

P.G. DEPARTMENT OF ENVIRONMENTAL SCIENCES

Pataliputra University

Date : August 06, 2018

To ,

Shri P.C. Choudhary
OSD (J)
Raj Bhawan, Patna.

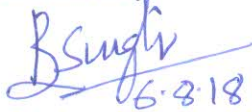
Sub: Implementation of Choice Based Credit system (CBCS) Curriculum for Environmental Sciences during Session: 2018-20.

Sir,

With reference to your letter No. BSU (regulation) – 20/2018- 2015 /GS(I), Date. 30.07.2018, on the subject- matter under reference a meeting of the panel of subject experts in Environmental Sciences was held on 06.08.2018 at 11:00 am at Raj Bhawan, to finalize the curriculum of Environmental Sciences degree under the Choice Based Credit System (CBCS) Curriculum. The final copy of Curriculum/ Syllabus of M. Sc. (Environmental Sciences) under CBCS is enclosed herewith.

With regards,

Yours Sincerely,



Prof. (Dr.) Bihari Singh (Retd.)
Ex HOD, PG Dept.
of Environmental Sciences
A.N. College, Patna.



Prof. (Dr.) Shatrunjay kr Singh
HOD, Environment and
Water Management
A.N. College, Patna



Prof. (Dr.) Preeti Sinha (Convenor)
HOD, PG Dept. of
Environmental Sciences
A.N. College, Patna.

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**SYLLABUS FOR M.Sc. (ENVIRONMENTAL SCIENCES)
(SEMESTER SYSTEM)
CHOICE BASED CREDIT SYSTEM**

Prepared by a committee constituted and communicated vide Letter no BSU (Regulation)-
20/2018-2015/GS(I) Dated 30.07.2018 of Governor's Secretariat, Bihar

Prepared By:

The Committee of Subject Experts comprising of

- (1) Prof. (Dr.) Bihari Singh (Retd.)
Ex. HOD, PG Dept. of Environmental Sciences
A. N. College, Patna.
- (2) Prof. (Dr.) Shatrunjay Kumar Singh
HOD, Environment and Water Management
A.N. College, Patna.
- (3) Prof. (Dr.) Preety Sinha
HOD, PG Dept. of Environmental Sciences
A.N. College, Patna.

For the Universities of Bihar

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P. Sinha
6/8/18

OUTLINE OF THE CHOICE BASED CREDIT SYSTEM (CBCS) for PG degree courses:

It consists of a number of courses i.e. **Core Course (CC)**, **Elective Course (EC)**, **Discipline Specific Elective Course (DSE)**, **Generic Elective Course (GE)**, **Ability Enhancement Courses (AEC)**, and **Ability Enhancement Compulsory Courses (AECC)**. Each course is equivalent to a paper. The nature of these courses is defined below.

1.1 Core Course (CC):

A course, which should compulsorily be studied by a candidate as a core requirement on the basis of subject of M. Sc. studies and is termed as a Core course.

1.2. Elective Course (EC):

Generally a course, which can be chosen from a pool of courses (Basket) and which may be very specific or specialized or advanced or supportive to the subject/ discipline of study or which provides an extended scope or which enables an exposure to some other subject/discipline/domain or nurtures the candidate's proficiency/skill is called an Elective Course.

1.3 Discipline Specific Elective Course (DSE):

An elective course that may be offered by the main discipline/subject of study is referred to as **Discipline Specific Elective**. The University/Institute may also offer discipline related Elective courses of interdisciplinary nature (to be offered by main discipline/subject of study).

1.4 Generic Elective (GE) Course:

An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a **Generic Elective**.

P.S.: A core course offered in a discipline/subject may be treated as an elective by other discipline/subject and *vice versa* and such electives may also be referred to as Generic Elective.

1.5 Ability Enhancement Courses (AEC):

The Ability Enhancement Courses (AEC) / Skill Enhancement Courses (SEC): "AEC" courses are the courses based upon the content that leads to life skill enhancement.

1.6 Ability Enhancement Compulsory Courses (AECC):

(Qualifying and Non-CGPA course):

University will run a number of **Ability Enhancement Compulsory Courses (AECC)**, which are qualifying in nature and student from all faculties have to qualify in all such courses.

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1.7 Dissertation/Project/ Internship/ Industrial Training:

Elective courses are designed to acquire special/advanced knowledge to supplement/ support the main subject through a project work/internship/ Industrial Training/ Field work. A candidate studies such a course on his/her own with a mentoring/ advisory support by a teacher / faculty member called the guide/ supervisor. In case of internship/ industrial training the student will work under the joint guidance of one teacher – supervisor from the parent department to be termed as Supervisor I and one suitably qualified personnel at the research institute/ research laboratory/ industrial organization, to be termed as Supervisor II. A student may join any recognised research Institute/ research Laboratory/ Industrial Organisation with the approval of the parent department. The student has to work for a minimum number of days/ hours as decided by the parent department. On completion of the project work/ training at the research institute/ research laboratory/ industrial organisation, the student will submit a written project report certified by both the Supervisors to the parent department. Supervisor II will issue a letter certifying that the candidate has successfully completed the project and also award mark/ grade to him/ her. The certificate will be submitted to the parent department confidentially. The Board of Course Studies of the concerned Subject / Department will draft and design the certificate and other documents as per requirement. The parent department will also assist the students to choose proper organisations for their project work/ industrial training / Field work etc.

2.0 CREDIT

The total minimum credits, required for completing a PG program is 100.

The details of credits for individual components and individual courses are given in Table.1.

Table 1: Structure of the 2 Yrs (Four Semesters) Post Graduate Degree course under CBCS:

Semester	No of COURSE / Papers	Credit per Course/ paper	Total credit	Minimum No. of Learning Hours#	No of Core Courses/ PAPER	No of ELECTIVE Course/ PAPER	Code & Nature of Elective Course/ paper
I	05	05	25	250	4	1	AECC-1
SEMESTER BREAK							
II	06	05	30	300	5	1	AEC-1

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SEMESTER BREAK							
III	06	05	30	300	5	1	AECC-2
SEMESTER BREAK							
IV	03	05	15	150	1	3	EC -1* EC -2* DSE-1 or GE-1
Total	20		100	1000	14	6	

#For Tutorial (T)/ Practical (P)/ Field Work (FW)/ Internship etc. extra working hour to be added as per requirement and will be decided by the BOCS of the respective subject.

* The two **Elective Courses (EC)** to be studied in semester IV may be

Both theory papers
/ One Theory paper and One Practical paper
/ One Theory paper and One Project work
/ One Theory paper and One Field work
/ Both Project work/ Internship

IMP : It is desirable that all students of all courses be given adequate exposure over and above the class room teaching to enhance the scope of skill development/ entrepreneurship and employability.

2.1. The distribution of the six elective papers shall be - two EC, one DSE or one GE, two AECC, one AEC. Students may opt for any elective course out of a list of elective papers (**Basket**) offered by the parent department or any other department/s as per his/her choice with the prior permission of the parent department. The list of elective papers, syllabus and prerequisite of the elective course will be as decided by the Board of Courses of Studies (BOCS) of the concerned subject/ department.

J Singh
6/8/18

P. Singh
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S. Singh
6.8.18