that will take the name and units consumed and hence generate a bill. For the first 20 units cost is 30p/ unit, for the next 20 units, 40p/ unit, for the rest, 50p/unit. Make provisions for reading, editing and deleting data. Make provisions to keep the rates alterable. Use ADO data control.
4. A publishing company maintains records with the following information: Name of author, Author code, Name of Book, Book Id and Year of Publish. Make provisions to add, edit and delete records. Every time a new Author name is added, the Author code must be generated, so also with the name of Book and Book Id. Use ADO objects here too.
5. Refer to the above question to design a Crystal Report to display the details of the books for a given Author and given year of Publish. Design a Visual Basic form and write appropriate code to invoke the report.
6. Create a Database with two tables – Biodata and Marks. The table Biodata contains the fields Name, RollNo (RollNo is Unique), Gender, State, District, Place, Class, DOB(Date), Caste and the table Marks contains the fields RollNo, Physics, Chemistry, Maths. Make provisions to add, edit and delete records. Provisions should be made to display all the records of the given class with each one's average mark in a tabular format. (Class can be selected from a list box).

Distribution of marks for practical

For the examination in practicals, the problems need not be restricted to those given in the syllabus. However, they should be of similar standard. For evaluation of practical examination, the following points may be considered :

* Logic (pseudocode, sourcecode, error trapping)	Weightage	40 percent
* Coding and syntax	Weightage	10 percent
* I/O Design	Weightage	10 percent
* Completion	Weightage	20 percent
* Result	Weightage	20 percent

Instructions For Paper Setter:

Questions should be set according to the following scheme.

Unit	Questions		Marks
	To be set	To be answered	
1	2	1	25
2	2	1	25
3	2	1	25

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DCA-211 : Practical 3 - Programming In Visual Basic

Books For Study :

Text :

1. Paul Sheriff's *Teaches Visual Basic*, Prentice, Hall India.
2. Jeffrey P. McManus, *DataBase Access with Visual Basic 6: The Authoritative Solution*, Tech Media, Sams Publishing.
3. Evangelos Petroustos, *Mastering Visual Basic 6*, BPB Publications, 1998.

Reference :

1. M.W. Zimmermann (Ed), *Microsoft Visual Basic 6.0 Programmer's Guide*, Microsoft Press, 1998
2. M.W. Zimmermann (Ed), *Microsoft Visual Basic 6.0 Language Reference*, Microsoft Press, 1998
3. Micheal C Amundsen and Curties L. Smith, *Teach Yourself Database Programming with Visual Basic 5 in 21days*, TechMedia 1997.
4. Peter Norton, *Peter Norton's Guide to Visual Basic 6*, TechMedia, 1999.
5. Perry, *Teach Yourself Visual Basic 6 in 21 days*, Techmedia 1999

Question	Mark
1. To be set	1
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DCA-212 : PROJECT

Objective

The project aims to consolidate the concepts and practices that were imparted during the course and to serve as a record of competence. It should enable a student to apply concretely in a small package the concepts gained from System Analysis and Design.

Guidelines

The project will be carried out over a duration of 2 months, involving about 120 hours. Every student should do a project individually and not in a group, under the guidance of at least one of the faculty members and/or expert/professional from an organisation outside of the College. The Project Report should be submitted covering the aspects specified under Project Profile below. The Project Report should have a certificate from the College stating it to be a bonafide work of the student that it has not been submitted for any other examination.

Project Profile

Model 1

1. The topic for the project can be any subsystem of a system software or tool or any scientific or a fairly complex algorithmic situation.
2. The aim of this type is to highlight the abilities of algorithmic formulation, program and data flow representation, modular programming, optimised code preparation, systematic documentation and other associated aspects of software engineering.
3. The assessment would be through the Project Report and Viva. The former should portray the following:
 - Programming style, structured design, minimum coupling and high cohesion
 - Good commenting and annotating of the code and flow of representation, such that meaningful code, with good readability and ease of maintenance, results.
 - Design specifications, depicting the method adopted and giving a simple data dictionary, for each data, to cover name, type and validity aspects.
 - Test case samples, enough in number, to adequately cover the possible chances of common errors
 - User manual

Model 2

1. This model can be of a typical business application. The aim of this type is to highlight the stages involved in a typical business oriented project development, though on a miniature scale and simulated environment. The appropriate use of DBMS/RDBMS towards any business application, along with adequate level system analysis and structured design and development of specific tools/products would be the underlying activity, in preparing this project.
2. The emphasis should be on selecting a system/subsystem which shows the DBMS and System Analysis aspects to a greater degree. Any small and simple business system may be selected, although candidates are advised to use their knowledge and creativity, to select typical and intelligent applications, rather than run-of-the-mill themes, such as simple Pay roll calculation or Issue-Return portion of an inventory scheme. The Evaluation stage would give due weightage for theme selection, problem analysis, fact finding techniques and initial design, which is as close to real-life business situations as possible.
3. The code for the project can be generated out of 4 GL Interface, like Form Designer and Report Generator, Application Generator/Program Code Generators. The documentation need not contain the

DCA-212 : Project

code generated by these applications, but only that written by the candidate. In the place of the code generated by these applications, the screens they generate can be included.

4. The assessment would be through the Project Report and Viva. The former should portray the following:
 - Requirements leading to the project, those which were the result of System Analysis
 - The design aspect of DBMS oriented documentation which describes the structure and organisation of the database well annotated source code, supplemental documentation, which can serve as a Data Analysis and Data Flow description
 - A simple Data Dictionary of the elements, which form the structure. The number of tables/files which make up the DBMS, should not be less than three.
 - Details about I/O Screens and facilities, for on-screen querying, printed oriented Reports and built in house-keeping routines, which help disk management and file integrity, are to be included to a limited extent
 - User Manual

Viva-Voce

The viva-voce will be conducted by an external examiner appointed by the University and an internal examiner from the College. Other members of the faculty and students may be present. It will be of a duration of about 15 to 20 minutes. The logic, analysis and design aspects relevant to the project mentioned under assessment would be the main subject matter for the viva. However the general proficiency of the candidate in the selected software platform should also be tested.

Documentation

System Overview will have the following sections:

1. Application area : eg Production/Inventory / Finance / Marketing / Human Resource Management / Library / Training/Service Sector/System Level Programming, etc
2. System/Subsystem : eg Invoicing & Accounts Receivables, Purchase & Accounts Payables, Budget & Accounts with variance analysis, Production & Sales Monitoring, Material Requirement Planning, Hotel Management/Hospital Management/Specific Software utility
3. End User(s) : Finance Controller, Marketing Manager, Production Manager, Personnel Department, School or College or Hospital administrative staff, etc
4. Analysis and description of the system, and the specific gains from computerisation
5. Description of the various modules
6. Performance criteria for the proposed system : eg volume of transactions (data handling), control aspects, timeliness, archival
7. Need for review : deficiencies and future enhancements

Data Dictionary

1. This should give a catalogue of the data elements used in the system/subsystem developed.
2. The following are the details required. Write NA where NOT applicable
 - Data Name
 - Aliases, if any
 - Length (size)
 - Type (Numeric, alpha, binary, etc)
 - Validity criterion (Minimum, maximum, etc)
 - Default value, if any
 - Whether related to other data items
 - Where used in the program:
reference to data structure/file/procedures/modules

DCA-212 : Project

User Manual :

It may include chapters like the ones suggested below:

1. Installation
2. Hardware requirements
3. System requirements
4. Installation procedure, including security aspects like password, backups, controls, etc
5. Menu choices and their actions - screen formats
6. Error messages
7. Output
8. A Sample test case

Distribution Of Marks :

Project Report	: 25
Viva	: 25
Internal Assessment	: 50

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5:7: - Affiliation etc.:

(i) Inspection report of various Colleges.

1. Renewal of Provisional Affiliation to subject(s)/course(s) of study in an Affiliated College/Institution:

Sl. No	Name of Colleges	Subject(s)/Course(s) applied for	Recommendation of the Inspection Team	Recommendation of the Affiliation Committee
1.	K. L. Bajoria College, Shillong	B. A. (Pass) in English, Alt. English, Khasi, Pol. Science, Education, Economics, History, Sociology and B. Com. (Pass)	The Report of the inspection team for K. L. Bajoria College, Boyece Road, Lower New Colony, Shillong-793003 for renewal of provisional affiliation for B. A. (Pass) and B. Com. (Pass): The team visited the college on 14th March, 2012 at 11:00 am and team members inspected the building, library and met the teachers and Principal. The team found that : (1) College has minimum required number of teachers in English, Alternative English, Political Science, Sociology, History and Economics; (2) College doesn't have any teacher in Khasi and only three teachers in Education; (3) College has only one teacher appointed through proper selection committee in Commerce; (4) The college has procured some quality books in the library as per the	The Affiliation Committee resolved to recommend to the Academic Council that as per Visiting Team recommendations, (i) The College may be granted renewal of Provisional Affiliation for B.A. (Pass) course for a period of 3 (three) years w.e.f academic session 2012-13 to 2014-15. (ii) The Principal has submitted clarifications as per Inspection Team recommendations and two more teachers have been appointed in Commerce and 1 (one) teacher in Khasi. (iii) In view of the Principal's clarifications on appointment of teachers, the College may be granted renewal of Provisional

			5:7:1(2) recommendation of the previous inspection team; (5) The College library does not subscribe two journals in each subject; (6) Library reading room is inadequate in size; (7) College has increased the fixed deposit to ` 15 lacs as per the required norm. Hence the following recommendations were made: (1) The college may be given the renewal of provisional affiliation in B. A. (Pass) w.e.f. 2012-13 in English, Alternative English, Political Science, Sociology, History, Education and Economics for three years; (2) The college may be given the renewal of provisional affiliation in B. Com. (Pass) and Khasi w.e.f. 2012-13 for one year. With subject to following conditions: (1) The college appoints three teachers in Commerce and one teacher each in Khasi (MIL) & Education through proper selection committee at the earliest; (2) College library should subscribe at least two journals in each subject from the year 2012; (3) College should procure the proposed number of books at the earliest. Sd/- Prof. N. Srivastav, Economics	Affiliation for B.Com. (Pass) course for a period of 3 (three) years w.e.f. academic session 2012-13 to 2014-15 and for Khasi for a period of 1 (one) year w.e.f. academic session 2012-13. The Principal is required to submit the copies of the joining reports of the teachers to the CDC. <u>Remarks:</u> The Principal K. L. Bajoria College vide her letter dated 15/6/2012 has submitted the joining reports of the teachers in English, Commerce, History, Khasi & Hindi. She has also submitted a plan of the new building as asked for by the Inspection Team.
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			Deptt. (Convener) Sd/- Dr. (Ms) U. G. Sewa, English Deptt. (Member) Sd/- Dr. V. R. Rengsi, History Deptt. (Member) Sd/- Dr. A. P. Pati, Commerce Deptt. (Member) Sd/- Dr. B. K. Mohapatra, Political Sc. Deptt. (Member) Sd/- Dr. B. B. Rymbai, Education Deptt. (Member) Sd/- Dr. P. Hangsing, Lib & Info Sc. Deptt. (Member) Sd/- Mr. S. I. Hussain, AE (Civil) CDD (Member) Sd/- Dr. C. R. Diengdoh, Director, CDC (Member) Sd/- Dr. H. langrai, DHTE nominee (Member).	
2.	Nongstoin College, Nongstoin , West Khasi Hills	B. A. (Hons) in English and Economics	Report of the Inspection Team on Renewal of Provisional Affiliation for B. A. (Hons) courses in English and Economics in Nongstoin College, West Khasi Hills, Meghalaya The Inspection Team, comprising the following members visited Nongstoin College, West Khasi Hills on the <u>19th March. 2012</u> at 12 noon: Dr. M. M. Naga, Member, Dept. of Lib. & Inf. Sc. NEHU Mr. N. I. Barbhuyan, Member, Asst. Engineer, CDD, NEHU Dr. C. R. Diengdoh, Member, Director, CDC, NEHU Prof. B. Mishra, Convener, Dept. of Economics, NEHU After a thorough physical	The Affiliation Committee resolved to recommend to the Academic Council that as per Visiting Team recommendations, the College may be granted renewal of Provisional Affiliation for a period of 3 (three) years w.e.f. academic session 2012-13 to 2014-15.

			verification of the factual data, supplied by the college on demand, the committee observes the following: 1. That the college has adequate infrastructure in terms of space for class rooms, furniture and sufficient financial resources ₹15,00000/- (fifteen lakh) in the form of bank fixed deposit for smoothly running the honours courses that the college has applied for affiliation. 2. That the college has come up with a computer laboratory with 26 nos. of computers for the use of the students. 3. That the college has 5(five) teachers in English and 4(four) teachers in Economics, thereby satisfying the minimum requirements (RB2, OB-6). 4. The college has a good number of books in each major subject (English – 1776) and (Economics – 914) and journals are being subscribed in English and Economics. The Inspection Team observes that a qualified Librarian be appointed for efficient functioning of the Library and the books in the library are to be classified according to the latest edition of the Dewey Decimal Classification Scheme. 5. That the college has shown consistent good results in the last three years in terms of pass percentage of the	
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			students in the respective honours courses. In the light of the above observations, the Inspection Team recommends renewal of provisional affiliation to the college for B. A. (Hons) in English and Economics for a period of (3) three years. Sd/- Prof. B. Mishra, Economics Dept. (Convener) Sd/- Dr. M. M. Naga, Lib. & Inf. Sc. Dept. (Member) Sd/- Mr. N. I. Barbhuyan, AE, CDD (Member) Sd/- Dr. C. R. Diengdoh, Director, CDC (Member).	
3.	Seng Khasi College, Shillong	B. A. (Hons) in Economics and B. A. (Pass) in Sociology	The inspection team visited the College on <u>9th April, 2012</u>. a. The visiting team recommends Provisional Affiliation to B. A. Economics (Hons) for a period of 3 years. b. The visiting team recommends Provisional Affiliation to Sociology B. A. (Pass) for a period of 3 years. Sd/- Prof. C. L. Imchen, Sociology Deptt. (Chairman) Sd/- Dr. P. S. Suresh, Economics Deptt. (Member) Sd/- Dr. (Ms) B. Laloo, Lib. & Inf. Sc. Deptt. (Member) Sd/- Shri. W. R. Lyngdoh, AE, CDD (Member).	The Affiliation Committee resolved to recommend to the Academic Council that as per Visiting Team recommendations, the College may be granted renewal of Provisional Affiliation for both (Hons & Pass) courses for a period of 3 (three) years w.e.f. academic session 2012-13 to 2014 -15.
4.	Sankardev College,	B.A/B.Sc. (Pass) in Statistics	An Inspection Team visited Sankardev College, Shillong on	The Affiliation Committee resolved to

Shillong			10th April. 2012 at 12:00 p.m. in connection with the renewal of Provisional Affiliation of B. Sc. (Pass) in Statistics. Following members were present. 1. Dr. C. R. Diengdoh, Director, CDC (Member) 2. Dr. H. langrai, DHTE nominee (Member) 3. Mr. J. Cherian, AE (Civil), CDD (Member) 4. Prof. G. Das (Chairperson) The Inspection Team made the following recommendations/ observations: 1. The College has at present only one full time teacher and three part time teachers in the Department of Statistics. The Inspection Team strongly recommends appointing at least two full time teachers within six months. 2. The Inspection team found that the College Library has a very good ambience with spacious reading room and internet facilities. But, as suggested by the previous visiting team (April 2009), the present team also observed the need to procure requisite and good quality books. In this respect, as the Principal said there is no dearth of funds for purchasing books for the Library, the present team therefore urge upon the teachers to make good effort to procure recommended and reference books.	recommend to the Academic Council that as the College has applied for regularization of the break period as well as for the grant of renewal of Provisional Affiliation and paid the prescribed fees, and late fees, the break period may be regularized for the academic session 2011-12 and renewal of Provisional Affiliation may be granted for a period of 1 (one) year w.e.f. academic session 2012-13. In view of the above, the College should deposit a fixed deposit amount of ₹ 15 (fifteen) lakhs as Corpus Fund within this year and should appoint two more regular teachers in the concerned subject as per UGC/NEHU norms.
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			3. The Team highly appreciates the efforts made by the College to fulfill the condition laid by the previous Inspection Team, that is, to avail UGC funds to install 12 computers in the Computer Lab which can be used by the students for practical classes. However, it seems that the Department (though its three part time teachers are trained) have not used computers accordingly for practical classes in Statistics. The team feels that proper justice cannot be done to overall quality teaching of the subject since each of the three part time teachers are available only twice a week for two lectures per day only. 4. As per new regulations, the College is required to maintain a Corpus Fund of Rupees Fifteen lakh. Whereas the documents submitted by the College show that the Corpus Fund of the College is much less than ₹15.0 lakh. The Inspection Team recommends regularization of break period for the Academic Session 2011-12 and grant of renewal of Provisional Affiliation for one year for the Academic Session 2012-13 to Sankardev College for B. A./B. Sc. (Pass) in Statistics, subject to fulfillment of the above conditions.	
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			Sd/-Prof. G. Das, Statistics Deptt. (Chairperson) Sd/-Dr. C. R. Diengdoh Director, CDC (Member) Sd/-Mr. J. Cherian, AE(C),CDD (Member) Sd/-Dr. H. langrai DHTE nominee (Member).	
5.	Jaintia Eastern College, Khliehriat	B. Com. (Pass & Hons)	Report of the visiting team for renewal of Provisional Affiliation for B. Com. (Pass & Hons) course in Jaintia Eastern College, Khliehriat. The visiting team comprising Prof. N. M. Panda (Convener), Dr. C. R. Diengdoh, Director, CDC, NEHU (Member), Dr. M. M. Naga (Member) and Dr. B. N. Lamare (Member) visited the above mentioned college on <u>17th April. 2012</u> at 11:30 am in connection with the application of the college for renewal of provisional affiliation for B. Com. (Pass & Hons) course. The visiting team had access to some of the relevant records of the college. The following are the observations of the team: 1. The Governing Body of the College in its meeting held on 22.06.2011 has approved (Resolution No 4) the proposal for renewal of the provisional affiliation for B. Com. (Pass & Hons) course. 2. The college has adequate infrastructural facilities (building, furniture, computer lab with more than a dozen PCs etc) for B.	The Affiliation Committee resolved to recommend to the Academic Council that as per Visiting Team recommendations, the College may be granted renewal of Provisional Affiliation for both (Pass & Hons) for a period of 1 (one) year w.e.f. academic session 2012-13. The College should fulfill the conditions as laid down by the Inspection Team within this period. The Affiliation Committee also resolved that the College should apply for renewal of Provisional Affiliation before the expiry of the 1 (one) year affiliation being granted and pay the prescribed fee. The Principal should be informed to submit the documents regarding appointment of the teachers which may be

		Com. (Pass & Hons) course. 3. The college has four lecturers in the subject out of which only one lecturer had been appointed through a proper selection committee. The college is yet to regularize the appointment of two teachers in the subject and also of the college librarian following proper procedure, thereby shows a non-compliance of the earlier condition laid by the university. 4. The college has procured around 450 books in the subject. The strength of the library (books and relevant journals) is found to be adequate for B. Com (Pass & Hons) course. 5. The financial strength of the college, particularly in the light of the UGC grant and committed annual support from the local industries is judged adequate to support the programmes of the college. 6. The college did not start the Honours course in the first year of B. Com. Programme (2011-12). 7. The college showed the evidence of the selection committee meeting (for recruiting lecturers) scheduled to be held on 20.04.2012. Taking into consideration the above mentioned observations, location and the targeted	forwarded to the Academic Council for consideration of affiliation period. Remarks: The Principal has submitted clarifications that 2 teacher viz. Miss. Levality Wahlang & Mr. Charles Marngar have been approved for appointment as permanent lecturers by the Governing Body of the College held on 30/4/2012 and 2 more lecturers viz. Shri. David S. Warjri & Miss. Ibahunlang Tiewdoph have been appointed on condition that they have to face the Interview Board as recommended by the Selection Committee dated 20/4/2012. The Principal has also submitted the joining reports of the teachers as shown below: 1. Shri. Raymond Dohling – joined on 1/7/2011. 2. Shri. D. S. Warjri – on 1/5/2012. 3. Smt. Levality Wahlang – on 4/5/2012. 4. Smt. Ibahunlang Tiewdoph – on 4/5/2012. 5. Shri. Charles
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		market segment of the college, the members of the visiting team unanimously resolved to recommend the college for the renewal of provisional affiliation for B. Com. (Pass & Hons) course for a period of one year subject to fulfillment of the following conditions: 1. The college has to recruit at least three teachers in commerce through a proper selection committee/ procedure. 2. The college has to regularize the appointment of the librarian of the college or recruit a fresh one by following proper selection procedure. Further the college may be advised to strengthen its library by procuring some books every year in the dynamic subjects like Income Tax, Indian Financial System, and Business Environment etc. The members also suggest that the Director, CDC be requested to inform the university the compliance of the above conditions before the start of academic session 2012-13. Sd/- Prof. N. M. Panda, Commerce Deptt. (Convener) Sd/- Dr. M. M. Naga, Lib & Inf Sc. Deptt. (Member) Sd/- Dr. C. R. Diengdoh, Director, CDC (Member) Sd/- Dr. B. N. Lamare, DHTE nominee (Member).	Marngar 4/5/2012.	on
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6.	Umshyrpi College, Shillong	B. Com (Pass & Hons)	The inspection team visited the College on <u>18th April. 2012.</u> The visiting team comprising Prof. N. M. Panda (Convener), Dr. M. M. Naga (Member), Dr. C.R. Diengdoh (Member), and Mr. S. I. Hussain (Member) visited the above mentioned college on 18.04.2012 at 12.15 pm. in connection with the application of the college for renewal of provisional affiliation for B. Com. (Pass & Hons) courses. The visiting team had access to some of the relevant records of the college. The following are the observations of the team: 1. The college has adequate infrastructural facilities in general (building, furniture, computer lab with more than 15 PCs etc) to run B. Com. (Pass & Hons) course. 2. The college has appointed three more teachers in the subject through properly constituted selection committee, thereby raising the teachers' strength to 6 (six). 3. Following the suggestion of the university (vide letter dated 13.12.2011), the Governing Body of the college has decided to bring changes in the admission policy. Taking into consideration the above mentioned observations and the steps taken by the	The Affiliation Committee resolved to recommend to the Academic Council that as per Visiting Team recommendations, the College may be granted renewal of Provisional Affiliation for both (Pass & Hons) for a period of 3 (three) years w.e.f. academic session 2012-13 to 2014-15. The College should fulfill the conditions as laid down by the Inspection Team within one year.
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			college to comply with the conditions laid down by the university the visiting team unanimously resolve to recommend the college for renewal of provisional affiliation for B. Com (Pass & Hons) course for a period of three years. Sd/- Prof. N. M. Panda, Commerce Deptt. (Convener) Sd/- Dr. M. M. Naga, Lib & Inf Sc. Deptt. (Member) Sd/- Dr. C. R. Diengdoh, Director, CDC (Member) Sd/- Mr. S. I. Hussain, AE (C), CDD (Member).	
7.	Regional Institute of Science & Technology, Baridua, Ri-Bhoi	B. Tech. in 1) Electronics & Communication Engineering, 2) Mechanical Engineering, 3) Computer Science & Engineering, 4) Information Technology, 5) Civil Engineering, 6) Electrical & Electronics Engineering	The inspection team visited the Regional Institute of Science and Technology (RIST), Baridua, Meghalaya on <u>30th April, 2012</u> at 11 am. Two members from the disciplines of civil and Mechanical Engineering were not present for the Inspection. We took into account the detailed report submitted by the previous inspection team that visited the same Institute on March 3, 2011. Our general impression of the present status of RIST is quite positive. There is no deterioration in the facilities observed by the previous inspection team, and more facilities have been added since that visit. The newly added facilities include two teaching blocks, more volumes to the library, more computers in the	The Affiliation Committee resolved to recommend to the Academic Council that as per Visiting Team recommendations, the Institute may be granted renewal of Provisional Affiliation for a period of 1 (one) year w.e.f. academic session 2012 -13. The College should fulfill the conditions as laid down by the Inspection Team within this period. The Affiliation Committee also resolved that the College should apply for renewal of

		computer lab, more equipment in the workshop, and a new hydraulics laboratory. There are a minimum of seven teachers in each department. The committee feels (i) that the civil engineering department should take steps to set up a soil technique lab that would be needed in the near future. (ii) a dedicated digital signal processing lab should be set up in the department of ECE. (iii) the library should be augmented with a proper reading room, and also the books in the library should be arranged in a professional matter (classification and cataloguing). The library should be automated. (library system and services should be computerized). More volumes should be procured for each discipline. <u>Recommendation</u> In view of the above observation, the inspection team recommends that provisional affiliation of RIST to NEHU may be renewed for another year. Sd/- Prof. P. Shukla, Physics Deptt. (Convener) Sd/- Dr. D. Hazarika, Electrical Engineering Deptt., Assam Engineering College, Guwahati (Member) Sd/- Shri. B. Bhuyan, IT Deptt. (Member) Sd/- Dr. S. K. Dutta, Electronics & Communication	Provisional Affiliation before the expiry of the 1 (one) year affiliation being granted and pay the prescribed fee.
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			Engineering Deptt.(Member) Sd/- Dr. M. M. Naga, Lib & Inf Sc., (Member) Sd/- Mr. S. I. Hussain, AE (Civil), CDD (Member) Sd/- Dr. C. R. Diengdoh, Director, CDC (Member) Sd/- Dr. B. N. Lamare, DHTE nominee (Member).	
8.	NEIGRIHM S, Mawdiang -diang, Shillong	MD in Anaesthesiology, Microbiology, Pathology and MS in Obstetrics & Gynaecology (PG courses)	Report of the Inspection team to NEIGRIHMS, Mawdiang- diang, Shillong for renewal of Provisional Affiliation of PG courses (MD in Anaesthesiology, Microbiology, Pathology and MS in Obstetrics & Gynaecology): The Inspection Team constituted for the purpose inspected the Dept. of Anaesthesiology, and the Dept. of Microbiology on <u>9th May, 2012</u> whereas the department of Pathology and the department of Obstetrics & Gynaecology were inspected on <u>10th May, 2012</u>. On both the days, the team was comprised of specialists in the subject cited above from the Directorate of Health Services, Govt. of Meghalaya and the Director, HTE, Meghalaya. The team inspected various infrastructure facilities, central library, the labs/equipments, concerned wards and also	The Affiliation Committee resolved to recommend to the Academic Council that as per Visiting Team recommendations, the Institute may be granted renewal of Provisional Affiliation for a period of 3 (three) years w.e.f. academic session 2012-13 to 2014-15. The Affiliation Committee also resolved that the Institute should fulfill all the conditions as laid down by the Inspection Team particularly appointment of faculty in the Department of Microbiology.

			interacted with the Faculty, SRDs, technicians and support staff of the concerned departments of the Institute on both the days. On the final day i.e. on 10th May, 2012 (evening), team interacted with the Director, NEIGRIHMS and had fruitful discussion on the overall functioning and importance of NEIGRIHMS to North-east India. The Inspection Team has following observations to make: 1. The team was informed that the Medical Council of India (MCI) inspection team for recognition of MBBS and PG courses is about to take place soon in this month only. 2. The long due meeting of Governing Council of the Institute was held on 25th February, 2012, and the copy of the minutes submitted to the inspection team is enclosed. 3. The Institute has adequate infrastructure in each of the PG departments to cater to the needs of PG students admitted to the course or to be admitted with additional seats as per the permission letter (Letter No. U.12012/07/2008-NE(Pt), dated 7-4-2010) from Govt.	
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			of India. 4. The faculty in each PG department are adequate as per MCI norms. In the Dept of Microbiology one post of Associate Professor is lying vacant. 5. The library books at the central library and at the Department are adequate as per MCI norms. Many journals related with each PG department are being subscribed in central library for the benefit of PG student. The library is being computerized. There are many contract appointees in the library. <u>RECOMMENDATIONS:</u> 1. The post of Associate Professor in the Department of Microbiology should be filled up at the earliest. 2. Patient Simulation systems (equipments) to be acquired in teaching Anaesthesiology and Intensive care. 3. In central library more permanent staff should be appointed. The ventilation in the library needs to be improved and more books titles should be procured. In view of the significant overall improvement in all the four PG departments during last three years (after granting of initial provisional affiliation), the	
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			inspection team recommends the renewal of the Provisional Affiliation of MD in Anaesthesiology, MD in Microbiology, MD in Pathology and MS in Obstetrics & Gynaecology for three years w.e.f. 2012-13 session. Sd/- Prof. S. B. Prasad, Zoology Dept. (Chairman) Sd/- Dr. M. B. Syiem, Biochemistry Dept. (Member) Sd/- Dr. M. Marwein, NEHU Health Centre (Member) Sd/- Dr. M. M. Naga, Lib. & Inf. Sc. Dept. (Member) Sd/- Shri. S. I. Hussain, AE (C), CDD (Member) Sd/- Dr. C. R. Diengdoh, Director, CDC (Member) Sd/- Dr. B. Marbaniang, DHS nominee (Member) Sd/- Dr. W. W. Chyne, DHS nominee (Member) Sd/- Dr. R. Wankhar, DHS nominee (Member) Sd/- Dr. E. Shadap, DHS nominee (Member) Sd/- Shri. W. Khyllap, DHTE nominee (Member).	
9.	Tirot Sing Memorial College, Mairang, West Khasi Hills	B. Com. (Pass)	Report of the visiting team for grant of provisional affiliation for B. Com. (Pass) course in Tirot Sing Memorial College, Mairang. The visiting team comprising Prof. N. M. Panda (Convener), Dr. C. R. Diengdoh, Director, CDC, NEHU (Member), Dr. P. Hangsing (Member) visited the above mentioned college on	The Affiliation Committee resolved to recommend to the Academic Council that as per Visiting Team recommendations, the College may be granted renewal of Provisional Affiliation for a period of 3 (three) years w.e.f. academic session 2012-

		15th May. 2012 at 11.00 a.m. in connection with the application of the college for renewal of provisional affiliation for B. Com. (Pass) course. The visiting team had access to some of the relevant records of the college. The following are the observations of the team: • The college has adequate infrastructural facilities (building, furniture, computer lab with more than a dozen PCs etc) to run B. Com. (Pass) course. • The college has appointed four NET-qualified lecturers in the subject which satisfies the minimum statutory requirement for B. Com. (Pass) course. • The college has procured more than 300 books in the subject. The college is regularly receiving five journals having relevance to the subject. • By procuring 150 books on the subject the college has complied with the conditions laid down by the university as per the recommendation of the previous visiting team. Taking into consideration the above mentioned observations, location and the target market segment of the college, the members of the visiting team unanimously resolve to recommend the college for the renewal of provisional affiliation for B. Com. (Pass)	13 to 2014-15. The Affiliation Committee also resolved that the College should fulfill the conditions as laid down by the Inspection Team.
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			course for a period of three years. However the college may be advised to (i) increase the students strength by motivating the +2 passing out students from its catchment areas and (ii) procure around 50 to 100 books every year on a regular basis. Sd/- Prof. N. M. Panda, Commerce Deptt. (Convener) Sd/- Dr. P. Hangsing, Lib. & Inf. Sc. Deptt. (Member) Sd/- Dr. C. R. Diengdoh, Director, CDC. (Member).	
10.	Thomas Jones Synod College, Jowai, Jaintia Hills	B.A. (Pass) in English, MIL (Khasi), Education, Economics, Political Science, History, Philosophy & El (English & Khasi)	Inspection Report of the Visiting Team on Thomas Jones Synod College, Jowai, Jaintia Hills The visiting team constituted vide letter No.CDC/A.41/98/-1713 dated 26th April, 2012 issued by the Director, CDC, NEHU visited the Thomas Jones Synod College, Jowai, Jaintia Hills on <u>21st May. 2012</u> at 1.00 PM for renewal of provisional affiliation for B.A. (Pass) in English, MIL (Khasi), Education, Economics, Political Science, History, Philosophy and El (English and Khasi). The college was earlier granted renewal of provisional affiliation for B.A. (Pass) in English, MIL (Khasi), Education, Economics, Political Science, History, Philosophy and El (English and Khasi) for three years only w.e.f.	The Affiliation Committee resolved to recommend to the Academic Council that as per Visiting Team recommendations, the College may be granted renewal of Provisional Affiliation for a period of 3 (three) years w.e.f. academic session 2012-13 to 2014-15. The Affiliation Committee also resolved that the College should fulfill all the conditions as laid down by the Inspection Team.

5:7:1/20)

			Academic Session 2009-2012 vide the 83rd Academic Council Resolution No.AC:83:2010:5:7(1) held on 28th May 2010. Observation of the Visiting Team: 1. The basic infrastructure in the College is adequate in relation to the student's strength. 2. The College has appointed adequate number of teachers but most of them are not NET qualified. 3. The College has appointed a regular principal but he does not hold Ph.D. degree. He is only registered as a Ph.D. candidate. 4. The College runs three shifts a day but no teacher is permitted to teach in more than two shifts a day and to works in another College. 5. The College has adequate space in the library but does not have adequate number of text books and reference books in the library as per norms of library. Recommendation: On the basis of inspection and verification of relevant documents, infrastructure and human resource during the visit, the Visiting Team recommends extension of the provisional affiliation for B. A. (Pass) in English, MIL (Khasi), Education, Economics, Political Science, History, Philosophy and EI (English and Khasi) for three	
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years only subject to fulfillment of the following conditions:

1. The College should procure required number of text books and reference books in each subject within two years.
2. Teachers should be NET qualified as per UGC norms within two years unless they are exempted for having Ph.D. as per UGC new regulation.
3. Principal should be Ph.D. qualified as per UGC norm within three years.

Signature of the members of the Inspection Team:

Sd/- Prof. Jagat Pal,
Philosophy Deptt.
(Chairman)

Sd/- Prof. S. Dkhar, Khasi Deptt.
(Member)

Sd/- Dr. M. Renganathan,
English Deptt. (Member)

Sd/- Dr. U. K. De, Economics
Deptt. (Member)

Sd/- Mr. J. P. Nongbri, Assistant
Librarian (Member)

Sd/- Mr. J. Cherian, AE, CDD
(Member)

Sd/- Dr. Md. S. N. Rahman,
History Deptt. (Member)

Sd/- Dr. C. R. Diengdoh, Director,
CDC (Member)

Sd/- Dr. (Ms) S. Sen Gupta,
Political Sc. Deptt.
(Member)

Sd/- Mr. B. N. Lamare, DHTE
nominee (Member).

11.	Lady Keane College, Shillong	B. Sc. (Pass & Hons) in Computer Science	The inspection team visited the College on <u>8th May, 2012</u>. 1. Number of teachers – At present, there are only 2 (two) teachers, Smt. L. Sahkhar and Shri. M. Haque. One teacher, Shri. A. D. Nongkynrih resigned on 02.04.2012. 2 (two) more additional posts had been advertised. 2. Computer Laboratory – There are 22 (twenty two) computers connected via LAN with internet connectivity. The list of software available installed in the computers is enclosed herewith. 3. Library books and software – Total No. of books = 452 Total No. of Titles = 277 Journal/Computer Magazine : P.C Quest At present, there are 3 (three) students with honors and 1 (one) pass student in 3rd year, and 1 (one) pass student each in 2nd and 1st year of B.Sc in Computer Science. The number of text/reference books is quite adequate for the present strength of the students. The dropping enrolment of the students both for B.Sc pass and honors in Computer Science is a matter of concern to the members of the visiting team. Suggestions have been made to the college authority to encourage the teachers to develop a dynamic and evolving programme which may attract	The Affiliation Committee resolved to recommend to the Academic Council that as per Visiting Team recommendations, the College may be granted renewal of Provisional Affiliation for a period of 1 (one) year w.e.f. academic session 2012-13. The College should fulfill the conditions as laid down by the Inspection Team within this period. The Affiliation Committee also resolved that the College should apply for renewal of Provisional Affiliation before the expiry of the 1 (one) year affiliation being granted and pay the prescribed fee.
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			students. The college has taken steps in this direction by advertising for 2 (two) posts. It is suggested that the college should appoint more teachers immediately in order to supplement the existing programme. Journals related to Computer Science should be subscribed. Based on the above points, we recommend that the college should be granted Renewal of Provisional Affiliation of B.Sc (Pass & Honors) in Computer Science for 1 (one) year only. Sd/- Prof. P. Nongkynrih, Physics Deptt. (Chairperson) Sd/- Dr. T. K. Sinha, Computer Centre (Member) Sd/- Ms. J. Khongtim, Lib. & Inf. Sc. Deptt. (Member) Sd/- Mr. S. I. Hussain, AE, CDD (Member) Sd/- Dr. C. R. Diengdoh Director, CDC (Member).	
12.	Kiang Nangbah Govt. College, Jowai, Jaintia Hills	B. Com. (Pass & Hons)	Report of the visiting team for renewal of provisional affiliation for B.Com (Pass & Hons) course in Kiang Nangbah Govt. College, Jowai. The visiting team comprising Prof. N. M. Panda (Convener), Dr. C. R. Diengdoh, Director, CDC, NEHU (member), Mr. F. R. Sumer (member) and Dr. B. N. Lamare (member) visited the above mentioned college on <u>5th June 2012</u> at 11:30 am in	The Affiliation Committee resolved to recommend to the Academic Council that as the College has applied for regularization of the break period as well as for the grant of renewal of Provisional Affiliation and paid the prescribed fees, and late fees, the break

			connection with the application of the college for renewal of provisional affiliation for B.Com. (Pass & Hons) course. The visiting team had access to some of the relevant records of the college. The following are the observations of the team: 1. The college has adequate infrastructural facilities (building, furniture, computer lab) for B.Com. (Pass & Hons) course. 2. The college has six teachers in the subject who have been appointed by the MPSC. 3. The college has procured only around 150 books (titles) in the subject and around 300 books in the relevant subject (Economics). The strength of the library in terms of number of books is found to be less than the minimum required as per the relevant Regulation (RB-5). 4. The unsatisfactory development of the college library is attributed to low budgetary allocation (particularly while looking at the number of the subjects offered). 5. The college has shown some evidence of compliance to the conditions laid down by the university (as per the recommendation of the earlier visiting team) by procuring book racks for the library and subscribing to one journal of high	period may be regularized and renewal of Provisional Affiliation may be granted for a period of 3 (three) years w.e.f. academic session 2012-13 to 2014-15. The College should fulfill the conditions as laid down by the Inspection Team with a proviso for strengthening of the Library within one year.
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importance (EPW). However, the college is yet to subscribe to any journal specific to the subject - Commerce.

6. The tenure of provisional affiliation was up to June 2004 for B. Com. (Pass) and July 2010 for B.Com. (Hons). The application for renewal for both the programmes has been received by the university on 30.4.2012.

Recommendation

(A) Taking into consideration the above mentioned observations, location, target market segment of the college, and the nature of ownership and governance the members of the visiting team unanimously resolved to recommend the college for the renewal of provisional affiliation for B.Com (Pass & Hons) course for a period of one year subject to fulfillment of the following conditions:

1. The college library is strengthened by procuring some books in the subject in order to increase the number to 500, the minimum number of books required to be in the library for the rant of affiliation for B.Com. (Hons). Further, the college has to procure some books every year in the dynamic subjects like Income Tax, Indian Financial System, and Business Environment etc.

			2. The college subscribes to at least two Indian Journals in the subject. The members also suggest that the Director, CDC be requested to inform the university the compliance of the above conditions. (B) Regularization of the interim period with a Post-facto renewal of the concerned provisional affiliation. In order to avoid such cases of application after expiry of affiliation at the university level the university may follow a two way approach-wherein the CDC by maintaining the affiliation status of various colleges/their programmes under the privilege of the university may inform the expiry of affiliation to the college well before it accrues. Sd/- Prof. N. M. Pana, Commerce Deptt. (Convener) Sd/- Dr. C. R. Diengdoh, Director, CDC (Member) Sd/- Dr. B. N. Lamare, DHTE nominee (Member) Sd/- Mr. F. R. Sumer, Deputy Librarian (member).	
13.	Khad Ar Daloi Law College, Jowai, Jaintia Hills	LL.B.	Report of the Visiting team on their visit to Khad Ar Daloi Law College, Jowai on <u>1st June, 2012</u> The Visiting team comprised of the following members, visited	The Affiliation Committee resolved to recommend to the Academic Council that as per Visiting Team recommendations, the

		the Khadar Daloi Law College, Jowai on 01.06.2012 at 11.00 AM to verify the recommendations of the earlier Inspection Team which had inspected the college on 19th April, 2011. Name of the Team members: 1. Prof B. S. Mipun, Dept. of Geography (Chairman) 2. Dr. R. K. Mishra, Dept. of Law (Member) 3. Dr. Bikika Laloo, Dept. of Lib & Info Sc. (Member) 4. Dr. C. R. Diengdoh (Director, CDC) 5. Mr. B. N. Lamare (Govt. Representative) The observations and recommendations of the visiting team are as follows: <i>Observations:</i> i) The college has one Principal and nine numbers of teachers including fulltime and part time with requisite qualifications. The Principal assured that the part time teachers will be made permanent in a short period. ii) The college has appointed a qualified library assistant. iii) The college library has 856 books and few journals. However committee feels that books and journal are not adequate and need to procure more books and journals. iv) The college has applied for BCI affiliation renewal a year back, but renewal affiliation is yet to come.	College may be granted of renewal of Provisional Affiliation for a period of 1 (one) year w.e.f. academic session 2012-13. The College should fulfill the conditions as laid down by the Inspection Team within this period. The Affiliation Committee also resolved that the College should apply for renewal of Provisional Affiliation before the expiry of the 1 (one) year affiliation being granted and pay the prescribed fee.
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			Recommendations : The college has submitted clarifications on the fulfillment of conditions laid down by the earlier Inspection Team as per their letter dated July 30th 2011. Based on the efforts made by the college as per their clarifications, the Visiting Team recommends that the break period 2011-12 be regularized. The Visiting team further recommends renewal of provisional affiliation be granted to the college for a period of one year w.e.f. academic session 2012 – 13 subject to the fulfillment of conditions as mentioned in the observations, clause . No(i), (iii) & (iv) within a period of one year . Sd/- Prof. B. S. Mipun, Geography Deptt. (Chairman) Sd/- Dr. C. R. Diengdoh, Director, CDC (Member) Sd/- Dr. B. Laloo, Lib & Inf. Sc. Deptt. (Member) Sd/- Dr. R. K. Mishra, Law Deptt. (Member) Sd/- Mr. M. K. Bhattacharjee, AE, Maintenance (Member) Sd/- Mr. B. N. Lamare, DHTE nominee (Member)	
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5:7:1(29)

2. Provisional Affiliation to subject(s)/course(s) of study in an Affiliated College/Institution:

Sl. No.	Name of Colleges	Subject(s)/Course(s) applied for	Recommendation of Inspection Team	Recommendation of the Affiliation Committee
1.	Nongstoin College, Nongstoin, West Khasi Hills	B. A. (Hons) in Sociology and B. A. (Pass) in Geography and DTP & Multimedia	The inspection team visited the college on 10th April, 2012 and made an on-the-spot assessment of the college for starting (i) B. A. (Pass) in Geography, (ii) B. A. (Pass) in DTP & Multimedia and (iii) B. A. (Hons) in Sociology. With regard to space, library facility, infrastructure, equipments and laboratory etc. The college fulfills or is shortly fulfilling (going by the orders placed for DTP & Multimedia equipments) the requirement. However, the college needs to appoint at least one teacher in geography and two teachers in Sociology (Hons) as per the norm. The Principal has assured the team that the appointments will be made before starting the course(s). As regards DTP & Multimedia, two more teachers need to be appointed against only one currently teaching. The team recommends that provisional affiliation be granted to Nongstoin College for a period of three years for the following courses w.e.f. 2012-13. a) B. A. (Pass) in Geography b) B. A. (Pass) in DTP & Multimedia c) B. A. (Hons) in Sociology	The Affiliation Committee resolved to recommend to the Academic Council that as per Visiting Team recommendations and subject to receiving of feedback from the Principal on the appointment of teachers, Provisional Affiliation may be granted for a period of 3 (three) years w.e.f. academic session 2012-13 to 2014-15 or may be granted only for 1 (one) year w.e.f. academic session 2012-13. The Principal should be informed to submit the documents regarding appointment of the teachers which may be forwarded to the Academic Council for consideration of affiliation period. Remarks: The Principal Nongstoin College vide his letter dated 15/6/2012 has submitted the feedback on the appointment of teachers as directed by

5:7:11(36)

			Sd/- Prof. D. K. Nayak, Geography Dept. (Chairman) Sd/- Dr. D. V. Kumar, Sociology Dept. (Member) Sd/- Shri. Md. I. Hussain, IT Dept. (Member) Sd/- Ms. J. Khongtim, Lib. & Inf. Sc. Dept. (Member) Sd/- Mr. W. R. Lyngdoh, AE(C), CDD (Member).	the Affiliation Committee held on 11/6/2012. The Principal has given his assurance that appointment of new teachers as per the norms will be made in due time positively. Please see Annexure-III.
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3. Permanent Affiliation of Subject(s)/Course(s) of study in permanently affiliated Colleges:

Sl. No.	Name of Colleges	Subject(s)/Course(s) applied for	Recommendation of Inspection Team	Recommendation of the Affiliation Committee
1.	St. Mary's College, Shillong	B. Com (Pass)	Report of the Visiting Team for Grant of Permanent Affiliation for B. Com (Pass) course. The visiting team comprising Prof. N. M. Panda (Convener), Dr. V. K. Shrotryia (Member), and Dr. B. Laloo (Member), Er. J. Cherian (Member) and Dr. C. R. Diengdoh (Director, CDC as member) visited the above mentioned college on 13th April, 2012 at 2:00 p.m. in connection with the application of the college for grant of permanent affiliation for B. Com. (Pass) course. The visiting team had access to some of the relevant records of the college. It has also sought clarification on a number of items, which were provided by the principal of the college. The team observes that: 1. The college has employed six full time teachers in the subject and thus the college	The Affiliation Committee resolved to recommend to the Academic Council that as per Visiting Team recommendations, the College should first fulfill the conditions as laid down by the Inspection Team. The Affiliation Committee also resolved that Director, CDC should write to the College to take corrective measures as suggested by the Inspection Team at the earliest and submit the information to the CDC for consideration of grant of Permanent Affiliation.

			complies to the minimum number of teachers stipulated by the university. The college recruits its teachers through a selection committee with two university representatives. 2. The college has adequate physical infrastructure to run commerce classes and there are around 20 PCs in its computer laboratory for one computer related paper in B. Com Course. 3. The college has taken positive steps on the suggestion given by the university following the recommendation of the earlier visiting team to strengthen the library resources. The team observes that the college has already procured some new books (150) and subscribed for 4 relevant journals during last two years and created an excellent reading room facility. 4. Currently there are 114 students on the roll in B. Com. 1st year and the class room allotted for B. Com. 1st yr class is too small to accommodate such a large number of students. 5. The urinal facility for commerce students is not found to be adequate. The team, taking into consideration the faculty strength, infrastructural	
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		facilities and financial resources in the form of renewed Fixed Deposits and improvement in library resources unanimously resolve to recommend the college for grant of permanent affiliation for B. Com. (Pass) course subject to the fulfillment of the following conditions: 1. The college observes the statutory provision of the university regarding maximum students in a section/class (RB-6) 2. The college constructs adequate number of urinals (at least four) in the available area near the building allotted for the commerce classes. It was further resolved that the Director, CDC (after the college admission process is over) should inform the university regarding the number of students admitted every year in B. Com 1st Year Course. Sd/- Prof. N. M. Panda, Commerce Deptt. (Convener) Sd/- Dr. V. K. Shrotryia, Commerce Dett. (Member) Sd/- Dr. (Ms) B. Laloo, Lib & Inf Sc. Deptt. (Member) Sd/- Mr. J. Cherian, AE (Civil), CDD. (Member) Sd/- Dr. C. R. Diengdoh, Director, CDC (Member).	
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II. Applications received from Colleges:-

a. Permission to open a new College:

Sl. No.	Name of Colleges	Subject(s) /Course(s) applied for	Remarks	Recommendation of the Affiliation Committee
1.	Loyola College, Williamnagar, East Garo Hills	English, Alternative English, Garo (Elective & MIL), Economics, Political Sc., Education & History	(a) Paid opening permission fee of ₹ 50,000/- vide Bank Draft No. 009502 dated 4-4-2012 to start B. A. (Pass) course. (b) The following documents are enclosed: 1. Fixed deposit of ₹ 15,00,000 for a period of 3 years. 2. Project Report of the College. 3. Certificate of Registration of Societies Act. 4. No Objection Certificate, from Deputy Commissioner, East Garo Hills. 5. No Objection Certificate, from Municipal Board. 6. Certificate of taking over Departmental Land from the Government. 7. College Plan.	The Affiliation Committee resolved to recommend to the Academic Council for constitution of an Inspection Team to visit the College for grant of Opening Permission.

b. Permanent Affiliation of St. Dominic's College:

The College applied for grant of Permanent Affiliation for B. A. (Pass) in English, Elective English, Alternative English, Political Science, History, Education, Economics, Sociology & Philosophy and B.A. (Hons) in English, Political Science, History, Education, Economics & Sociology.

- ✓ The Affiliation Committee resolved to recommend to the Academic Council that as per last Visiting Team recommendations, the College is yet to fulfill the condition as laid down by the Team i.e. the College should appoint a Principal who fulfills UGC norms. If the College has fulfilled the condition then Permanent Affiliation may be granted, or else the application will be considered for grant of renewal of Provisional Affiliation.

c. Permission to start new Subject(s)/Course(s) of study in an affiliated College:

Ampati Degree College, Ampati, West Garo Hills

The College applied for grant of Permission to start B.A. (Hons) in Garo, Political Science & History.

- ✓ The Affiliation Committee resolved that the College may be granted Permission to start the above mentioned courses. The CDC may inform the College to increase the Corpus Fund to ₹ 15 (fifteen) lakhs before considering grant of Provisional Affiliation.
- ✓ The College is to ensure appointment of necessary numbers of regular and qualified faculty as per UGC norms and fulfill all other requirements as per NEHU Ordinance/Regulation.

The College should apply for grant of Provisional Affiliation and pay the prescribed fee, before admitting students into the courses.

III. Miscellaneous Items:-**a. Career Oriented Certificate Course :**

St. Edmund's College vide letter No.SEC/SYL/7/2012/063 dated 11/04/2012 has requested the University for grant of permission to start UGC sponsored Career Oriented Certificate Course in Applied Chemistry under UGC scheme w.e.f. 2012 session.

- ✓ The Affiliation Committee resolved to recommend to the Academic Council for grant of permission to start UGC sponsored Career Oriented Certificate Course in Applied Chemistry.

The Syllabus and the Certificate format submitted by the College are placed at **Annexure – I & II**. The same is placed before the Academic Council for approval.

b. Approval of the Governing Bodies of private Colleges/Institutions by the Government:

The Affiliation Committee resolved that the constitution/re-constitution of Governing Bodies of the Colleges/Institutions may be routed through CDC, NEHU and the matter be placed to the Academic Council for approval.

c. **Recommendations of the Committee constituted to work out the structure for the UG Courses and the Calendar for the UG Programmes:**

The 85th Academic Council held in May 2011, vide Resolution AC:85:2011:5:7: (ii) noted the decision of the University to implement the **Semester System** at the **Under Graduate Level** in all affiliated Colleges from the 2012 academic session. A Committee, under the Chairmanship of Prof. S.K. Mishra has been constituted to work out the **structure for the UG Courses and the Calendar for the UG Programmes** have submitted their **Recommendations** vide Letter No. Nil dated 11.05.2012 addressed to the Vice Chancellor, a Xeroxed copy is enclosed at **Annexure 'A'**.

The same has been circulated to (i) all Principals of affiliated Colleges (ii) all Chairpersons of BUGS (Board of Under Graduate Studies) vide No. CDC/B.3/2011/1759 dated 17th May, 2012 and also posted on the NEHU website. Feedback/Comments received from Principals/Chairpersons are enclosed at **Annexure 'B'**.

The matter is placed before the Council for consideration, and decision.

5:7:(ii): Reporting item:

Nomination of NEHU Representatives to the Governing Bodies of the Affiliated College:

The 73rd Academic Council vide resolution No.AC:73:6:5:7:(ii) resolved that the existing system of nominating the NEHU representatives to the Governing Bodies of the Affiliated Colleges be dispensed with and the Vice-Chancellor be authorized to nominate the teachers to such Governing Bodies and the matter be reported back to the Council.

The pursuance of the above resolution the Vice-Chancellor has nominated 2 teachers each to the following Colleges for a period of 3 (three) years:

Name of Colleges:

Name of NEHU Representatives:

- | | |
|--|---|
| 1. Ampati Degree College,
West Garo Hills | 1. Prof. M. Momin
2. Dr. F. K. Marak |
| 2. Nongrum College,
Zekabari, West Garo Hills | 1. Dr. J. Prodhani
2. Dr. D. Ch. Marak |
| 3. Khrawsing Christian college,
Mawngap, East Khasi Hills | 1. Prof. S. Dkhar
2. Dr. U. K. De |

5.7.11.36

4. METAS Adventist College,
Ranchi, Jharkhand

1. Prof. P. Nongkynrih
2. Dr. R. A. J. Syngkon

The matter is placed to the Academic Council for ratification.

Xeroxed copy is enclosed at Annexure 'A'.

Principals/Chairpersons are enclosed at Annexure 'B'.

The matter is placed before the Council for consideration, and decision.

2.7(ii): Reporting item

Nomination of NEHU Representatives to the Governing Bodies of the Affiliated Colleges

The 73rd Academic Council vide resolution No AC.73-B-2.7(ii) resolved that the existing system of nominating the NEHU representatives to the Governing Bodies of the Affiliated Colleges be dispensed with and the Vice-Chancellor be authorized to nominate the teachers to such Governing Bodies and the matter be reported back to the Council.

The pursuance of the above resolution the Vice-Chancellor has nominated 2 teachers each to the following Colleges for a period of 3 (three) years:

<u>Name of NEHU Representative:</u>	<u>Name of College:</u>
1. Prof. M. Momin	1. Amant Degree College,
2. Dr. F. K. Marak	West Garo Hills
1. Dr. J. Prodhant	2. Nongrim College,
2. Dr. D. Ch. Marak	Zekabar, West Garo Hills
1. Prof. S. Dikhar	3. Khrawsing Christian college,
2. Dr. U. K. De	Mawngap, East Khasi Hills

Annexure – I*(Copy of Syllabus)***CERTIFICATE COURSE IN APPLIED ANALYTICAL CHEMISTRY**

The state of Meghalaya has been blessed with immense forest resources. Except for cities, most of the state is full of greenery and there is abundance of foliage with tremendous medical potential. If one travels through the length and breadth of the state, one comes across many such plants which are growing abundantly in different parts of the state. But in spite of such abundance in plant diversity, the state remains a poor state in terms of per capita income as compared to many of the states of the country. The primary reason being that the hilly terrain leaves very little land available for agriculture of cash crops and with the growing population, dearth of locally grown food is on the horizon. The unavailability of educations of higher learning in the rural areas has made it difficult for the local population to pursue higher education and so there is a major exodus from these areas to the cities especially after the class X level. These students seek admissions in various institutions in the cities of Shillong, Tura, Jowai etc which are seen by them as affluent places. Most of them after completion of their studies manage to get jobs in the city and those who are unfortunate enough to acquire one are reluctant to return back to their native villages. The causes they cite are numerous and if one analyzes them then one finds that the root of the reluctance lies in the inability of earning a decent means of livelihood in the villages. Large families, responsibilities of siblings and other aged family members, lack of proper medical facilities are difficult for these young minds to handle. Most of them open up shops or other small business establishments and try to live off the meager income derived out of them. One will always find a lamenting youth who given a decent means of income would rush back to the near and dear ones at the ancestral village.

This problem has been compounded by the lack of industrial growth in the state. Even most of the articles of everyday use has to be procured from outside. This involves the middlemen who mint a huge sum of money in, the process. Edible oil, soaps, detergents, medicines etc have to be made available from outside the state. To add to the woe, non availability of electricity in many of the villages forces the numerous households to burn candlesticks or kerosene oil at night.

The Department members also feel that since most of the food materials are procured from outside the state, a large section of this food source is contaminated with common adulterants. So to create awareness among the general population, effort is being made to acquaint the students with detection and identification of common adulterants added to food stuffs.

5.7.1(38)

Addressing this problem from a social perspective, the Chemistry Department of St. Edmund's College, Shillong, in all earnestness has taken a step forward to help the interested youth of the state to become self reliant in certain fields which could be a source of handsome earning from their own homes. From the field of chemistry, the department has identified certain areas where, if proper thrust is given, small cottage industries may grow up even in the remote villages. The major thrust areas thus identified are-

Module 1 : Extraction of Essential Oils

Module 2 : Preparation of Soaps, Detergents and Shampoo

Module 3 : Preparation of Candles

Module 4 : Common Adulterants in Foodstuffs

Department of Chemistry

St. Edmund's College

Shillong

COURSE CONTENT

The Certificate Course in Applied Analytical Chemistry is designed to impart first hand experience and expertise in natural products, essential oils, foodstuffs for the students pursuing degree science courses in Chemistry. The Course also aims to deliver knowledge to the students which will be beneficial to them for self employment, setting a small scale industry in rural areas. It is divided in three parts: Theory (8 Credits), Practical (10 Credits) and visit to Facility (2 Credits). The Course comprise of 4 Modules. The Section 1 deals with the Syllabi, both theory and practical for the 4 modules. The Section 2 deals with allocation of Credits points to various modules.

SECTION 1

Module 1 : Extraction of Essential Oils

Module 2 : Preparation of Soaps, Detergents and Shampoo

Module 3 : Preparation of Candles

Module 4 : Common Adulterants in Foodstuffs

Syllabi:

Theory : Common to all four modules

5.7.1(39)

- Theoretical basis of common laboratory methods, handlings of instruments and chemicals, analysis of results and preparation of reports
- Definition, classification and nomenclature of fats, oils, waxes and other starting materials to used
- Properties of the chemicals and safety measures.

Practical : Common to all four modules

- Handling of the apparatus, glass wares, equipments and chemicals
- For each module, students need to prepare a project report
- For each module, arrangement will be made for visit to different facility for training under expert on the relevant field

Practical for Module 1:

- Collection of oil bearing plants, seeds and barks from different sources
- Crushing and processing of plants materials
- Solvent extraction using different solvents and techniques
- Identification of the oils by TLC and separation by Column Chromatography
- Collection by steam distillation (Soxhlet/Vacuum) methods
- Purification of the Crude Essential Oils
- Identification their medicinal values

Practical for Module 2:

- Collection and processing of raw materials (Fatty Acids)
- Preparation of lye, reaction of lye with water, salting out
- Separation of glycerin by vacuum distillation
- Casting into moulds and methods of hardening
- Purification
- Packing
- Different methods of preparation of medicated Soaps, Shampoos using essential oils
- Preparation of Herbal, Egg, Neem, Sandalwood, Lime Shampoos using standard methods

Practical for Module 3 :

- Collection and processing of Bee wax/Paraffin
- Fabrication of Dice
- Preparation of Melt and technique of inserting wick, addition of colours
- Casting and setting techniques
- Cutting
- Packing

- Preparation of coloured, decorative, transparent Candles of different size and shape
- Preparation of wax crayons of different colours.

Practical for Module 4:

- Collection of foodstuff from markets
- Preparation of reference table with respect to pure materials
- Difference between adulterants and preservatives/colouring agents
- Identification of adulterants by chemical analysis from different food stuff
- Preparation of table/chart and comparison
- Making of a simple tool kit
- Report making and submission of the same to appropriate authority

Section 2

Allocation of Credit:

For Theory class of each module: 15 contact hours each i.e. $15 \times 4 = 60$ hours, **4 Credits**

For Project & Seminar of each module: 15 contact hours each i.e. $15 \times 4 = 60$ hours, **4 Credits**

TOTAL : 8 Credits

For Practical and Demonstration of Module 1 & 2 : 45 contact hours i.e. $45 \times 2 = 90$ hours, **6 Credit**

For Practical and Demonstration of Module 3 & 4: 30 contact hours i.e. $30 \times 2 = 60$ hours, **4 Credit**

TOTAL : 10 Credits

Visit to Different Facility (SAIF, NEHU, Shillong, NEIST, Jorhat and Tezpur Univ.) for first hand experience : 30 hours, **2 Credit**

TOTAL : 2 Credits

GRAND TOTAL : 20 CREDITS, 300 Contact Hours.

STAFF PROFILE

Sl No	NAME	Department	Qualification/Special ization	Teaching experience
1.	Dr. M. L. Purkayastha (Head)	Chemistry	M.Sc. Ph.D Organic	32 years
2.	Shri. Subrata Puurkayastha	Chemistry	M.Sc. Organic	29 years
3.	Dr. S. N. Mazumdar	Chemistry	M.Sc. Ph.D Organic	29 years
4.	Shri. Sumit Deb	Chemistry	M.Sc. Physical	17 years
5.	Dr. Prashantha Sarkhel	Chemistry	M.Sc. Ph.D Inorganic	15 years
6.	Shri. Subhrajyoti Chowdhury	Chemistry	M.Sc. Organic	13 years
7.	Dr. Abhijit Debroy	Biochemistry	M.Sc. Ph.D Organic	31 years
8.	Dr. Sanjiban Goswami	Botany	M.Sc. Ph.D Taxonomy	11 years

References:

Advanced Organic Chemistry: Bahl & Bahl

Practical Organic Chemistry : Vogel

Organic Chemistry Vol III: Mukherjee, Singh & Kapoor

Organic Chemistry Vol 1 & II: Finar

Comprehensive Experimental Chemistry : Ahuwalia

Rupp, Becky. "The Art of Candle Making, "Blair & Ketchum's Country

Journal. January, 1986

Millington, Deborah. Traditional Candle-making: Simple Methods of

Manufacture, Intermediate Technology Development Group of North America, 1992.

5:7:1(42)

Annexure – II

(Sample copy of Certificate)

College Logo

ST. EDMUND'S COLLEGE, SHILLONG

Certificate Course in Applied Analytical Chemistry

(Under UGC Vide letter no. F. No. 4-301/2011 (COC) and Affiliated to
North-Eastern Hill University, Shillong)

*This is to certify that Mr./Ms.
has successfully completed the Certificate Course in
Applied Analytical Chemistry (under UGC Career
Oriented Course Scheme) offered by the College from
..... to 201*

*For the overall performance he/she has been
awarded the Grade.*

Head, Department of Chemistry
St. Edmund's College, Shillong

Course Coordinator
Department of Chemistry
St. Edmund's College, Shillong

Principal
St. Edmund's College, Shillong

5:7:1(43)

Annexure – III

Nongstoin College

West Khasi Hills District

Nongstoin – 793119

Ph. No.:(03654) 202102

No. NC/AFFLN/39/97/2012/47

Dated Nongstoin, the 13th June, 2012

To,

The Director,
College Development Council,
NEHU, Shillong.

Subject:- Feedback on the Appointment of Teachers for the New Subjects/Department.

Sir/Madam,

With reference to the subject cited above and in the event of the Inspection made by the NEHU Team for Opening of New subjects in this Institution, the subjects are:-

- (i) B. A. (Hons) in Sociology
- (ii) B. A. (Pass) in Geography
- (iii)
- (iv) B. A. (Pass) in Desktop Publishing & Multimedia,

may I submit to assure the University authority that Appointment of new teachers as per the norm will be made in due time positively. The statement below shows our target appointment of Lecturers in Disciplines sought for :

STATEMENT OF TEACHERS FOR OPENING THE NEW SUBJECTS.

Subjects	1 st year		2 nd year To be appointed	3 rd year To be appointed	Total No. of Teachers for Three (3) years Course	Remark
	Already Appointed	To be appointed w.e.f. july, 2012				
Sociology (Hons)	2	1	1	-	4	As discussed with the Inspection
Geography (Pass)	2	-	1	1	4	

5:7:1(44)

DTP	1	1	1	1	4	Team
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This is for favour of your information and kind necessary action.

Thanking you.

Yours faithfully,

Sd/-

(B.K. Laitflang)

Principal

Nongstoin College, Nongstoin.

Subjects	Already Appointed	To be appointed w.e.f. July 2012	1 st Year		3 rd Year To be appointed	Total No. of Teachers for Three years Course	Remark
			To be appointed w.e.f. July 2012	To be appointed			
Sociology (Hons)	2	1		1		4	As discussed
Geography (Pass)	2			1	1	4	with the inspection

Annexure-A

Date: 11/05/2012

To

The Vice Chancellor,

NEHU, Shillong

Sub: Recommendations of the Committee to work out the Structure for the Under-Graduate Courses and the Calendar for the Under-Graduate Programmes

Sir,

Please find enclosed the Recommendations of the Committee to Work out the Structure for the Under-Graduate Courses and the Calendar for the Under-Graduate Programmes for your perusal and necessary action.

Thanking you,

Yours faithfully,

(SK Mishra)

Chairman
of the Committee

Enclosed: as above

**Recommendations of the Committee to
Work out the Structure for the Under-Graduate Courses
And the Calendar for the Under-Graduate Programmes**

The Committee to work out the Structure for the Under-Graduate Courses and the Calendar for the Under-Graduate Programmes was constituted (cf. Notification No. CONF/Misc/8-63/BUGS/2011-33 dated June 8th 2011) with the following members:

(1) Prof. BBP Gupta, (2) Prof. TB Subba, (3) Prof. Manorama Sharma, (4) Prof. Vanlanghak, (5) Prof. PN Pandita, (6) Prof. BJ Deb, (7) Dr. KC Kabra, (8) Dr. MP Pandey, (9) Dr. TK Chakabarty and (10) Prof. SK Mishra (Chairman).

The Committee in its first meeting held on Aug. 2, 2011 co-opted the following three members:

(1) Mr. S Prasad, Asstt. Registrar (Confidential), Exams Dept., NEHU, (2) Mrs. K Nongsieg, SO, Exams Dept., NEHU and (3) Mr. K Joshi, SO (Confidential) Exams Dept. NEHU.

The Committee met on several days (Aug. 2nd, 11th, 18th; Sept. 27th; Oct. 13th; Dec. 15th 2011 and May 4th 2012) and discussed the details of the structure of UG courses and the calendar of the UG programme in view of the introduction of the Semester System at the Under-Graduate level.

The Committee looked into various aspects of the course structure, the calendar, teaching, examinations and the related issues emerging from the introduction of Semester System at the UG level. It also looked into the suggestions (dated April 3/1 and Aug. 11, 2011) made by the Meghalaya College Principals' Council and the suggestions received from different BUGS Chairmen in the University.

The recommendations of the Committee are presented as hereunder:

I. Regarding Introduction of the Semester System and the Choice-based Credit System at the Under-Graduate Level:

The University may implement the Semester System for the Under-Graduate courses offered in the colleges affiliated to it. However, a switch-over to the CBCS (Choice-Based Credit System) at the Under-Graduate level may not be made for the time being. The University may contemplate on this switch-over after gaining some experience in administering the Semester System at the UG level.

II. Regarding Eligibility for Admission to the Bachelor's Program:

Anyone who has passed the Class XII Examination shall be eligible for admission to the Bachelor's Programme (B.A./B.Sc./B.Com.) of the University.

III. Regarding The Bachelor's Programme:

At the UG level only Honours programme shall be offered in which the total marks shall be 1800, distributed equally over 18 papers, teaching of which shall be evenly spread over 6 semesters.

1). **The Honours Course in Science stream/Home Science (B.Sc.):** The following shall be the structure of the B.Sc. Courses:

Honours Elective: Eight Papers (of 100 marks each)	800 marks
Elective-1: Four Papers (of 100 marks each)	400 marks
Elective-2: Four Papers (of 100 marks each)	400 marks
English: One Paper (100 marks)	100 marks
EGFC: One Paper (of 100 marks)	100 marks
Total: Eighteen Papers (of 100 marks each)	1800 marks

2). **The Honours Course in Arts Stream (B.A.):** The following shall be the structure of the B.A. Courses:

Honours Elective: Eight Papers (of 100 marks each)	800 marks
Elective-1: Three Papers (of 100 marks each)	300 marks
Elective-2: Three Papers (of 100 marks each)	300 marks
English: Two Papers (100 marks each)	200 marks
MIL: One Paper (of 100 marks)	100 marks
EGFC: One Paper (of 100 marks)	100 marks
Total: Eighteen Papers (of 100 marks each)	1800 marks

3). **The Honours Course in Commerce Stream (B.Com.):** The following shall be the structure of the B.Com. Courses:

Honours Elective: Eight Papers (of 100 marks each)	800 marks
Elective-1: Three Papers (of 100 marks each)	300 marks
Elective-2: Three Papers (of 100 marks each)	300 marks
English: Two Papers (100 marks each)	200 marks
MIL: One Paper (of 100 marks)	100 marks
EGFC: One Paper (of 100 marks)	100 marks
Total: Eighteen Papers (of 100 marks each)	1800 marks

IV. Regarding Examination and evaluation:

1) Examination and evaluation shall be conducted according to the Ordinances/Regulations of the University.

2) A student shall be declared successful with "Honours" if he/she passes (i.e. obtains at least 30% marks) in all compulsory courses/papers as specified for the subject(s) concerned, securing at least 45% marks in the Elective Honours papers in aggregate, i.e. all Honours papers taken together (from I to VI Semesters) and as stipulated in the relevant (revised) Ordinances (OC-8).

3) A student shall be declared successful with "Honours with Simple Pass" if he/she passes (i.e. obtains at least 30% marks) in all compulsory courses/papers as specified for the subject(s) concerned, securing not less than 33% but less than 45% marks in the Honours papers in aggregate, i.e. all Elective Honours papers taken together (from I to VI Semesters) and as stipulated in the relevant (revised) Ordinances (OC-8). Thus, at the UG level, the University shall declare two types of successful students (Table-1):

Table-1. Conditionality for Certification of Completion of Under-Graduate Courses		
Course	Necessary Conditions for Successful Completion of the Course and Certification	
Honours	- H.1 - H.2 - H.3	- The student passes in each and every compulsory paper. - The student passes in each and every elective paper - The student secures in aggregate at least 45% of marks in the Honours papers (opted by him/her) taken together (not necessarily in each of the Honours papers). Further, it is clarified that for a student to obtain Honours it is necessary to pass (i.e. obtain at least 30% marks) in each of the compulsory, elective as well as Honours papers, but it is not necessary to secure 45% marks in each Honours paper. This percentage (i.e. 45%) will be computed at the End Semester.
Honours with Simple Pass	- HP.1 - HP.2 - HP.3	- The student passes in each and every compulsory paper; - The student passes in each and every elective paper; - The student secures in aggregate not less than 33% but less than 45% of marks in the Honours papers (chosen by him/her) taken together (not necessarily in each of the Honours papers). Further, it is clarified that for a student to obtain Honours with Simple Pass it is necessary to pass (i.e. obtains at least 30% marks) in each of the compulsory as well as Honours papers. However, the student must secure not less than 33% but less than 45% marks in the Honours papers all taken together. These percentages (i.e. 33% and 45%) will be computed at the End Semester.
Fail	- F.1 - F.2	If a student shall be declared to have 'failed' if he/she - Fails to secure at least 30% marks in any of the compulsory, electives (1 or two) or Elective Honours, or - Fails to secure 33% marks in aggregate.

V. Regarding Distribution of Papers over 6 Semesters:

Distribution of papers over 6 semesters in Science/Home Science, Arts and Commerce Streams are provided in the Tables 2, 3 and 4.

1). For the Science/Home Science Stream:

Table-2. Distribution of Papers for the Science/Home Science Stream							
Semester/ Subject/Paper	Semester I	Semester II	Semester III	Semester IV	Semester V	Semester VI	Total Marks
English	100	-	-	-	-	-	100
EGFC	-	-	-	-	-	100	100
MIL	-	-	-	-	-	-	-
Elective-I	100	100	100	100	-	-	400
Elective-2	100	100	100	100	-	-	400
Elective (Hons)	-	100	100	100	300	200	800
Total Marks	300	300	300	300	300	300	1800

2). For the Arts Stream:

Table-3. Distribution of Papers for the Arts Stream							
Semester/ Subject/Paper	Semester I	Semester II	Semester III	Semester IV	Semester V	Semester VI	Total Marks
English	100	100	-	-	-	-	200
EGFC	-	-	-	-	-	100	100
MIL	100	-	-	-	-	-	100
Elective-I	-	100	100	100	-	-	300
Elective-2	-	-	100	100	100	-	300
Elective (Hons)	100	100	100	100	200	200	800
Total Marks	300	300	300	300	300	300	1800

3). For the Commerce Stream:

Table-4. Distribution of Papers for the Commerce Stream							
Semester/ Subject/Paper	Semester I	Semester II	Semester III	Semester IV	Semester V	Semester VI	Total Marks
English	100	100	-	-	-	-	200
EGFC	-	-	-	-	-	100	100
MIL	100	-	-	-	-	-	100
Elective-I	-	100	100	100	-	-	300
Elective-2	-	-	100	100	100	-	300
Elective (Hons)	100	100	100	100	200	200	800
Total Marks	300	300	300	300	300	300	1800

VI. Regarding Elective Subject Combination (Elective-1 and Elective-2) for Honours in Various Subjects:

A student shall opt for an Honours (Elective) Course in a subject and any one of the Elective Subject Combination groups (A through D, wherever permissible) of the following (e.g. a student opting for Chemistry Honours shall choose any one of the elective groups A through D) given in Table-5.

Table-5. Elective Subject Combination (Elective-1 and Elective-2) for Honours in Various Subjects				
Honours (Elective)	Elective group-A	Elective group-B	Elective group-C	Elective group-D
Chemistry	Physics, Maths	Physics, Statistics	Physics, Biochemistry	Physics, Biotechnology
Physics	Maths, Chemistry	Maths, Computer Sc	Maths, Electronic	Maths, Statistics
Mathematics	Physics, Chemistry	Physics, Electronics	Physics, Statistics	Statistics, Comp. Sc
Statistics	Physics, Maths	Chemistry, Maths	Computer Sc., Maths	Economics, Maths
Computer Science	Electronics, Physics	Physics, Maths	Maths, Statistics	Electronics, Maths
Geology	Geogr, Chemistry	Geogr, Botany	Geogr, Maths	Geogr, Physics
Geography (Science)	Chemistry, Physics	Chemistry, Botany	Chemistry, Zoology	-
Botany	Chemistry, Zoology	Chemistry, Biochem	Chemistry, Biotech	-
Zoology	Chemistry, Botany	Chemistry, Biochem	Chemistry, Biotech	-
Biochemistry	Chemistry, Zoology	Chemistry, Cl. Nutr	Chemistry, Biotech	Chemistry, Botany
Fishery	Chemistry, Zoology	-	-	-
Clinical Nutr & Diet	Chemistry, Zoology	Chemistry, Botany	-	-
Anthropology	Sociology, Zoology	Sociology, Biochem	Sociology, Geograph	Sociology, Biotech
English	Philosophy, El-Lang	Philosophy, Pol Sc	Philosophy, History	Philosophy, Educ

Linguistics	El-Eng, El-Lang	El-Eng, Anthropology	El-Eng, Sociology	El-Eng, Education
Hindi	El-Eng, Education	El-Eng, Philosophy	El-Eng, History	El-Eng, Sociology
Bengali	El-Eng, History	El-Eng, Education	El-Eng, Philosophy	El-Eng, Sociology
Assamese	El-Eng, Education	El-Eng, Philosophy	El-Eng, History	El-Eng, Sociology
Nepali	El-Eng, Education	El-Eng, Philosophy	El-Eng, History	El-Eng, Sociology
Khasi	El-Eng, Education	El-Eng, Philosophy	El-Eng, History	El-Eng, Sociology
Garo	El-Eng, Education	El-Eng, Philosophy	El-Eng, History	El-Eng, Sociology
Mizo	El-Eng, Education	El-Eng, Philosophy	El-Eng, History	El-Eng, Sociology
Education	History, Pol Sc	History, Sociology	History, Economics	History, Philosophy
History	Pol Sc, Economics	Pol Sc, Sociology	Pol Sc, Education	Pol Sc, Anthropology
Philosophy	History, Pol Sc	History, Sociology	History, Education	History, El-Language
Political Sc	History, Economics	History, Sociology	History, Philosophy	History, Geography
Economics	Pol Sc., Sociology	Pol Sc., El-Lang	Pol Sc., Anthropology	Pol Sc., History
Geography (Arts)	Economics, Sociol	Economics, History	Economics, Pol Sc	-
Sociology	History, Economics	History, Education	History, Polit. Sc	History, Anthropology
Commerce	Account & Finance group	Management group	Marketing group	Banking & Insurance group
El-Lang is a collective name for [Hindi, Bengali, Assamese, Nepali, Khasi, Mizo, Garo]				

VII. Regarding the Calendar: The following calendar is suggested for the Under-Graduate Programme (Table-6).

Table-6. Calendar for UG Teaching Programme		
	Academic Activity	Date/Period
1	Admission to Odd Semesters (Semesters: I, III and V)	July 21 to July 30
2	Commencement of the Odd Semesters (Semesters: I, III and V)	August 1
3	Commencement of Examinations: Odd Semesters (Semesters: I, III and V)	November 22
4	End of Examinations: Odd Semesters (Semesters: I, III and V)	December 20
5	Commencement of Winter Vacation	December 21
6	End of Winter Vacation	January 31
7	Commencement of the Even Semesters (Semesters: II, IV and VI)	February 1
8	Commencement of Examinations: Even Semesters (Semesters: II, IV and VI)	May 22
9	End of Examinations: Even Semesters (Semesters: II, IV and VI)	June 20
10	Publication of Results: Even Semesters (Semesters: II, IV and VI)	July 20 (on or before)

VII. Regarding the Ordinances to be Revised/Amended:

Minor amendments/revision may be needed in the following Ordinances:

(i) OA-5; (ii) OA-9; (iii) OB-6; (iv) OC-1; (v) OC-2; (vi) OC-8 and (vii) OC-9

It is suggested that the Standing Committee on the Ordinances may do the needful if the recommendations of this committee are approved by the AC and EC.

(SK Mishra)

Chairman, Committee to work
out the Structure for the Under-
Graduate Courses and the
Calendar for the Under-Graduate
Programmes

517:1(52)

Annexure - B

1



ST ANTHONY'S COLLEGE

SHILLONG 793 001

MEGHALAYA - INDIA

Phones : (0364) 2222558 2223558

Fax : 2229558

A Don Bosco Institution (Estd. 1934)

Re-Accredited Grade "A" - 3.60/4 (2009)

College with Potential for Excellence (awarded by UGC)

E-mail: warpakma.st.an@gmail.com

website: www.anthonys.ac.in

Principal

Ref. No. SAC/IW/98/12 - 01 dated 28th May 2012

To,

Dr. C. R. Diengdoh
Director
College Development Council
North Eastern Hill University
NEHU - Mawkynroh - Umshing
Shillong - 793 022

Subject: Recommendations of the Committee to work out the structure for the Under Graduate Courses and the Calendar for the Under Graduate Programmes
Ref. No. CDC/B.3/2011/-1759 dated 16th May 2012

Madam,

With reference to the subject cited and your letter Ref. No. CDC/B.3/2011/-1759 dated 16th May 2012 which we received on 26th May 2012 at 11.50 a.m., I have the honour of enclosing herewith some suggestions.

With kind regards,

Yours sincerely

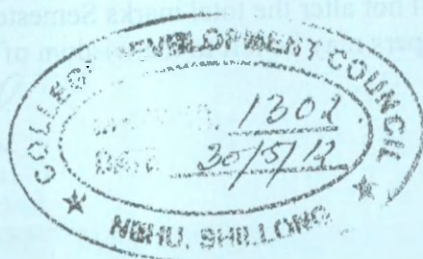
Rev. Dr. Fr. I. Warpakma SDB
Principal

Copy to:

1. SPS to Vice Chancellor, North Eastern Hill University, Shillong - 793 022
2. PA to Registrar's, North Eastern Hill University, Shillong - 793 022
3. PS to the Controller's, North Eastern Hill University, Shillong - 793 022

Rev. Dr. Fr. I. Warpakma SDB
Principal

28/5/12



Subject: Suggestion / Comments on the Recommendations of the Committee to work out the structure for the Under Graduate Courses and the Calendar for the Under Graduate Programmes.

Ref. No. CDC/B.3/2011/-1759 dated 16th May 2012

The suggestions made are based on the following points of consideration:

1. Further rationalization of distribution of papers (in Science / Home Science, Arts Streams).
2. Inclusion of a few existing combinations of subjects which are academically sound and employment oriented.
3. Addition of a few more existing subjects / courses which are believed to be inadvertently left out.
4. Deletion of a few combination subjects which academically do not go together.
5. Inclusion of College teachers in the Committee to work out a structure of UG Courses would have served the committee better as they are handling these courses in Colleges at the UG Level involving teaching, learning and evaluation processes.

The suggestions are:

(A) Regarding distribution of Papers over 6 Semesters

1. **Table: 2 – Distribution of paper for Science/Home Science Streams**
English - to be taken to Semester V instead of Semester I
Elective (Honours) - to be included in Semester I (100 Marks) so that in Semester V (200 Marks) a total of 300 marks is maintained.
2. **Table: 3 – Distribution of papers for the Arts Streams**
English in Semester II – to be taken to Semester V
Elective 2 – to be taken to Semester II instead of Semester V
3. **Table: 4 – Distribution of Papers for the Commerce Stream**
English in Semester II – to be taken to Semester V
Elective 2 – to be taken to Semester II instead of Semester V

These three changes are a must to rationalize distribution of papers to avoid overlapping / repetition of teaching common papers.

- Note: 1. It is to be noted that these changes will not alter the total marks Subject-wise and Semester-wise
2. It is only rational that Elective (Honours) is taught from the first Semester (Reference Science Stream Table 2). Elective 2 of Arts Stream taught in Semester II (Reference Arts Stream Table 3).
 3. For Science / Home Science Streams little flexible approach is necessary to be adopted with regard to the total number of papers (i.e. not restricting to Eight Papers only) bearing in mind that there are Papers on laboratory, experiments / Projects, etc.. However, this shall not alter the total marks Semester-wise / Subject-wise. This issue of number of papers may be left to the wisdom of respective

BUGS. While adopting this limited flexibility the total period (i.e. number of days involved) of examinations must be kept in mind.

(B) Regarding Elective Subjects Combination (Elective I, Elective II) for Honours in various Subjects

Table: 5 Elective Subject Combination for Honours in various Subjects:

Honours (Elective)	Elective Group A	Elective Group B	Elective Group C	Elective Group D	Elective Group E	Elective Group F
Chemistry	Physics, Mathematics	Botany, Zoology	Biochemistry, Zoology	Biochemistry, Botany		
Physics	-- as proposed					
Mathematics	Physics, Chemistry	Physics, Electronics	Statistics, Economics	Physics, Statistics		
Statistics	-- as proposed					
Computer Sc	-- as proposed					
Geology	Physics, Mathematics	Chemistry, Mathematics	Geography, Botany	Geography, Chemistry	Geography, Mathematics	
Geography(Sc)	--as proposed					
Botany	---as proposed					
Zoology	--as proposed					
Biochemistry	-- as proposed					
Biotechnology	Chemistry, Botany	Chemistry, Zoology				
Fishery Sc.	-- as proposed					
Clinical Nutr. & Diet	-- as proposed					
Anthropology	-- as proposed					
English	Philosophy, Elective Language	Economics, Political Sc.	Political Sc., History	Philosophy, History	Philosophy, Education	Philosophy, Sociology
Linguistics	-- as proposed					
Hindi	-- as proposed					
Bengali	-- as proposed					
Assamese	-- as proposed					
Nepali	-- as proposed					
Khasi	Political Sc, Economics	History, Political Sc.	History, Philosophy	Elective English, Education	Elective Lang, Education	
Garro	---as proposed					
Mizo	--as proposed					
Education	--as proposed					
History	Economics, Political Sc.	Philosophy, Political Sc.	Political Sc., Sociology	Political Sc., Education	Political Sc., Elective Lang.	
Philosophy	History, Economics	History, Political Sc.	Elective Lang, History	History, Education	Political Sc., Sociology	

S. 7:1 (SS)

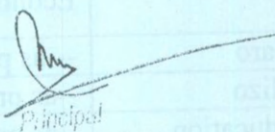
Political Sc.	-- as proposed					
Economics	Mathematics, Statistics	Political Sc., History	Political Sc., Elective Language	Political Sc., Sociology	Elective Language Sociology	
Geography (Arts)	-- as proposed					
Sociology	-- as proposed					
Commerce	-- as proposed					

However, for Commerce stream, MIL (100 marks) may be suitably replaced by a proper Commerce subject (100 marks).

- (C) Other programmes like Mass Communication and Video Production, Media Technologies, Bachelor of Music, Bachelor of Business Administration, are also to be included in the UG Programme, as these Programmes are already in existence. Each of these programmes is a complete course by itself, independent of other subjects. Re-distribution of papers over six (6) Semesters is required.

While proposing the Elective Subject Combinations for Honours in various subjects the following points of consideration were kept in mind:

1. Biotechnology Honours (Elective was possibly inadvertently left out from the list).
2. Physics without Mathematics will hamper higher studies and employment.
3. Mathematics, Statistics, Economics in combination with Honours in any one of them is an excellent combination which is presently allowed in a number of Colleges - to be included.
4. Geology Honours (Elective in Combination either with Physics and Mathematics or Mathematics and Chemistry offers good employment opportunity)
5. Geology Honours with Geography as a common Elective, English Honours with Philosophy as a common Elective, Khasi Honours with Elective English as a common Elective as proposed originally (in Groups A, B, C and D), would restrict the students from larger and wider opportunities. Therefore, certain changes are necessary.


Principal

St. Anthony's College
Shillong - 793001
Meghalaya, India

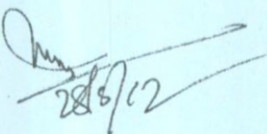
S:7:1(56)

(D). Regarding the Calendar etc.

1. All Examinations (odd and even Semester) are to be conducted by NEHU as in practiced today for UG Courses
2. Table: Small changes effected into the Table 6: (Calendar for UG Teaching programme)

	<i>Academic Activity</i>	<i>Date/Period</i>
1.	Admission to Odd Semesters (I, III, V)	July 21 to July 30
2.	Commence of Odd Semester (I, III, V)	August 1
3.	Commence of Examinations of Odd Semester (I, III, V)	November 15
4.	End of Examinations of Odd Semester (I, III, V)	December 15
5.	Commencement of Winter Vacation	December 16
6.	Commencement of Even Semester (II, IV, VI)	February 11
7.	Commence of Examinations of Even Semester (II, IV, VI)	May 22
8.	End of Examinations of Even Semester (II, IV, VI)	June 20
9.	Publications of Even Semester (II, IV, VI)	July 20 (on or before)

However, the date of announcement of results of Odd Semester to be decided and included in the Table.


28/6/12



पूवोत्तर पर्वतीय विश्वविद्यालय
पू. प. विवि. परिसर, शिलांग-७९३०२२ (मेघालय)
North-Eastern Hill University
NEHU Campus, Shillong - 793 022 (Meghalaya)

Phone :
Grams : NEHU

Professor K Ismail
Controller of Examinations

NO:COE:08:DM:2012: 1883
Dated: 18th May 2012

To

Professor P K Gupta
Dean,
School of Education
NEHU, Shillong

Sir,

During a discussion with the Principals of PGTC Shillong, St. Mary's CTE Shillong and CTE Tura, the Principals expressed their readiness to introduce semester system in the B.Ed Programme. Accordingly, the undersigned discussed the matter with the Vice Chancellor and was advised to request you to kindly workout the structure for the introduction of semester system in the B.Ed programme keeping in view the provisions, if any, laid down by the NCTE.

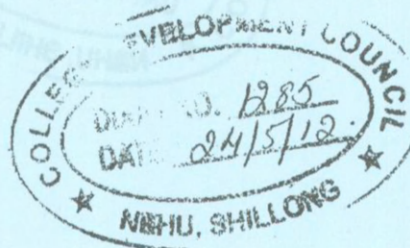
Yours faithfully,

K. Ismail

Copy to :

1. SPS to Vice Chancellor for favour of V.C.'s kind information
Director, CDC, NEHU, Shillong for kind information

K. Ismail



22/5/12
S.O.
Eva
24/5/12

Current Folder: INBOX

5:7:1(58)

3

Subject: Recommendation..undergraduate Courses, Reg.
From: "Nagulan Venugopal" <nvenugopal3@gmail.com>
Date: Fri, May 18, 2012 3:32 pm
To: direcdc@nehu.ac.in ()
Cc: nvgopal_27@rediffmail.com
Priority: Normal
Options:

Dear Madam,

With reference to your letter No.CDC/B.3/2011/-1759, dated 11-5-2012, In page no.2 under recommendation* No.III Regarding the Bacholar's Programme:*

"option for simple B.Sc., (Chemistry, Botany, Zoology) should also be available"

Thanking you

Yours sincerely,
N.Venugopal
Dep'tt. of Botany
NEHU, Shillong.

Attachments:

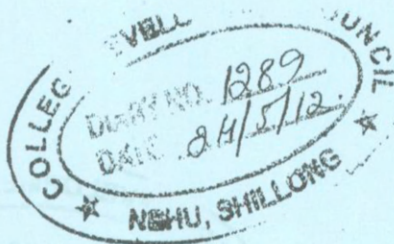
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Take Address

Move to: INBOX

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NORTH- EASTERN HILL UNIVERSITY
DEPARTMENT OF SOCIOLOGY
UMSHING- MAWKYNROH, SHILLONG- 793 022

Nikhlesh Kumar
 Professor & Head

Gram: NEHU

☎: (O): (0364) 2723040
 : (O): (0364) 2723046

Date: 21 May, 2012

To

The Director
 College Development Council
 NEHU, Shillong.

Sub: Recommendations of the Committee to work out the Structure for the Under-Graduate Courses and the Calender for the Under-Graduate Programme

Ref: CDC/B.3/2011/1759 dated 11th May, 2012

Madam,

With reference to the above I would like to convey the comments/feedback of the faculty of the Department as decided in its meeting held on 18th May, 2012.

It is suggested that the elective subjects/combinations for honours in Sociology could be as follows:

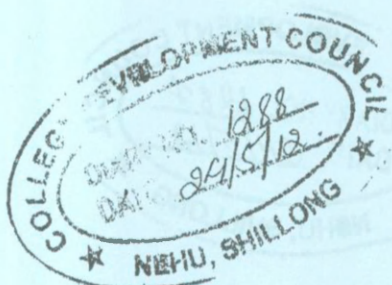
- Elective Group – A: History, Economics
- Elective Group – B: Education, Geography
- Elective Group – C: Political Science, Anthropology
- Elective Group – D: Philosophy, Education

The faculty was of the opinion that History need not be one of the subjects under each elective group. It appears as if History has been made a compulsory subject for the students choosing any of the elective group. The rational for doing so is missing from the report of the committee as communicated to us.

This is for the necessary action at your end.

Yours faithfully,

(Nikhlesh Kumar)





S. 7.1(60)

5

पूर्वोत्तर पर्वतीय विश्वविद्यालय
पू. प. विवि. परिसर, शिलंग-793022 (मेघालय)

North-Eastern Hill University
Department of Biotechnology & Bioinformatics
NEHU Campus, Shillong - 7930 22 (Meghalaya), INDIA

No. F. 26/BTBI/Acad/ 0025

Dated : 21st May 2012

To

The Director
College Development Council,
NEHU, Shillong-22

Subject : Comments on structure for the UG courses and calendar – reg. .

Dear Sir;/Madam,

This has reference to your letter no. CDC/B.3/2011-1759 dated 11.5.2012 to the subject cited above, I have gone through the enclosed recommendations and found the following missing portion /courses:

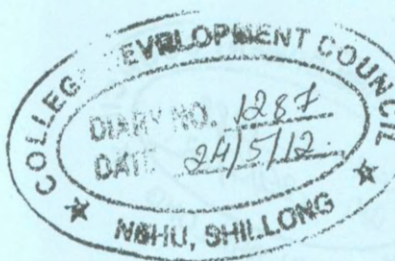
In page 5 - VI – Regarding elective subject combination (Elective 1 and Elective 2) for Honours in various subjects:

- It was noted that, two honours courses under Life Sciences are not mentioned in the table. They are **Honours in Biotechnology** and **Honours in Microbiology**. These must be incorporated in Table 5 with the following elective subject combinations :

Honours (Elective)	Elective Group –A	Elective Group-B	Elective Group-C	Elective Group-D
Biotechnology	Chemistry, Biochemistry	Botany, Chemistry	Zoology, Chemistry	-
Microbiology	Chemistry, Biochemistry	Botany, Chemistry	Zoology, Chemistry	-

Therefore, please incorporate the above subjects in the existing **Table 5** at your end.

Thanking you



Sincerely yours,

(A. Chatterjee)
Professor & Head

Head
Department of
Biotechnology & Bioinformatics
NEHU, Shillong - 793 022

5:7:1(61)

6

North Eastern Hill University



Department of Physics
Shillong 793 022
Tel.: 0364-2722801

No.50/Phys/CDC/2012 - 25

May 22, 2012.

To

The Director College Development Council
North Eastern Hill University
Shillong - 22.

Subject: Comments/feedback.

Ref: Your No.CDC/B-3/2011/1759 dated 11.5.2012.

Madam,

With reference to the above subject, I would like to submit some comments/feedback for your information.

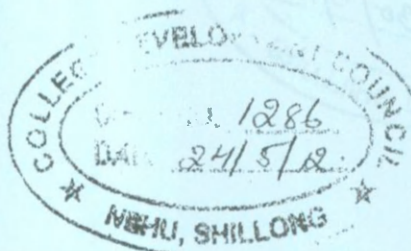
- (a) With the introduction of the semester system, problem will arise with the number of teachers servicing two parallel streams (annual and semesters). Moreover, some colleges in spite of bifurcating the degree classes from the higher secondary are still using the services of the teachers in teaching Class XI and Class XII which is highly improper in spite of the existing rules and regulations. There will be space problems in the lab.
- (b) Perhaps we should think of doing away with the Hon. Course and have equal weightage on all the papers. This system is followed in several parts of the country. For example, from our experience in the Physics Department it is found that the students do not take Mathematics seriously at the B.Sc. level. As a consequence, by the time they join M.Sc.(Physics) majority of them have lost touch with the said course which is very crucial for understanding Physics. In addition, the idea of removing the Hon. course enable the students to be eligible for applying in any of the subjects taken at the degree level.

I shall be very grateful if you could kindly consider the above points.

Yours sincerely,

B. Jyrwa
B. Jyrwa.

Prof. & Head
Physics Department
N.E.H.U., Shillong-793022



22/5/12



North Eastern Hill University

Department of Statistics, Shillong – 793022, Tel: 0364-272-2901, 2902, E-mail: hodsta@nehu.ac.in

Dr. G. Das
Professor & Head
Department of Statistics

F.No. Stats/Meeting/2012- 3265

May 28, 2012

To

The Director,
College Development Council,
NEHU, Shillong.

Subject: Recommendations of the Committee to work out the Structure for the Under-Graduate Courses and the Calendar for the Under-Graduate Programmes.

Madam,

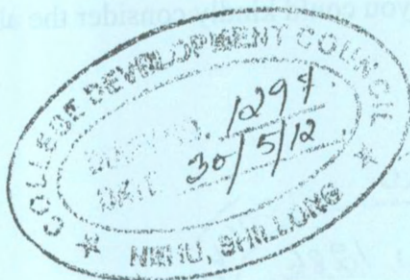
Please find enclosed herewith the Minutes of the Faculty members held on 24th May' 2012, in the Department of Statistics, NEHU on Structure for the Under-Graduate Courses and the Calendar for the Under-Graduate Programmes.

Thanking you,

Yours Sincerely,

(G. Das)

Enclosures:- a.a.



30/5/12

5:7:1(63)



North Eastern Hill University

Department of Statistics, Shillong – 793022, Tel: 0364-272-2901, 2902, E-mail: hodsta@nehu.ac.in

Minutes

F.No.Stats/Meeting/2012- 3264

May 28, 2012

A meeting of the faculty members was held on 24th May' 2012 at 3.00 pm , in the office of the undersigned to discuss the final comments/feedback on Structure for the under-Graduate Courses and the Calendar for the Under-Graduate programmes.

Following members were present:-

- | | | |
|-------------------------|---|------|
| 1. Dr. T.K. Chakrabarty | - | Sd/- |
| 2. Dr. M.K. Das | - | Sd/- |
| 3. Dr. B.K. Gupt | - | Sd/- |
| 4. Dr. S.K. Jha | - | Sd/- |
| 5. Dr. R. Singh | - | Sd/- |
| 6. Prof. G. Das (HOD) | - | Sd/- |

The members discussed the recommendation of the Committee thoroughly and asked for clarification regarding marks to be allotted for the practical papers in Science stream. As is mentioned in the structure it seems that number of papers is already fixed and marks for each paper is also fixed as 100. In some semesters viz II, III & IV only 100 marks is allotted for Elective (Hons). Are these theory papers or practical or can be splitted into both theory and practical, all these need further clarification.

It was resolved that the above feedback can be sent to the Director CDC.

The meeting ended with vote of thanks from the Chair.

(G. Das)

Head,

Department of Statistics.

PA
30/5/12

No.F.Kh/7-1668.

Dated 28/05/2012

Minutes of the BUGS meeting in Khasi, NEHU, held on the 28th May, 2012 at 11:00 A.M in the Department of Khasi, NEHU, Shillong.

1. The meeting was presided over by Prof. A. Kharmalki Chairperson BUGS
2. Name of the members present in the meeting is enclosed at Annexure I

The Chairperson welcome all the members present, and the meeting was open for discussion on the following agenda:

- a. Structure for the Under-Graduate Courses and the Calendar for the Under-Graduate Programmes.
1. The BUGS is of the view that Pass Course at the under-Graduate level should continue for the general interest of the Khasi students.
 2. The first three Papers of the Elective Honours in Khasi should be the same papers offered in Elective 1 or Elective 2.
 3. Elective Language (Khasi) should also be offered for students taking Honours in History, Education, Political Science, Sociology and Geography (Arts).
 4. Elective English should not be made compulsory, it could be offered only in one of the Elective groups.

The BUGS therefore request the Committee to consider the above points for the interest of the study of Khasi Language as well as for students of Khasi community.

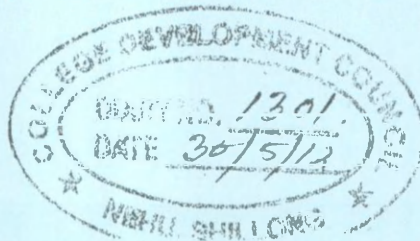
(Prof.A.Kharmalki)
(Chairperson BUGS in Khasi)

No.F.Kh/7-1668.

Dated 28/05/2012

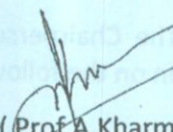
Copy to :-

- ✓ 1. The Director, CDC, NEHU, with reference to letter No. CDC/B.3/2011/1759 Dt. 17.05.2012 for information and necessary action.
2. S.K. Mishra, Chairman, Committee to work out the Structure for the Under-Graduate Courses and the Calendar for the Under-Graduate Programmes for information and necessary action.
3. Mr. Bobby S. Basan, St. Edmund's College, Shillong for information
4. Ms. B.M. Wolflang, Lady Keane College, Shillong. for information



28/5/12

- 1100
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5. Mr. T. S. Rajee, Shillong College, Shillong. for information
 6. Ms. D. Syiem, Synod College, Shillong. for information
 7. Mrs. P. Syiem, St. Anthony's College Shillong. for information
 8. D. Kharkongor, Retd Principal, Seng Khasi College, Shillong. for information
 9. Mrs. M. Gatphoh, Retd HOD Khasi, Shillong College, Shillong. for information
 10. Prof. B. War, Department of Khasi, NEHU, Shillong. for information
 11. Prof. M.B. Jyrwa, Department of Khasi, NEHU, Shillong. for information
 12. Prof. S. Dkhar, Department of Khasi NEHU, Shillong. for information
 13. Dr. D.R.L. Nonglait, Department of Khasi, NEHU, Shillong. for information
 14. Mr. M.M. Khyndeit, Department of Khasi, NEHU, Shillong. for information


(Prof. A. Kharmalki)
(Chairperson BUGS in Khasi)

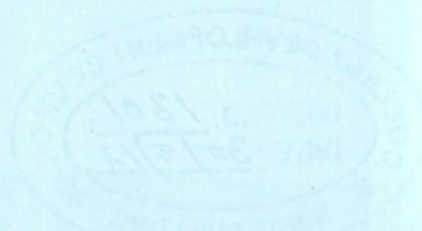
(Prof. A. Kharmalki)
(Chairperson BUGS in Khasi)

Dated 28/05/2013

No. F.KM/7-1558

Copy to:-

1. The Director, CDC, NEHU, with reference to letter No. CDC/8.3/2013/1759 of 17.05.2013 for information and necessary action.
2. S.K. Mishra, Chairman, Committee to work out the structure for the Under-Graduate Courses and the Calendar for the Under-Graduate Programmes for information and necessary action.
3. Mr. Bobby S. Basan, St. Edmund's College, Shillong for information
4. Mr. B.M. Volante, Lady Keane College, Shillong for information



Annexure I

Members present:-

1. Mr. Bobby S. Basan.

B.S. Basan
28/5/12

2. Ms. B.M. Wolflang.

B.M. Wolflang
28/5/12

3. Mr. T. S. Rajee.

T.S. Rajee
28/5/2012

4. Ms. D. Syiem.

D. Syiem
28/5/12

5. Mrs. P. Syiem.

P. Syiem
28/5/12

6. D. Kharkongor.

D. Kharkongor

7. Mrs. M. Gatphoh.

M. Gatphoh
28/5/2012

8. Prof. S. Dkhar.

9. Dr. D.R.L. Nonglait.

D.R.L. Nonglait
28/5/12

10. Mr. M.M. Khymdeit.

M.M. Khymdeit

11. Prof. A. Kharmalki.

*A. Kharmalki**Chairperson*



5:7:1(67)
पूर्वोत्तर पर्वतीय विश्वविद्यालय
पू. प. विवि. परिसर, शिलांग-७९३०२२ (मेघालय)

North-Eastern Hill University
NEHU Campus, Shillong - 793 022 (Meghalaya)

Phone No: Code (0364)
2/23340(o)2723342(o)
Gram: NEHU

9

S.M. Sungoh,
Professor & Head ,
Department of Education

No.F.42EDN/2012- 888
Dated : 28th May, 2012

To

The Director,
College Development Council,
NEHU, Shillong.

Ref: No. CDC/B.3/2011-1759 dated 11th May 2012.

Subj : Structure for the U.G Course for (B.A. Hons) Education.

Sir,

With reference to your letter on the subject cited above, the structure for U.G, Course (B.A. (hons) Education was placed before the faculty members.

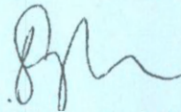
The recommendation of the Committee was discussed thoroughly and members were of the view that the structure of the U.G Course prepared by the Committee is agreeable except for item (vi) regarding elective subject combination for honours subject. For the subject of Education, members were of the view that subject combination (Elective 1 & 2) for the subject (Hons) Education should be as follows :

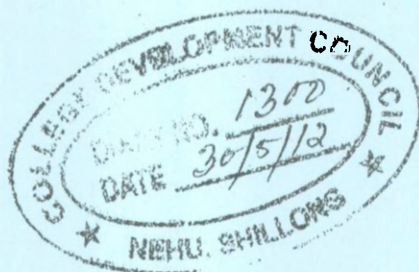
Table – 5 Elective subject combination (Elective 1 & 2 for Hons. In various subjects)

Hons. Elective	Elective Group A	Elective Group B	Elective Group C	Elective Group D
Education	History & Political Science.	History. & Sociology	Political Science & Economics	Economics & Philosophy

Thanking you,

Yours faithfully,


(S.M. Sungoh)



30/5/12

S: 7:1(68)

Subject: Fwd: Recommendations of the Committee to work out the Structure for the UG Courses and Calender for UG Programmes.
From: "Himadri Mukerjee" <himadrinehu@gmail.com>
Date: Mon, May 28, 2012 5:01 pm
To: dircdc@nehu.ac.in ()
Cc: "Himadri Mukerjee" <himadrinehu@gmail.com>
Priority: Normal
Options:

----- Forwarded message -----

From: Himadri Mukerjee < >
Date: Mon, May 28, 2012 at 5:00 PM
Subject: Recommendations of the Committee to work out the Structure for the UG Courses and Calender for UG Programmes.
To:

Dear Dr. C.R. Diengdoh,

June 28, 2012.

Director,
College Development Council,
NEHU, Shillong.

Ref. Letter No. CDC/B.3/2011/-1759, dated 17th May, 2012
Sub. Recommendations of the Committee to work out the Structure for the Under -Graduate Courses and Calender for Under Graduate Programmes.

Dear Madam,

With reference to the above letter on the subject mentioned above, I have to make the following comments.

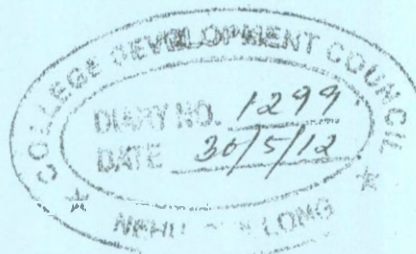
1. Refer to the page 4, Table 1 Honours:.H1 and H2 can be combined and worded as follows: "The student passes in each paper."
2. Refer to the page 4, Table 1 Honours :Last para can be reframed as follows: "Further, it is clarified that for a student to obtain Honors it is necessary to obtain pass marks (i.e. to obtain at least 30% marks) in each paper, but it is not necessary to secure 45% marks in each Honors paper. This percentage (i.e. 45%) will be computed at the End Semester."
3. Refer to the page 4, Table 1 Honours with simple pass: HP1 and HP2 can be combined and worded as follows: "The student passes in each paper."
4. Refer to the page 4, Table 1 Honours with simple pass: :Last para can be reframed as follows: "Further, it is clarified that for a student to obtain Honors with simple pass it is necessary to obtain pass marks (i.e. to obtain at least 30% marks) in each paper. However, the student must secure not less than 33% marks but less than 45% marks in Honours papers all taken together. These percentages (i.e. 33% and 45%) will be computed at the End Semester."
5. Refer to the page 4, Table 1 Fail: the first line should be read as: "A student shall be declared to have 'failed' if she/he".
6. Refer to the page 4, Table 1 Fail: F.1 should be read as: "fails to secure at least 30% marks in any paper."

Thanking you,

Sincereky,

H.K. Mukerjee,
Chairman, BUGS in Mathematics

--
Himadri Kumar Mukerjee,



30/5/12

Professor, Department of Mathematics,
North-Eastern Hill University,
NEHU Campus, Shillong-793022, Meghalaya, India.
Tel. (O) +91-364-2722714, (R) +91-364-2550070 / 2726714,
Mob:+919436118439
Fax:+91-364-2550076 / 2721000,
Email: *himadri.nehu@gmail.com, himadri@nehu.ac.in*

--
Himadri Kumar Mukerjee,
Professor, Department of Mathematics,
North-Eastern Hill University,
NEHU Campus, Shillong-793022, Meghalaya, India.
Tel. (O) +91-364-2722714, (R) +91-364-2550070 / 2726714,
Mob:+919436118439
Fax:+91-364-2550076 / 2721000,
Email:

Attachments:

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Move to: INBOX

Move

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11

Current Folder: INBOX

Subject: subject combination geology honours
From: "Eddie Mawkhiew" <emawkhiew@yahoo.com>
Date: Mon, May 28, 2012 9:38 pm
To: direcdc@nehu.ac.in
Cc: cdcnehu@gmail.com
Priority: Normal
Options:

Madam,

With reference to your letter No. CDC/B.3/2001/1759 dated 16th May 2012 I would like to comment on the subject combinations for Geology Honours as follows:
1. Geology is being taught only in St. Anthony's College where Geography is not offered, whereas in table 5 of the letter it appears that Geography is compulsory for a Geology Honours student.
2. It may be suggested that other than Elective Group A - Geology (H), Geography, Chemistry other combinations that may be allowed be as under-
a) Geology (H), Botany, Chemistry
b) Geology (H), Mathematics, Chemistry
c) Geology (H), Mathematics, Physics

This is for your kind information to do the needful.

Yours sincerely,

Edmund K. Mawkhiew

Yours S

Attachments:

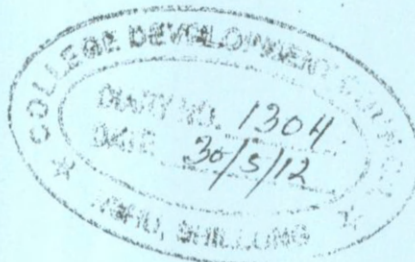
1.1 k

[text/html]

Take Address

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30/5/12
S.O.



Current Folder: INBOX

Subject: Comments on Recommendations
From: "shillong college" <shillcoll@yahoo.co.in>
Date: Mon, May 28, 2012 3:45 pm
To: "direcdc@nehu.ac.in" <direcdc@nehu.ac.in> ()
Priority: Normal
Options:

Madam,

Observations have been made by the teachers of Shillong College as regards Recommendation of the Committee to Work out the Structure for the Under Graduate Courses are enclosed herewith

Vice Principal

Attachments:

2 k [text/html]

16 k [application/octet-stream]

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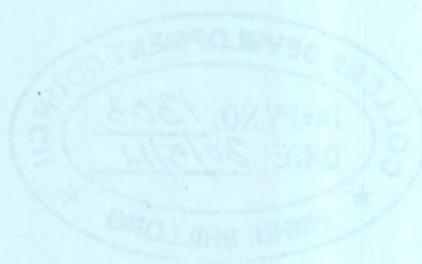
30/5/12



S:7:1(72)

The following observations have been made by the teachers of Shillong College as regards Recommendation of the Committee to Work out the Structure for the Under Graduate Courses:-

1. Chemistry (Hons) does not reflect the combination with Botany, Zoology.
2. Microbiology (Hons) does not reflect the combination with Botany/ Zoology and Chemistry.
3. Zoology (Hons) does not reflect the combination with Botany, Microbiology(Pass) may be introduced.
4. Botany (Hons) does not reflect the combination with Zoology, Microbiology(Pass) may be introduced.
5. B. B. A. (Hons) is not reflected.
6. B. C. A. (Hons) is not reflected.
7. Khasi (Hons) does not reflect the combination with Political Science, Elective English.
8. English(Hons) previously had three elective subjects apart from Hons subject, as per the present recommendation now the students are to appear 11 paper in English Hons while Hons in other subjects are of 8 papers only.
9. Elective language (Khasi) should also be offered for students taking Hons in Economics, Education, Political Science, Sociology.





S: 7.1 (13)

13

SYNOD COLLEGE SHILLONG
MEGHALAYA-INDIA
PIN -793002

Re-Accredited "A" Grade with 3.10 / 4 CGPA by NAAC

Phone : 0364-2548317
Fax : 0364-2547489
E-mail: synodcollege@dataone.in
Website: www.synodcollege.com

No. SC/Misc/2012/88

Dated the 28th May 2012

To,

Dr. C.R. Diengdoh
Director
College Development Council
NEHU, Shillong

Sub: Recommendations of the Committee to work out the structure for the Under-Graduate Courses and the Calendar for the Under- Graduate Programmes.

Madam,

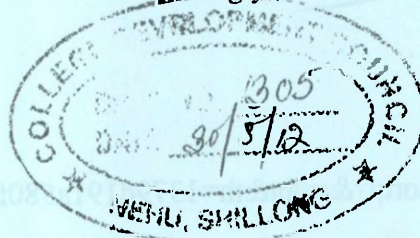
With reference to the subject cited above, I am to inform you of the following comments/feedback on the recommendations of the Committee to work out the structure for the Under- Graduate Courses and the Calendar for the Under- graduate Programmes as per your letter No.CDC/B.3/2011/-1759 dated the 16th May, 2012.

Regarding the subject combination in page 4, No. VI, in the Table. 5 under the column Honours (Elective)-

1. For Chemistry Honours, the elective subjects should also include Botany and Zoology as being done for the present Honours Course.
2. For English Honours, the elective subject Philosophy should not be compulsory. Other subjects like Sociology, Education, Political Science and El.Lang should be included.
3. For Khasi Honours, the elective subject El.Eng should not be compulsory. Other subjects like Sociology, Political Science, El.Lang and Economics should be included.
4. For Education Hounours, the subject History should not be compulsory. Other combinations without History should also be included.
5. For Political Science Honours, the subject History should not be compulsory. Other combinations without History should also be included.
6. For Economics Hounours, the elective subject Political Science should not be compulsory. Other combinations without Political Science should also be included
7. For Sociology Honours, the subject History should not be compulsory. Other combinations without History should also be included.

Thanking you

Yours faithfully,



[Signature]
Principal 30/5/12

[Signature]
4/6/12

cdc nehu <cdcnehu@gmail.com>

Structure of UG Courses

1 message

moon moon mazumdar <moonzip2002@yahoo.co.in>
To: cdcnehu@gmail.com

Wed, May 30, 2012 at 2:34 AM

Dear Catherine,

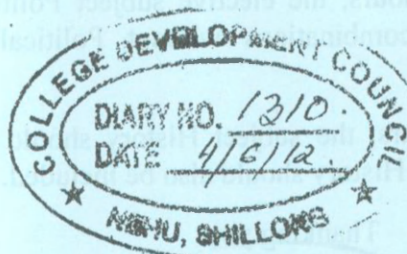
Please find below our observations with regard to the recommendations of the Committee that has worked out the Structure of the Under-graduate Courses.

1. At the moment students doing English Honours do not have to offer Compulsory English (two papers have been proposed under the proposed structure) and Alternative English. Instead they do three Elective Subjects.
2. Philosophy has been proposed as a common Elective Paper in the Elective Subject combination groups for English Honours students in the proposed structure despite the fact that some colleges do not have Philosophy on offer.

Best

Moon Moon Mazumdar
Head, Department of English
NEHU, Shillong

4/6/12



S:7:1(75)



NORTH EASTERN HILL UNIVERSITY
Permanent Campus, Department of Geography
Mawkynroh-Umshing
Shillong- 793022

Z.H. Qureshi
Professor & Head,

GE/2011-12/BUGS/18-2561
Dated. 1st June, 2012

To,

Dr. C.R. Diengdoh
Director,
College Development Council,
NEHU, Shillong.

Ref: No.CDC/B.3/2011/-1759, Dated. 11th May, 2012.

Sub: Comments on the Structure^{of} Graduate Courses.

Sir/Madam,

Please find enclosed comments on the Structure of the Under Graduate Syllabus for Semester system. The comments are given by in-charge of Restructuring the Under Graduate Syllabus for Semester System.

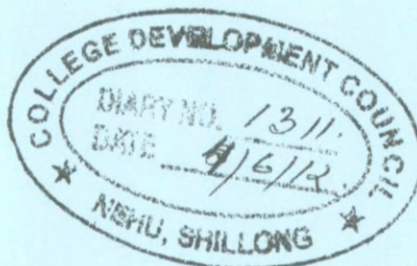
This is for your kind consideration and necessary action.

Yours faithfully,

(Z.H. Qureshi)

Enclo:

Comments of the Structure of UG Syllabus.



4/6/12

5:7:1(76)

NORTH-EASTERN HILL UNIVERSITY
DEPARTMENT OF GEOGRAPHY
MAWKYNROH, SHILLONG-793022

To
The Head
Department of Geography
NEHU, Shillong

1.06.2012

Sub: Comments on the Structure of UG Courses

Sir,

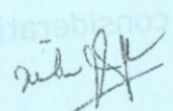
I would like to comment on the subject combinations which I supposed was overlooked earlier.

The subject combinations appearing in Table 5 for Geography (Science) in Group A,B,C,D may be redefined so as to cater to the subject requirements such as Chemistry, Environmental Science; Physics, Botany; Botany, Zoology and Maths, Physics.

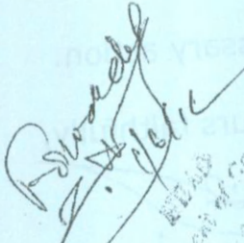
Hope this would be possible to be included.

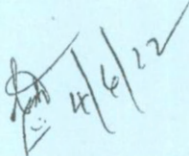
Thanking You.

Yours faithfully,


H.J. Syiemlieh

May be sent to
the concerned authorities
11/6/12


Department of Geography
North - Eastern Hill University
Shillong


4/6/12



18

5:7:1(77)

MEGHALAYA COLLEGE PRINCIPALS' COUNCIL

Headquarter::Shillong

Registered under the Meghalaya Societies Registration Act 7 of 1990

Registration No. SR/MCPC-99/93 of 1993

President:

Rev. Dr. Fr I. Warpakma SDB
Principal
St. Anthony's College
Shillong

Secretary:

Debasish Chowdhury
Principal
Women's College
Shillong

MCPC/ President/ 2012- 04

June 04, 2012

To

Professor A. N. Rai
Vice Chancellor
North Eastern Hill University
Shillong – 793 022

Reference: No. CDC/B.3/2011/-1759 dated the 16th May 2012

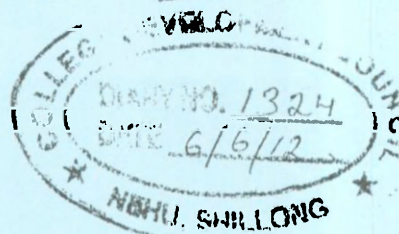
Respected Sir,

In drawing your kind attention to the letter under reference from the Director, CDC, we, on behalf of the Meghalaya College Principals' Council (MCPC), desire to submit that the recommendations of the committee entrusted with the task to work out the structure for the Under Graduate courses and the academic calendar for the said programme has been discussed during a meeting of the Council held on June 02, 2012.

We are further to submit that prior to sitting in the meeting, our member Principals have discussed these recommendations with the faculties in their respective colleges with a view to obtain their feedback on it. Basing on what transpired during those discourses as also the discussions we have had during the meeting of the Council mentioned herein above, we would like to submit the following for the favour of your kind perusal and needful consideration.

The Council is appreciative of the need for introduction of the semester system as an enabling necessity for our students to facilitate their academic career prospect. The Council, however, feels that the recommendations made by the hon'ble committee calls for a wider discourse involving the various stake holders since a number of recommendations made therein, in our opinion, calls for further clarification. The subject grouping, the semester-wise marks distribution, the eligibility criterion for admission and its consequent implications are some of the matters that the Council feels require a rather elaborate and specific set of guidelines to facilitate smooth implementation of the semester system.

In view of the above, the Council requests you to kindly arrange a joint meeting of the stakeholders; the Principals, few senior teachers and the hon'ble committee that has worked out the structure to enable us to arrive at a clear understanding as to how we are going to actually implement the scheme within the constraints under which the various affiliated colleges in the state are functioning.



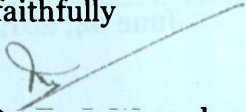
6/6/12

5: 7: 1(78)

We are sure that your kind and considerate support in the matter mentioned herein above would greatly serve the institutions affiliated to it thereby contributing much to the growth and quality of higher education under the aegis of the university. Assuring you of our sincerest cooperation in all university initiated matters that aim to uplift the standard and quality of college education in the state.

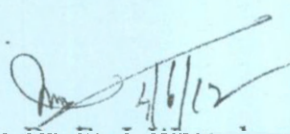
Thanking you and with kind regards.

Yours faithfully


(Rev. Dr. Fr. I. Warpakma, SDB)
President, MCPC

Copy to:

✓ The Director, College Development Council, North Eastern Hill University,
Shillong - 793 022


(Rev. Dr. Fr. I. Warpakma, SDB)
President, MCPC

1. The committee to work out the structure for the UG Courses and the Calendar of UG Programmes constituted failed to embrace member(s) from the colleges' teaching fraternity thereby clearly sidelining the very important entity that would support and cooperate for the success of the new system. Though their suggestions were looked upon but spot discussions and deliberations on the important technicalities and methodologies were not conducted that would ensure transparency and accountability in the implementation of the new system.
2. Without any cut-off marks at the entry level, the system allows whimsical opportunity for colleges to independently fix cut-off marks and this could adversely affect the student community who pursue further studies at the university level.
3. Distribution of Papers over 6 semesters: For the Science Stream there is no Elective (Hons) paper in the Semester I. It is suggested that redistribution could be made by allotting 200 marks for Elective (Hons) in Semester V and 100 marks for either Elective 1 or 2. This will make room for allotment of 100 marks for Elective(Hons) in Semester I subsequent to the removal of 100 marks in either Elective 1 or 2.
4. Table – 5. Elective Subject Combination: With regard to
 - a. Honours in Chemistry is allowed only with the elective combination of (a) Physics Maths, (b) Physics Stats, (c) Physics Biochemistry, and (d) Physics Biotechnology and NOT with Botany and Zoology combination. The CBZ (Chemistry Botany Zoology) Subject combination if allowed will be advantageous for those Colleges that do not offer Biochemistry and Biotechnology. It is therefore suggested that CBZ as Subject combination be added and Chemistry honours with Botany and Zoology as Elective subjects be allowed. It is felt that this will be in the interest of most colleges and the student community at large.
 - b. Honours in Economics- the given combination suggests that students from Arts Stream opting for Honours in Economics cannot opt for Mathematics and Statistics as elective subjects and the combination of Economics, Mathematics and Statistics is only allowed for those opting for Honours in Statistics. It is hence suggested that the Subject combination of Economics Mathematics Statistics be also added for Arts students who want to take Honours in Economics with Mathematics and Statistics as elective subjects.



P.T.O.

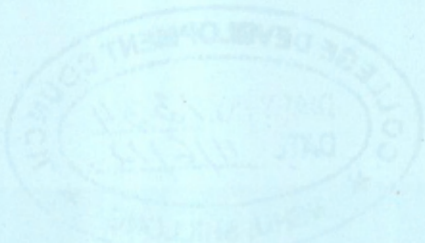
11/6/12

S: 7:1180

5. The Subject combination as it is now seems to be very rigid, and not flexible nor exhaustive. Since the mention of a Switch-over to a Choice based credit system has been made, it is suggested that the choice of subject combination should be made more flexible as to allow the system to have a proper trial run before the switch over.

D. Dhar

Principal
Sankardev College





पूर्वात्तर पर्वतीय विश्वविद्यालय
पू. प. विवि. परिसर, शिलांग-७६३०२२ (मेघालय)
North-Eastern Hill University
NEHU Campus, Shillong - 793 022 (Meghalaya)

18
Phone No: 0364- 2723342 (O)
9436116725 (M)
Email: pkgupta.nehu@gmail.com

P.K.Gupta,
Professor & Dean,
School of Education

F.51/BSE/B.Ed//2010- 684
Dated-11.6.12

To,

The Controller of Examination,
NEHU, Shillong

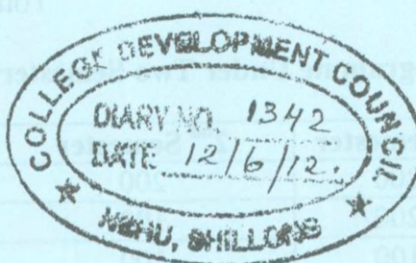
Sir,

In reference to your letter No. COE:08:DM:2012:1833 dated: 18th May, 2012. Please find enclosed herewith the Structure of B.Ed programme under Semester system as per the recommendation of B.Ed Syllabus revision committee.

Yours Faithfully

(P.K.Gupta)

Director, CDC
For information as discussed over phone
ad n.a.
12/6/12



1548
12/6/12

12/6/12

5:7:1(82)

Structure of B.Ed Programme under Semester System as per the recommendation of B.Ed Syllabus Revision Committee

The Committee to revise the B.Ed Syllabus was constituted by the Head, Department of Education, NEHU, Shillong vide letter No.F.31/EDN/BA/B.Ed/2011-724 dated: 24th Oct, 2011 with the following members

- (i) Prof. P.K.Gupta, Deptt of education, NEHU, Shillong (Chairman)
- (ii) Prof. S.M.Sungoh, Deptt of education, NEHU, Shillong
- (iii) Dr. V.Kharmawphlang, Principal, CTE, Shillong
- (iv) Dr.R. Sangma, Principal, SMCTE, Shillong

In reference to the letter No.COE:08:DM:2012/833 dated 18th May, 2012 from Controller of Examination, NEHU, Shillong to work out the structure for the introduction of Semester System in B.Ed Programme, the meeting of the above Committee was called on 1st June, 2012.

The Committee members met on 1st June, 2012 to work out the structure of B.Ed Programme under semester System. In the absence of any specific guidelines from NCTE, New Delhi, the Committee made the following recommendations;

(I) Introduction of Semester System in B.Ed Programme:

The university may implement the semester system for the one year B.Ed programme offered in the Colleges affiliated to it. Under semester system, the one year B.Ed Programme may be spread over two semesters. However, the evaluated system may remain the same.

(II) Eligibility for Admission to the B.Ed Programme:

A minimum of 50% marks in the Bachelor's degree and/or in the Master Degree for the General category (with a relaxation in qualifying marks in favour of reserved categories as per the rules of concerned government). This is as per NCTE regulation, 2009.

(III) Papers in B.Ed Programme:

The B.Ed Programme shall be offered for the total marks of 1100 as given below. The same will be spread over two semesters

1. Core Paper	: Four (100 marks each)	400
2. Elective/Optional	: Three (100 Marks each)	300
3. Practicals	: Two (100 Marks each)	200
4. Practice Teaching	: One (200 Marks)	<u>200</u>
Total=		1100

(IV) Structure of B.Ed Programme Under Two Semesters

Semester /Papers	1 st Semester	2 nd Semester	Total
Core Papers	200	200	400
Elective /Optional	200	100	300
Practical	100	100	200
Practice Teaching	-	200	200
Total	500	600	1100

5:7:1/83)

(V) Academic Calender:

Calendar of Semester -I

- | | |
|--|-----------------------------|
| (ii) Admission | - July 21 to July 30 |
| (ii) Commencement of 1 st Semester | - Aug 1 |
| (iii) End of 1 st Semester Teaching | - 30 th November |
| (iv) Commencement of 1 st Semester Exam | - Dec 1 |
| (v) End of 1 st Semester Examination | - Dec 20 |
| (vi) Winter Vacation | - Dec 21 to Jan 31(42 days) |

Calendar of Semester -II:

- | | |
|---|--------------------------------|
| (i) Commencement of 2 nd Semester | - Feb 1 |
| (ii) Practice Teaching & Practical Exam | - May |
| (iii) End of 2 nd Semester Teaching | - 30 th May |
| (iv) Commencement of 2 nd Semester Exam | - June 1 |
| (v) End of 2 nd Semester Exam | - June 20 |
| (vi) Semester Break | - June 21 to July 20 (30 days) |
| (vii) Publication of Result of 2 nd Semester | - July 20 (on or before) |

5:8:6 (1)

5: 8: Others :

- (vi). Placing the Department of Desk Top Publishing Tools & Multi Media In an appropriate School.**

The Department of Desk Top Publishing Tools & Multi Media was under the School of Humanities and Education. After re-organisation of Schools under Ordinance OA – 4, the School of Humanities & Education was bifurcated to two School i.e. School of Humanities and School of Education.

In view of above, the Council may decide to place the Department of Desk Top Publishing Tools & Multi Media in an appropriate School.

The matter is placed before the Council for consideration.

5:8:7 (1)

**(vii). Internationalization of Higher Education during XII plan period-
Proposal of the UGC.**

The Dean Students' Welfare has submitted an agenda for Internationalization of Higher Education during XIIth Plan period as suggested by Prof Ved Prakash, Vice-Chairman and Chairman (Actg.) UGC at Annexure 'A' and the proposal of the University to facilitate admission of large number of foreign Students in the University including the requirement of resources as estimated for the XIIth Five year plan shown on the Format provided by the UGC at Annexure 'B'.

The matter is placed before the Council for consideration.

5.8.7(2)

Annexure-A

विश्वविद्यालय अनुदान आयोग

बाहादुर शाह ज़फर मार्ग, नई दिल्ली-110 002

UNIVERSITY GRANTS COMMISSION

BAHADUR SHAH ZAFAR MARG,

NEW DELHI-110 002

OFF. : (011) 23234019

: (011) 23236350

FAX : (011) 23239659

E-mail : cm@ugc.ac.in

SPEED POST

प्रो. वेद प्रकाश

उपाध्यक्ष

Prof. Ved Prakash

Vice-Chairman

&

Chairman (Actg.)

D.O.No.F.15-2/2012 (CU)

22nd May, 2012

Dear Prof. Rai,

It hardly needs any mention that in the present times the Universities all over the world have been facing challenges of globalization which means diversification of demographic profiles of students and teachers and distinct changes in curricular provisions. Present day universities, indeed, are expected to be genuinely inclusive with diverse groups of student population. Some of the world's leading universities accord top priority to these aspects of diversification.

There is a need for us to give a fillip to internationalization of higher education during the 12th Five Year Plan. If we decide to create opportunities for our students to get exposure to the world around them, we may consider inviting international students to our campuses by way of offering short term and medium term programs. This would obviously require a great deal of preparations at the level of individual universities.

In this connection, I would appreciate if you could kindly let us know the following:-

1. How many international students are pursuing courses at different levels in your university?
2. How many more international students can you accommodate in the existing UG/PG/Research Programs across various disciplines?
3. If you are not able to accommodate the international students in the forthcoming academic session, since when would it be possible for you to do that?
4. Keeping in view your academic strength would you like to offer some specific programs for international students? Kindly name such programs and indicate how many international students can you accommodate in these programs?
5. What kind of additional resources would you be requiring to accommodate international students during 2012-13 and for the remaining period of the 12th Five-Year Plan?

The aforesaid information may kindly be conveyed in the enclosed format to my colleague Dr.(Mrs.) Renu Batra, Joint Secretary, through mail at renu@ugc.ac.in on or before 15th June, 2012 to enable us to collate and integrate it in the proposed framework.

An early response will be highly appreciated.

With personal regards,

Yours Sincerely,

(Ved Prakash)

Prof. A.N. Rai,
Vice Chancellor,
North Eastern Hill University,
P.O. NEHU Campus, Mawkyntoh Umshing,
Shillong - 793 022

5:8:7(3)

FORMAT

INTERNATIONALIZATION OF HIGHER EDUCATION DURING THE XII PLAN

Level	No. of existing International Students		No. of International Students to be accommodated (Indicate Academic Session)		Financial Requirement during XII Plan (Item-wise / Year-wise)			
	Name of the Course	Duration	Name of the Course	Duration	Year	Recurring	Non-Recurring	Total
Under Graduate					2012-13			
					2013-14			
Post Graduate					2014-15			
					2015-16			
Research Program					2016-17			
Total								

INTERNATIONALIZATION OF HIGHER EDUCATION DURING THE XII PLAN

Level	No. of existing International students		No. of International students to be accommodated (Indicate Academic Session)			Financial requirement during XII Plan (Item-wise / Year-wise)			
	Name of the Course	Duration	Name of the Course		Duration	Year	Recurring	Non-Recurring	Total
Under Graduate	Nil		B.Tech	10	4 years	2012-13	5.60 lakh (**)	*	
			BALLB	10	5 years				
						2013-14	5.60 lakh (**)	*	
Post Graduate	MA	3	MA	30	2 Years	2014-15	5.60 lakh (**)	*	
	M.Sc		M.Sc						
	M.Lib		M.Ed			2015-16	5.60 lakh (**)	*	
			M.Lib						
Reasearch Program	Ph.D. - 5	4-5 Years	Ph.D.	50	4-5 Years	2016-17	5.60 lakh (**)	*	
TOTAL	8	-		100			28.0 lakh	-	-

(**) Recurring Grant- is Required for miscellaneous contingent activities befitting to foreign students, cultural activities, maintenance, International Day celebration and for appointing a contractual Care Taker for the hostel.

*** Non-Recurring Grant-**

Building: (A) One new 75-seater International Students Hostel (One bed-room apartment similar to the existing ones) with a 150 seater auditorium / multipurpose hall

(B) Barrier free access to all hostels including provision of list in each hostel.

(C) Fencing with gate and guard post/ lighting etc.

(Budget to be prepared by CDD)

6:1:1 (1)

Item No. 6 ADMINISTRATIVE MATTERS:

6 :1. Selection Committee.

- (i). Guidelines for shortlisting applicants to be called for interview for Teaching position in the University.**

In order to maintain uniformity in screening of applications for teaching positions in the University, a proposed guidelines has been formulated and placed at Annexure 'A'.

The matter is submitted before the Council for deliberation and consideration.

Guidelines for Short-listing Applicants to be called for Interview for teaching positions in the University

1. Introduction:

Applications submitted by candidates who do not satisfy the minimum eligibility criteria as advertised, shall be rejected.

Marks will be allotted to each of the otherwise eligible candidates using the following guidelines. The final marks obtained by the candidates will be used to rank them for short-listing.

Academic Career:

Career is classified under the following categories:

Cat. I : [Marks $\geq 60\%$] or [CGPA ≥ 6.5 on 10 point Grade Scale]

Cat II : [Marks $\geq 45\%$ but $< 60\%$] or [CGPA ≥ 5.0 but < 6.5 on 10 point Grade Scale]

Note: For PG Degree, Cat-II must be $\geq 55\%$ for General and 50% for SC/ST/Persons-with-disabilities.

Cat III : [Marks $< 45\%$] or [CGPA < 5.0 on 10 point Grade Scale]

Note: (1) A candidate will be rejected if he/she has Cat-III in UG or he/she has Cat-III in both High School and Intermediate.

Note: (2) CGPA only will be considered in cases where the mark-sheet (transcript) provides CGPA.

2. Marks Allotted to Each Category:

Sl. No.	Certificate	Cat-I	Cat-II	Cat-III
1	High School + Intermediate	10 + 10	5 + 5	0 + 0
	or			
	Higher Secondary (only)	20	10	0
2	Undergraduate	15	10	-
3	Post-Graduate*	20	15	-
4	PhD/DPhil		20	
5	JRF (on the basis of a nationally conducted test)		25	
	or			
	NET/SLET		20	
	or			
	National Doctorate Fellowship awarded by AICTE and other Fellowships awarded by National Level Agencies for pursuing PhD		15	

* If marks/grade points are not awarded in the PG course [e.g. MD/MS(Ay)], 20 points will be awarded.

Notes:

- (1). If a candidate has UG/PG/PhD degrees in more than one subject, only the data for the relevant subject will be considered.
- (2). Candidates will be awarded marks for only one out of NET/JRF, NET/SLET and National Doctoral Fellowship, whichever is higher.
- (3). In case has qualified NET/SLET and has been awarded a JRF through a Nationally conducted test as well, marks will be given for JRF only.

3. Research and Academic Contributions:**(A) (As per Category-III of UGC Regulations 2010).**

For the post of Assistant Professor no marks shall be awarded for Clauses III(C)- Research Projects and III(D)- Research Guidance of the Category-III of UGC Regulations 2010.

Calculation of Short-listing Scores:

(i) For Assistant Professor *: $\left\{ \left(\frac{\text{Total Score for Academic Record}}{4} \right) + \left(\frac{x_i}{x_{\max}} \times 25 \right) \right\}$;

* Note: In case of Assistant Professor, if x_i or $x_{\max}$ is higher than 100, then in that case x_i or $x_{\max}$ (whichever exceeds 100) will be capped at 100. In other words, if ($x_i > 100$ or $x_{\max} > 100$) then $x_i \Leftarrow 100$, $x_{\max} \Leftarrow 100$.

(ii) For Associate Professor: $\left\{ \left(\frac{\text{Total Score for Academic Record}}{5} \right) + \left(\frac{x_i}{x_{\max}} \times 40 \right) \right\}$;

(iii) For Professor: $\left\{ \left(\frac{\text{Total Score for Academic Record}}{5} \right) + \left(\frac{x_i}{x_{\max}} \times 40 \right) \right\}$;

Where,

x_i = Score obtained for Academic & Research Contributions by an individual candidate in a group of candidates who applied against a post;

$x_{\max}$ = Highest score obtained for Academic & Research Contributions by an individual candidate in the group. For example, if there are three candidates (who make a group) with their score 78, 81, and 69 respectively, then $x_{\max} = \max(78, 81, 69) = 81$.

6:1:1(4)

CATEGORY III: Research, Publications and Academic Contributions

Sl. No.	APIs	Engineering/Agriculture/ Veterinary Science/Sciences/Medical Sciences	Faculties of Languages Arts/Humanities/Social Sciences/Library/ Physical education/Management	Maximum Points
IIIA	Research Papers published in:	Refereed Journals *	Refereed Journals *	15/ publication
		Non-refereed but recognized and reputable journals and periodicals, having ISBN/ISSN numbers.	Non-refereed but recognized and reputable journals and periodicals, having ISBN/ISSN numbers.	10/ publication
		Conference proceedings as full papers, etc. (Abstracts not to be included)	Conference proceedings as full papers, etc. (Abstracts not to be included)	10/ publication
IIIB	Research Publications (books, chapters in books, other than refereed journal articles)	Text or Reference Books Published by International Publishers with an established peer review system	Text or Reference Books Published by International Publishers with an established peer review system	50/ sole author 30/ edited book 10/ chapter in edited book
		Subjects Books by National level publishers/State and Central Govt. Publications with ISBN/ISSN numbers.	Subjects Books by National level publishers/State and Central Govt. Publications with ISBN/ISSN numbers.	25/ sole author, 15/ edited book 5/ chapter in edited book
		Subject Books by Other local publishers with ISBN/ISSN numbers.	Subject Books by Other local publishers with ISBN/ISSN numbers.	15/ sole author, 9/ edited book 3/ chapter in edited book
		Chapters contributed to edited knowledge based volumes published by International Publishers	Chapters contributed to edited knowledge based volumes published by International Publishers	10/ chapter
		Chapters in knowledge based volumes by	Chapters in knowledge based volumes by	5/ chapter

6:11(5)

		Indian/National level publishers with ISBN/ISSN numbers and with numbers of national and international directories	Indian/National level publishers with ISBN/ISSN numbers and with numbers of national and international directories	
IIIC	RESEARCH PROJECTS			
IIIC(i)	Sponsored Projects carried out/ ongoing	Major Projects	Major Projects	20/ project
		Minor Projects	Minor Projects	10/ project
IIIC(ii)	Consultancy Projects carried out / ongoing	Amount mobilized with minimum of Rs.10.00 lakh	Amount mobilized with minimum of Rs.2.00 lakh	10/ Rs.10.0 lakhs and Rs.2.0 lakhs, respectively
IIIC(iii)	Completed projects : Quality Evaluation	Completed project Report (Acceptance from funding agency)	Completed project Report (Acceptance from funding agency)	20 / each major project and 10 / each minor project
IIIC(iv)	Projects Outcome / Outputs	Patent/Technology transfer/ Product/Process	Major Policy document of Govt. Bodies at Central and State level	30 / each national level output or patent /50 /each for International level
IIID	RESEARCH GUIDANCE			
IIID(i)	M.Phil.	Degree awarded only	Degree awarded only	3/ candidate
IIID(ii)	Ph.D.	Degree awarded	Degree awarded	15/ candidate
		Thesis submitted	Thesis submitted	10/ candidate
		Scholars registered	Scholars registered	5/ candidate
IIIE	TRAINING COURSES AND CONFERENCE /SEMINAR/WORKSHOP PAPERS			
IIIE(i)	Refresher courses, Methodology workshops, Training, Teaching-Learning-Evaluation Technology Programmes, Soft Skills development Programmes, Faculty Development	(a) Not less than two weeks duration	(a) Not less than two weeks duration	20/ each
		(b) One week duration	(b) One week duration	10/ each

6:1:1(6)

	Programmes (Max: 30 points)			
IIIE(ii)	Papers in Conferences/ Seminars/ workshops etc. **	Participation and Presentation of research papers (oral/poster) in	Participation and Presentation of research papers (oral/poster) in	
		a) International conference	a) International conference	10/ each
		b) National	b) National	7.5/ each
		c) Regional/State level	c) Regional/State level	5/ each
		d) Local – University/College level	d) Local – University/College level	3/ each
IIIE(iv)	Invited lectures or presentations for conferences/ Symposia	(a) International	(a) International	10/ each
		(b) National level	(b) National level	5/ each

*Wherever relevant to any specific discipline, the API score for paper in refereed journal would be augmented as follows: (i) indexed journals – by 5 points; (ii) papers with impact factor between 1 and 2 by 10 points; (iii) papers with impact factor between 2 and 5 by 15 points; (iv) papers with impact factor between 5 and 10 by 25 points. ** If a paper presented in Conference/Seminar is published in the form of Proceedings, the points would accrue for the publication (III (a)) and not under presentation (III (e)(ii)).

Notes.

1. It is incumbent on the Coordination Committee proposed in these Regulations and the University to prepare and publicize within six months subject-wise lists of journals, periodicals and publishers under categories IIIA and B. Till such time, screening/selection committees will assess and verify the categorization and scores of publications.
2. The API for joint publications will have to be calculated in the following manner: Of the total score for the relevant category of publication by the concerned teacher, the first/Principal author and the corresponding author/supervisor/mentor of the teacher would share equally 60% of the total points and the remaining 40% would be shared equally by all other authors.

6:7:1 (1)

(i). NEHU FOUNDATION DAY.

Presently the NEHU Foundation day is being celebrated on 19th July of every year.

NEHU, Act (24 of 1973) was passed by both the Houses of Parliament and received the assent of the President of India on May 26th 1973.

The matter is placed before the Council for deliberation.

*Semester 3 may be read with the Annexure 1 of Page 5:1:5(6)
of Hem 5:1:5.*

REGULATION OF MASTER OF COMPUTER APPLICATION PROGRAMME.
(Under ordinance of Professional Courses :OC-17)

1. Eligibility Criteria for Admission

- a. The candidate should have a Bachelor Degree of minimum 3 years durations with Mathematics at 10+2 level or at graduation from any recognized university.
- b. The candidate must have secured at least 50% marks (45% marks in case of SC/ST) at the qualifying examination.
- c. Admission will be on the basis of the marks secured at the qualifying examination and an entrance test. 50% weightage should be given to the marks secured in qualifying examination. Candidates having passed Computer Science or Computer Applications at the degree level will have the additional benefit of 5% of their marks.

2. Selection Procedure.

The selection procedure will be as per the existing University rule RC -1(under Ordinance OC -1) for Post Graduate courses.

3. Course Structure.

- a. The Duration of the programme is 3(three) academic years. Each academic year shall consist of 2(two) semesters, the final semester being project work only. Each semester should have a minimum of 90 working days. The programme is based on the credit system of marking. For theory papers, one credit is assigned for every one hour of class per week. For practical papers/project one credit is assigned for every two hours of class per week.
- b. The minimum and the maximum credits of the programme are 136 and 145 respectively.
- c. A student has to complete at least 136 credits for the award of the MCA degree.
- d. The course structure of MCA degree is as provided in Annexure-I.

4. Duration and Programme Structure.

- a. The normal duration of the course is 3(three) academic years. However, a candidate shall have to pass all the papers within the period of 5(five) academic years from the date of admission to the first semester to qualify for the award of the MCA degree.
- b. The programme shall consist of courses as detailed in the syllabus approved by the Academic council.

5. Attendance:

A student must attend a minimum of 75% classes in each paper/course including audit course during a semester to be eligible to appear in the end semester examinations. The Dean of the School may consider and decide, on request from the candidate through the Head of the concerned Department, for condonation of shortage of attendance up to 5%. Condonation of any shortage of attendance more than 5% and less than 15% may be recommended by the Head of Department and Dean of the School to the Vice- Chancellor with full justification. The decision of the Vice-Chancellor shall be final. A student falling short of the required attendance in a paper in a semester shall not be permitted to sit for the end semester examination of that paper.

6. Registration of Courses:

- a) Every student is required to register for approved courses at the beginning of the semester by the date notified by the University.
- b) Student obtaining grade point less than 2 in any subject in any semester must register it in the next appropriate semester when it is offered.
- c) Normally the number of credits registered for a semester should not be less than 20 and should not exceed 35 credits.
- d) In the Fourth and Fifth Semesters, a student must register for one audit course.

7. Examination and Assessment of Performance:

- a. A student shall apply for appearing in the end-semester examinations to the Dean of the School through Head of the concerned Department who shall certify that all dues, including examination fee, have been paid.
- b. Evaluation of each course/paper taken by a student in a semester shall consist of the following: i) Internal/Sessional examination (Theory and/or Practical) and ii) End semester examination (Theory and/or Practical).
- c. For the purpose of determining the marks obtained by a student in any course/paper of the programme, the weightage assigned to sessional examination and end semester examination shall be in the ratio of 1:3.
- d. The evaluation of sessional examination (in papers other than Project work) shall be made on the basis of student's performance in written assignments/seminars/quizzes/field reports. There will be minimum of three(3) sessional examinations for each course/paper (other than project work). For evaluation in the sessional examinations, average of best two performances will be considered for each course/paper. For the papers of project work, sessional examinations will consist of only presentation/viva of the project work.
- e. The question papers of the semester examinations will follow the general guidelines as given below. The examination of the theory papers having 3 or more credits will be of 3 hours duration and will have maximum of 75 marks. Other theory examinations will be of 2 hours duration and maximum of 40 marks. Practical papers will have duration of 3 hours and will have maximum of 75 marks. Internal assessment for Project will consist of presentation/seminar and carry a weightage of 25% of the total credit and the rest 75% will be evaluated by a panel constituting of 1(one) external examiner on the basis of the overall performance.

8. Grading System:

Grading as per OC – 7

9. Grade Cards :

- After the results of a semester are declared, Grade Cards will be issued to each student which will contain the list of papers for that semester and the grades obtained by the student in that semester.
- The Grade Point Average (GPA) for each semester will be calculated only for those students who have passed all the credit papers of that semester. GPA will be calculated as follows:

$$GPA = \frac{\sum_1^n C_i * GP_i}{\sum_1^n C_i} \quad \text{where } C_i \text{ is the number of credits of a paper,}$$

GP_i is the grade point scored in that paper and n is the total number of papers in a particular semester.

- On successful completion of the programme, the Cumulative Grade Point Average (CGPA) will be calculated as follows:

$$CGPA = \frac{\sum_1^N C_i * GP_i}{\sum_1^N C_i}$$

where N is the total number of papers for the MCA. programme.

10. Requirements for Passing:

- The passing requirement for all subjects (credit courses only) is 40 percent marks (Grade D with Grade Point 2) in both the Internal/Sessional Assessment and the Semester Examinations
- The candidates shall be allowed to appear for the end Semester Examination of any paper (credit courses) only if they pass in Internal/Sessional Examination of that paper.
- The candidate must fulfill the requirements and get the minimum D Grade (1.5 Grade Point) for audit courses. The evaluation for audit courses and evaluation will be done only by Internal/Sessional Assessment.

11. Classification of Successful Candidates:

As per OC-7

12. Fee Structure :

Students admitted to M.C. A programme shall pay all fees laid down for M. Sc students plus additional fees, which as under:

Additional fees for students of M. C. A

Additional fees	Amount
Development fee (payable at the time of admission)	
Non- sponsored Indian students	Rs. 3000/-
Full time sponsored Indian students	Rs. 7500/-
Foreign students from SAARC countries	US \$ 500/-
Foreign students from non-SAARC countries	US \$ 1000/-
Course fee (per semester)	
Non- sponsored Indian students	Rs.6000/-
Full time sponsored Indian students	Rs. 15,000/-
Foreign students from SAARC countries	US \$ 750/-
Foreign students from non-SAARC countries	US \$ 1500/-
Repeat course participation fee (for each course)	
Non- sponsored Indian students	Rs. 1000/-
Full time sponsored Indian students	Rs. 2500/-
Foreign students from SAARC countries	US \$ 100/-
Foreign students from non-SAARC countries	US \$ 200/-

13 Removal of difficulties

Notwithstanding anything contained in this regulation, any difficulty arising in interpretation of, or giving effect to, any provision of this regulation, shall be referred to the Vice-Chancellor, whose interpretation or decision thereon shall be final.

Annexure -1

Course Structure for MCA- 3 Years (6 Semesters)					
Total Credits(Minimum): 136					
SEMESTER 1: Credits: 22 Hours: 24					
Paper Code	Paper	Credits			Minimum Class Hours/Week
		Theory	Pract/Assign-ment	Total	
101	Digital Logic Design	4	-	4	4
102	Introduction to Programming	4	-	4	4
103	Programming Lab	-	2	2	4
104	Organizational Behavior	4	-	4	4
105	Discrete Mathematics	4	-	4	4
106	Probability and Statistics	4	-	4	4
SEMESTER 2: Credits:24 Hours: 28					
201	Data Structure and Algorithm	4	-	4	4
202	Data Structure and Algorithm Lab	-	2	2	4
203	Object-Oriented Programming and Design	4	-	4	4
204	Object-Oriented Programming Lab	-	2	2	4
205	Formal Language and Automata Theory	4	-	4	4
206	Computer Organization and Architecture	4	-	4	4
207	Accounting and Financial Management	4	-	4	4
SEMESTER 3: Credits:24 Hours: 28					
301	Software Engineering	4	-	4	4
302	Computer Graphics	4	-	4	4
303	Operating Systems	4	-	4	4
304	Operating Systems Lab	-	2	2	4
305	Data Communication	4	-	4	4
306	Database Management Systems	4	-	4	4
307	Database Management Systems Lab	-	2	2	4
SEMESTER 4: Credits:24+ Hours:28+					
401	Design and Analysis of Algorithms	4	-	4	4
402	Web Technology	4	-	4	4
403	Web Technology Lab	-	2	2	4
404	Compiler Design	4	-	4	4
405	Compiler Design Lab	-	2	2	4
406	Computer Based Optimization Techniques	4	-	4	4
407	Elective I +	4+	-	4+	4 +

SEMESTER 5: Credits:22+ Hours:28+

501	Computer Networks	4	-	4	4
502	Artificial Intelligence	4	-	4	4
503	Elective II +	4+	-	4+	4+
504	Elective III +	4+	-	4+	4+
507	Minor Project	-	6	6	12

SEMESTER 6: Credits: 20 Hours: 40

601	Major Project	-	20	20	40
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Total Credit(Minimum):136**Audit Course**

Soft Skills	1 st Year
Business Ethics	2 nd Year
Entrepreneurship	3 rd Year

Elective Courses

Operations Research	3	2	5	7
Microprocessors and Their Interfacing	5	-	5	5
Computer Oriented Numerical Methods	4	-	4	4
Advanced Linux Programming	3	2	5	7
Mobile Computing	4	-	4	4
Network Security	4	-	4	4
Digital Image Processing	4	2	6	8
Distributed Computing	3	1	4	5
Management Support System	4	-	4	4
Corporate Planning	4	-	4	4
Decision Process	4	-	4	4
Taxation Practice	4	-	4	4
Simulation and Modeling	3	2	5	7
Bio-informatics	3	2	5	7
Multimedia Technology and Applications	3	2	5	7
Enterprise Resource Planning	4	1	5	6
E-Commerce	3	2	5	7
Natural Language Processing	3	2	5	7
Data Mining	4	1	5	6
Embedded and Real Time Systems	3	2	5	7
Graph Theory	4	-	4	4
Managerial Economics	4	-	4	4
Management of Software Project	4	-	4	4
Business Finance	4	-	4	4
Investment Technology	4	-	4	4
Cloud Computing	4	-	4	4