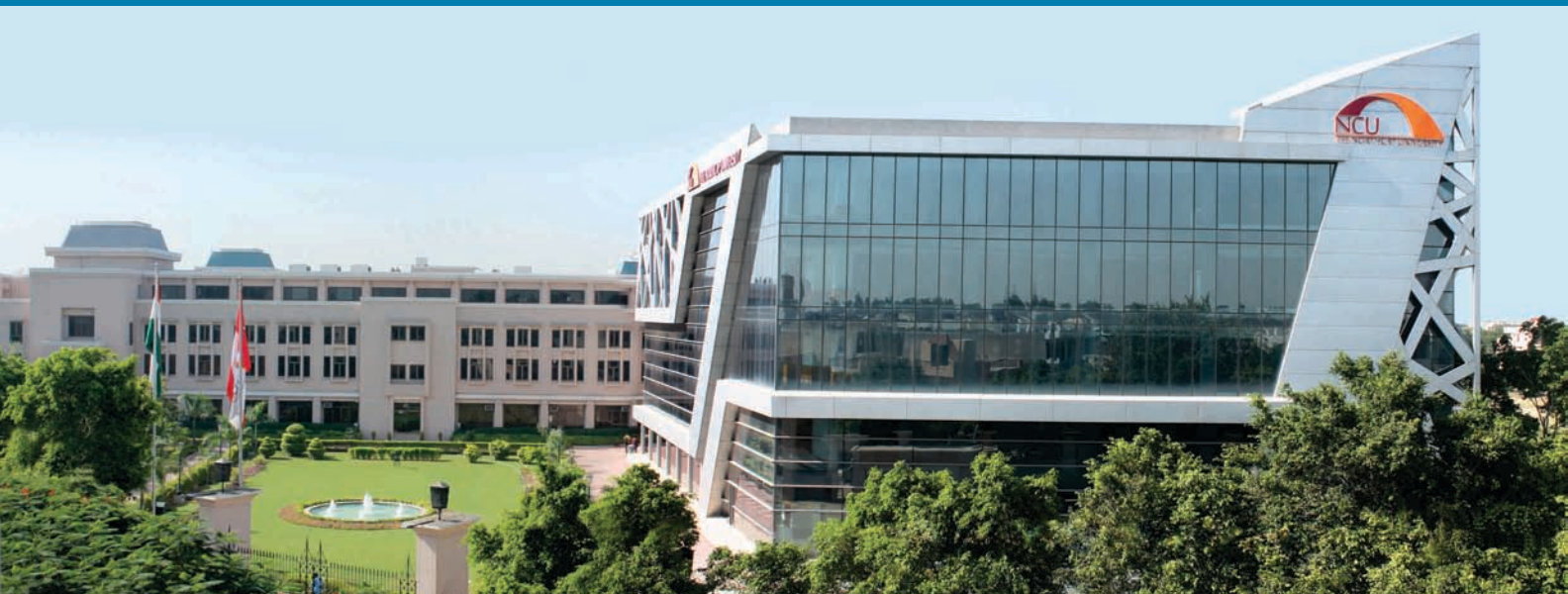


2016–2017



# COURSES CREDIT REGULATIONS AND GRADING SYSTEM

Undergraduate & Postgraduate  
Programmes in Engineering

**School of Engineering & Technology**

**The NorthCap University, Gurugram**

# PREFACE

With the grant of University Status, The NorthCap University has the academic freedom to design its own syllabus. This allows us not only to eliminate the shortcomings and limitations of existing syllabus, but also to design a curriculum which is in line with the current technological developments and needs of the prospective employees. The objective is to provide quality education to our students and lay a strong foundation for them to become successful Engineers, Managers and Researchers as well law abiding responsible professionals with concern for environment, energy conservation and ethics. The curriculum is customized to our specific requirements and compares with best available anywhere and follows the well established successful teaching practices.

Disclaimer : "Courses are subject to change from time to time as per rules"  
We have no other branch in India.

# CONTENTS

SECTION	PARTICULARS	PAGE NO
<b>1.</b>	<b>INTRODUCTION TO CREDIT SYSTEM</b>	<b>01</b>
	1.1 Background	01
	1.2 Programmes offered	01
	1.3 Academic Departments	02
<b>2.</b>	<b>COURSE STRUCTURE AND CREDIT SYSTEM</b>	<b>03</b>
	2.1 Course Numbering Scheme	03
	2.2 Credit System	04
	2.2.1 Course Credits Assignment	04
	2.2.2 Earned Credits	04
	2.2.3 Pre-requisites	04
	2.2.4 Course Content Description	04
	2.2.5 Programme Coordinator	05
	2.2.6 Course Coordinator	05
<b>3.</b>	<b>REGISTRATION AND ATTENDANCE RULES</b>	<b>05</b>
	3.1 Registration	05
	3.1.1 Late Registration Rules	05
	3.1.2 Course Advice	06
	3.1.3 Credit Course	06
	3.1.4 Audit Course	06
	3.1.5 Practical Training	06
	3.1.6 Value Added Course	06
	3.1.7 Minimum Number of Students in a Course	06
	3.2 Attendance Rules	06
	3.2.1 Requirements	06
	3.2.2 Attendance Calculation Norms	06
	3.2.3 Detained Student	07
	3.2.4 Midterm Warning for Short Attendance	07
<b>4.</b>	<b>GRADING SYSTEM</b>	<b>07</b>
	4.1 Introduction	07
	4.2 Grades and Grade Points	07
	4.3 Evaluation System	09
	4.4 Grading Method	11
	4.5 Grade Point Averages - SGPA & CGPA	11
	4.5.1 Calculation of SGPA for a Semester	11
	4.5.2 Calculation of CGPA up to a Semester	12
	4.5.3 A Hypothetical Example Showing Computation of SGPA and CGPA	12
	4.5.4 Performance Classification	13
	4.5.5 Moderation of Grades	13
<b>5.</b>	<b>UG DEGREE REGULATIONS &amp; PERFORMANCE MONITORING</b>	<b>14</b>
	5.1 Degree Requirements	14
	5.2 For continuation of registration at the end of every Academic Year	14
	5.3 Maximum Time to Complete the Degree	15
<b>6.</b>	<b>PG DEGREE REGULATIONS &amp; PERFORMANCE MONITORING</b>	<b>15</b>
	6.1 Degree Requirements	15
	6.2 For continuation of registration at the end of every Academic Year	15
	6.3 Maximum Time to Complete the Degree	15
<b>7.</b>	<b>RE-MAJOR TEST</b>	<b>15</b>
<b>8.</b>	<b>MANAGEMENT OF RE-APPEAR STUDENTS</b>	<b>16</b>

# 1. INTRODUCTION

## 1.1 Background

Instructional work at The NorthCap University, Gurugram is carried out using credit system of study in semester based system. The salient features of the credit system are:

- i. Flexibility for students to progress at suitable pace depending on individual interest and ability.
  - ii. Continuous evaluation of students' progress.
  - iii. Award of grades in a course depending on overall performance of a student.
  - iv. Performance measurement by number of earned credits (E.C.), semester grade point average (SGPA) and cumulative grade point average (CGPA). The use of grades helps in achieving a reasonable spread of total marks for a grade and in reducing variations due to evaluation by different teachers.
  - v. Award of degree to a student on the basis of total E. C.s and value of C.G.P.A.
- There would be two regular semesters for instructional and evaluation work in addition to summer semester in each academic year. The odd numbered semesters (I, III, V & VII) would start in July on a specified date and end in November on a date as per the yearly academic calendar. The even numbered semesters (II, IV, VI & VIII) would start in January on a specified date and end in May on a date as per the yearly academic calendar.

The summer semester would cover practical training in industry / holding of regular classes in some courses where possible as per rules and / or holding of major test / end term practical exam for failed students. In such courses, all regulations for various requirements remain the same as for those in a regular semester.

- The present documents give course credit regulations and grading system for UG (Under-graduate) and PG (Post Graduate) degrees in Engineering. The regulations for Ph.D. degree and other degrees will be given separately.
- The credit system including grading award system is now followed at leading institutes in India and abroad. Flexibility in course offering and responsibility in grade evaluation are the hall marks of the system. The regulations have to be viewed in that context. In case of any clarification on any point mentioned in this document, the interpretation of the Dean (Academic) of The NorthCap University will be treated as FINAL.

## 1.2 Programmes Offered

The NorthCap University, Gurugram offers a wide range of academic programmes for students with various technical, managerial and law backgrounds. Admission to these programmes are based on AIEEE, GATE, CAT & MAT, CLAT etc. which are reputed national level entrance tests and marks in the qualifying exam followed by personal interviews in some cases. Detailed information in this regard is provided separately.

The various programmes offered by the The NorthCap University, Gurugram are classified as undergraduate and postgraduate programmes. All the undergraduate programmes admit 10+2 passed students while the students are admitted to the postgraduate programmes after they have obtained atleast a Bachelor degree in relevant area. Research programmes for Ph. D degree are to be separately covered. The information in the tabular form regarding various programmes offered with their specialization is listed below:

Undergraduate Programmes of School of Engineering & Technology

DEPARTMENT OF SCHOOL	PROGRAMME	CODE
CIVIL ENGINEERING & ENVIRONMENTAL	B.TECH. IN CIVIL ENGINEERING	CE1
COMPUTER SCI. ENGG. & INFORMATON TECHNOLOGY	B.TECH. IN COMPUTER SCIENCE & ENGINEERING	CS1
ELECTRICAL, ELECTRONICS AND COMMUNICATION ENGINEERING	B.TECH. IN ELECTRONIC & COMMUNICATION ENGINEERING	EC1
MECHANICAL ENGG.	B.TECH. IN MECHANICAL ENGINEERING (WITH SPECIALIZATION).	ME1

## Postgraduate Programmes of School of Engineering & Technology

DEPARTMENT / SCHOOL	SPECIALIZATION	CODE
COMPUTER SC. AND ENGG. & INFORMATION TECHNOLOGY	M. TECH. IN COMPUTER SCIENCE & ENGG.	CS5
	M. TECH. IN SOFTWARE ENGG	IT5
ELECTRONICS AND COMMUNICATION ENGG. & ELECTRONICS & INSTRUMENTATION ENGINEERING	M. TECH. IN ELECTRONICS & COMMUNICATION ENGG.	EC5
	M. TECH. IN VLSI Design	EC6
	M. TECH. IN EMBEDDED SYSTEMS	EC7
MECHANICAL & AUTOMOBILE ENGG.	M. TECH. IN MECHANICAL ENGINEERING (WITH AN OPTION OF SPECIALIZATION).	ME5
CIVIL AND ENVIRONMENTAL ENGINEERING	M. TECH. IN CIVIL ENGINEERING	CE5

### 1.3 Academic Departments

Each course is offered by an academic department. Some courses are jointly offered by multiple departments and are called interdisciplinary courses. The various academic departments are given a unique two-letter code which is shown in the table below.

NAME OF ACADEMIC DEPARTMENT	BRANCH NAME	CODE
APPLIED SCIENCES	APPLIED SCIENCES	AS
CIVIL AND ENVIRONMENTAL ENGINEERING	CIVIL ENGG.	CE
COMPUTER SCIENCE AND ENGINEERING & INFORMATION TECHNOLOGY	COMPUTER SCIENCE ENGG.	CS
	INFORMATION TECHNOLOGY	IT
	SOFTWARE ENGINEERING	SE
ELECTRONICS AND COMMUNICATION ENGG. & ELECTRONICS & INSTRUMENTATION ENGINEERING	ELECTRONICS & COMMUNICATION ENGG.	EC
	ELECTRICAL ENGINEERING	EE
MECHANICAL ENGINEERING	MECHANICAL ENGG.	ME
CENTRE FOR LANGUAGES LEARNING (CLL)	-	CLL

## 2. Course Structure & Credit System

### 2.1 Course Numbering Scheme

Each course at The NorthCap University has a unique number, called as COURSE CODE, which consists of three alphabets, followed by three numerals.

Example and Explanation of a Course Code:-

**CSL3 14**

In the above course code,

- The first two alphabets combined (from left) denote the 'branch code' of the concerned department offering this course.
- The third alphabet character (from left) denotes the 'nature' of this course. Please see the table shown below for the details about the 'nature' of the various courses.
- The fourth character from left is a numeral which denotes the level of the course which determines the maturity required for registering for this course.
- 100-400 level courses: Core and elective courses for UG programmes. These courses are not open to any PG student.
- 500-600 level courses: Core and elective courses for PG programmes. These courses are not open to any UG student.
- 700-above level courses: Pre Ph. D. courses.
- Last two numerals combined denote the unique identification number for the course. Odd number courses will normally run in odd semesters and even number courses will normally run in even semesters except those which are having zero at the end. The course having zero as the last numeral can run in either semesters.\*

Codes for the nature of the course are as follows:

NATURE CODE	NATURE DESCRIPTION
L	ALL LECTURE BASED COURSES EXCLUDING N AND V NATURE OF COURSES. (OTHER THAN LECTURE PERIODS, THESE COURSES CAN HAVE TUTORIAL AND PRACTICAL PERIODS). E.G. L-T-P STRUCTURES 3-0-0, 3-1-2, 3-0-2, 2-0-0, ETC.
P	LABORATORY BASED COURSES, USUALLY WITHOUT ANY LECTURE (OR HAVING AT MOST 1 LECTURE) PER WEEK, E.G. PRACTICAL OR LABORATORY WORK WITH L-T-P STRUCTURES LIKE 1-0-3, 0-0-4, 0-1-3, 1-2-6, ETC.
D	PROJECT COURSES LEADING TO DISSERTATION (MAJOR PROJECT, MINOR PROJECT, MINI PROJECT) E.G. L-T-P STRUCTURES 0-0-10, 0-0-6, ETC.
T	INDUSTRIAL OR IN-HOUSE OR PRACTICAL TRAINING TYPE COURSES
C	COLLOQUIUM (OR SEMINAR)
R	PROFESSIONAL PRACTICE
N	INTRODUCTION TO THE PROGRAMME OR INTRODUCTION TO HUMANITIES AND SOCIAL SCIENCES, ETC.
S	INDEPENDENT STUDY COURSES
V	VALUE ADDED COURSES

**However, depending upon any special requirement, an odd code course may be run in even semester and vice versa.**

## **2.2 Credit System**

The details regarding various features, methodologies and regulations of the semester based credit system are listed in subsequent sub-sections.

### **2.2.1 Course Credits Assignment**

Each course, except few special courses, has a certain number of credits assigned to it depending upon the needs for its Lecture, Tutorial and Practical periods in a week. This weight-age is also indicative of the academic expectation that includes in-class contact and self-study outside of class hours.

The Experts allot an appropriate weight (L-T-P) to the course at the time of designing the scheme/syllabus of the Programme. Fixing L-T-P for a course is an expert-decision based on the importance of that course in that programmes and endorsed by BOS.

The "Credit" of the course is computed from the weight (L-T-P) of the course and thus Credit of a course gets indicated in the scheme of the programme. The credits for courses can be computed from its components as below:-

Lectures and Tutorials: One lecture or tutorial period per week is assigned one credit.

Practical/Laboratory: One laboratory period per week is assigned half credit.

The courses which are without any credit are referred to as Non-Credit (NC) courses. The Credit of a course thus depends on its L-T-P structure.

Examples:-

1. Consider a course having its L-T-P structure as (3-1-2). The Credits for this course will be  $3+1+1 = 5$  credits.
2. Consider a course having its L-T-P structure as (2-0-1). The Credits for this course will be  $2+0+.5 = 2.5$  credits.

### **2.2.2 Earned Credits**

At the end of each semester, a letter grade is awarded to a student in each course for which She/he had registered depending upon his/her performance through continuously evaluation. On obtaining any pass grade in this course, the student owns the course-credits as his/her 'earned credits' corresponding to this course applicable for his/her count while computing SGPA or CGPA. A student's performance is measured by the number of 'earned credits' by him/her, then by the "Points earned" from each amount of "earned credit" and finally by the measure "grade point average".

A student has the option of auditing some courses. Grades obtained in the audit courses are not counted for computation of grade point average.

A minimum number of total earned credits are required in a semester for continuation of registration at any stage to the higher semester (see section-10 for details). A minimum number of total earned credits as specified in the scheme of that programme are also required in order to qualify for a degree at the end of eighth (and hence all eight) or sixth (and hence all six) semesters as applicable.

### **2.2.3 Pre-requisites**

Some courses, other than 100 level courses, have pre-requisites mentioned, which may be another course or some other requirement perceived by programme coordinators depending upon students background.

### **2.2.4 Course Content Description**

Course content description consists of course code, title of the course, credit and L-T-P, pre-requisite and description of the content. Content description for all the courses are given in the section---. An example is shown here:

## **MEL207 Machine Design I**

### **(3-1-0) 4 Credits**

Phases of a design project; introduction to CAE (computer aided engineering); factors to be considered in design; requirements document for a design project; factor of safety; theories of static failure (Tresca, von Mises, modified Mohr); fatigue failure (stress concentration, fatigue test, S-N curve, Goodman's line); design of shafts and keys (ASME code for shaft design, design based on strength, design based on deformation, design of keys); selection of rolling contact bearings (types of rolling contact bearings, selection of deep groove ball bearings, reliability and life of bearings); design of belt drive systems (types of belts, design of flat and V belt systems); statistical considerations in design (Frequency distribution; measures of central tendency and dispersion; normal distribution; interference theory); material selection (Ashby's material selection charts)

Tutorial: Brain storming and class activities related to determination of design requirements; solving problems related to the course content

### **2.2.5 Programme Coordinator**

Programme coordinator is a senior faculty member of the offering department who will coordinate each and every activity related to that programme with all the concerned persons/departments/sections/offices of the institute

### **2.2.6 Course Coordinator**

Every course is usually coordinated by a faculty member of the offering Department. She/he has the full responsibility for proper conduct of the classes of that course, coordinating the academic work with other faculty members involved in teaching of that course, moderation of grades and submitting all the required information of that course to the programme coordinator in time. In case of any difficulty faced by any student related to a course, the student is expected to approach the respective course coordinator for advice and clarification.

## **3. REGISTRATION AND ATTENDANCE RULES**

### **3.1 Registration**

The purpose of registration is to include the name of a student in the roll lists of the courses that the student wishes to study in a particular semester. Registration is a mandatory procedure to be completed personally by the student for each semester on the specified date before the beginning of a semester as given in the Academic Calendar. If due to serious medical reasons, a student is unable to do registration personally on the date of registration, she/he may make a written request to the Dean Academic along with a medical certificate and authorize in writing a close relation (parents/brother/sister) to register for the chosen courses. If the request is accepted, registration may be done as per rules.

There are two modes of registration. These are:

- i. Regular Study Mode- In this mode of registration, student requires to attend regular classes of the course. Minimum attendance requirement has to be fulfilled under this mode. This mode of registration is available for all courses.
- ii. Supplementary Exam Mode- In this mode of registration, student does not require attending classes. She/he has to only appear in Minor Tests and Major Test to pass a course. Marks under other heads remain unchanged. This mode of registration is available only for failed courses.

#### **3.1.1 Late Registration Rules**

- 3.1.1.1 Registration after due date (as specified in the Academic Calendar) will be done only after a fine of Rs.250/- and with an application with parents signature specifying reasons. This provision will be available only during the first week of teaching period.
- 3.1.1.2 Non-Registered students after first week (as per point 1) will be allowed to register only after paying a fine of Rs. 500/- and with an application with parents signature specifying reasons. This provision will be available only during the second week of teaching period.
- 3.1.1.3 Students will not be allowed to attend classes and marked absent during non-registered status.



3.1.1.4 Non-Registered students beyond above chances (as per points 3.1.2.1 & 3.1.2.2) for late registration will lead to semester loss.

### **3.1.2 Course Advice**

Before the registration, each student must meet the programme coordinator/adviser appointed by the concerned HOD to choose the appropriate courses keeping in view the past performance, his/her interest in a course, backlog of courses etc.

### **3.1.3 Credit Course**

Credit courses are the courses having weight-age / credits and the points earned in these courses are used in computation of SGPA & CGPA. Credit courses are placed in various categories like basic sciences, engineering arts and science courses, programme core courses, programme elective courses, emerging area elective, open electives etc. as per the requirement of the scheme of the programme concerned.

### **3.1.4 Audit Course**

In addition to credit courses in various categories like basic science, engineering art and science courses, department core courses, programme elective courses, open electives etc. as per the requirement specified for a discipline, a student may take some audit courses depending on personal interest of a student and time-table matching.

The courses do not carry any earned credits if taken in the audit category. However, a grade (audit pass AP or audit fail AF) will be awarded depending on fulfillment of requirement as per specified norms and the awarded grade will be mentioned in the grade card.

### **3.1.5 Practical Training**

Before going on Practical training, a student must register for practical training course with the approval of Department Training Coordinator (DTC) concerned and TPO of the institute. A report in the specified format must be submitted within 14 days of the regular semester immediately following the training period.

A regular grade will be awarded after evaluation process which includes presentation of the report before the department committee convened by the DTC.

### **3.1.6 Value Added Courses**

These courses are special topic courses based on industries needs and are meant to enhance employability of students e.g. personality development, software based courses, knowledge courses etc. Such courses will be run during the semester in modular fashion and will not carry any credit. However, these are compulsory courses and will be evaluated by test. The performance will be indicated by satisfactory grade (S) or non-satisfactory grade (NS).

### **3.1.7 Minimum Number of Students in a Course**

No elective course will run if the number of students registered for a course is less than 20. This may also depend on the availability of a suitable faculty member in the area of the elective. If on the day of registration, the number of those registered is less than the above, the course will be dropped and registration of the students will be automatically transferred to their next choice.

## **3.2 Attendance rules**

A student is expected to attend all lectures, tutorials and practical classes and VA courses etc.

### **3.2.1 Requirements**

- I. A Student will not be allowed to appear for Minor Test II of a course in which his/her mid-term attendance is less than 60%.
- II. The final attendance requirement will be a minimum of 70% per course calculated till the last teaching day. A student not satisfying the minimum attendance requirement in a particular course will be detained in that course.
- III. The above requirements will not be relaxed under any circumstances what so ever.

### 3.2.2 Attendance Calculation Norms

For the purpose of calculating attendance in each course, the attendance in the number of scheduled lecture class, tutorial class and practical class (regardless of contact hours in the scheduled classes) will be added.

### 3.2.3 Detained student

The ineligible student will be placed in 'Detained' category for the course and the registration for that particular course will be cancelled and 'Detained' will be mentioned in the grade sheet. The student has to again register for the same course in subsequent regular semester as early as possible, provided CGPA requirement is met and time table permits, if it is a department core category or a compulsory course as per requirements of programme concerned.

Otherwise, the course can be substituted by another course in the same category if it happens to be an elective course or a non-compulsory course, provided the course can be run keeping in view other constraints like

- i. Minimum number of students in the course, as decided from time to time.
- ii. Faculty availability and
- iii. Availability of Slot / Time table.

### 3.2.4 Midterm Warning for Short attendance

There will be a provision for issuing a written warning to the students if in any course, his/her attendance falls below 70% in any course till the completion of approximately half the number of teaching days in a semester as mentioned in the Calendar for the semester concerned. A Student will not be allowed to appear for Minor Test II of a course in which his/her mid-term attendance is less than 60%.

## 4. GRADING SYSTEM

### 4.1 Introduction

The grading system reflects a student's proficiency in the course. The grade awarded to a student in a course will be based on the performance of the student in minor tests (assignment, viva-voce, lab work, online test, seminar, workshop presentations, group discussions, quiz, etc. whichever be applicable as per scheme) and in the major test, at the end of the semester (or at the end of the Summer Zone if there are any courses to be taught during summer).

In a course, every candidate will be examined as per the syllabus of the concerned programme approved by the Academic Council from time to time. The credits and contact hours per week have been specified for each course in the syllabus.

Appearing in the major test of a course will be allowed to a regular student if:-

- I. She/he has been on the rolls of the Institute during the semester, and She/he has registered and satisfied the attendance criteria in the course as per the Attendance Rule (see Section 3.2).
- ii. There is no pending case of indiscipline in his/her name, and
- iii. She/he is not a defaulter in payment of tuition fee or any other dues of The NorthCap University, Gurugram in any case.

### 4.2 Grades and Grade Points

Corresponding to each course registered, a student obtains a letter grade at the end of the semester (i.e. at the end of the semester, irrespective of his presence/absence in the examination).

There are eleven (11) types of grades awarded in The NorthCap University to the students as mentioned in the following table:

<b>ACADEMIC PERFORMANCE</b>	<b>LETTER GRADES</b>	<b>GRADE POINTS</b>
OUTSTANDING	A+	10
EXCELLENT	A	9
VERY GOOD	B+	8
GOOD	B	7
AVERAGE	C+	6
BELOW AVERAGE	C	5
MARGINAL	D	4
FAIL	F	0
AUDIT PASS	AP	-
AUDIT FAIL	AF	-
SATISFACTORY	S	-
NON SATISFACTORY	NS	-

**Note:**

- i. "D" or above grades are pass grades for credit courses (Section 3.1.4).
- ii. AP/AF Grades are awarded for audit courses (Section 3.1.5). 'AP' grade, which is a pass grade, will be awarded if the student gets marks equivalent to "C" grade. Otherwise 'AF' grade will be awarded, which is a 'Fail' grade.
- iii. Audit grades are not used in point/SGPA/CGPA calculations.

In a credit course, if a student obtains any pass grade She/he earns Points from this course in the semester concerned.

Earned grade Points = Credits of the course × Grade Points (as per table in section 4.2)

### 4.3 Evaluation System

The performance of the student in the credit-grading system is evaluated throughout the semester. The methodology used for the evaluation is tabulated below:

S. No.	TYPE OF COURSE	PARTICULAR	ALLOTTED RANGE OF MARKS	REMARKS	PASS CRITERIA IN THIS COURSE
1	THEORY (L-T-0) / (L-0-0)	MAJOR TEST	35-45%	SUMMATION OF ALL SHOULD BE EQUAL TO 100.	MUST SECURE 30% MARKS OUT OF COMBINED MARKS OF MAJOR PLUS MINOR TESTS WITH OVERALL 40% MARKS IN TOTAL.
		MINOR TESTS (2 IN NUMBER)	20-40% (TOTAL WEIGHT-AGE OF TWO MINOR TESTS)		
		CLASS TESTS/TUTORIAL/ ASSIGNMENTS/ PRESENTATION INCLUDING COMPULSORY ONLINE TEST(S)	25-35%		
2	THEORY + PRACTICAL (L-T-P) / (L-0-P)	THEORY PART	65%	FOR THEORY PART FOLLOW S. NO. 1 & FOR PRACTICAL PART FOLLOW S. NO.3.	MUST SECURE 30% MARKS OUT OF THEORY PART WITH OVERALL 40% MARKS IN TOTAL.
		PRACTICAL PART	35%		
3	PRACTICAL OR FOR THE COURSES OF (0-0-P) / (1-0-P)	REGULAR PRACTICAL & REPORT WRITING	40%	EVALUATION PROCEDURE CAN BE INDEPENDENTLY ADOPTED BY CONCERNED DEPTTS. /SCHOOLS.	MUST SECURE AT LEAST 40% MARKS IN TOTAL.
		MID & END SEMESTER PRACTICAL/DRAWING TESTS INCLUDING VIVA-VOCE	60%		
4	Theory+Practical (New) (L-T-Pn / L-0-Pn)	MAJOR TEST	30-40%	SUMMATION OF MAJOR + MINOR TESTS SHOULD BE EQUAL TO 65%.	MUST SECURE 30% MARKS OUT OF COMBINED MARKS OF MAJOR PLUS MINOR TESTS WITH OVERALL 40% MARKS IN TOTAL.
		MINOR TESTS (2 IN NUMBER)	10-20% (each)		
		CLASS TEST / TUTORIALS /ASSIGNMENTS/QUIZZES / CASE-STUDY/LIBRARY WORK PRESENTATIONS /LAB WORK (If any) INCLUDING COMPULSORY ONLINE TEST(S)	35%		

The evaluation of course like Practical training, seminar and dissertation are performed in different manners and discussed as follows:

- i. Practical Training: A student has to undergo practical training twice during his/her B. Tech. programme for the specified period mentioned in the syllabi of the training courses, first after fourth semester and second after sixth semester during the summer vacations. Then, She/he will be registered for the practical training course in next semester. The training coordinator of the department will scrutinize the training report and certificates and will arrange the presentation of students in front of the committee constituted by the HOD for the purpose. A regular grade will be awarded by the committee.
- ii. Seminar: A topic is usually chosen by a student which is required to get approved by the departmental committee made for the purpose. The evaluation will be done by a seminar evaluation committee to be constituted by the HOD concerned. They will follow their own methodology for awarding grade.
- iii. Project/Dissertation: The projects can be done in-house (The NorthCap University campus) or in any industry. The in-house projects may be fabricated into working models which have a long-lasting value for the institute and give knowledge enhancement practical orientation and a sense of satisfaction to the students. Students are endorsed in doing the project in an industry and they can do so after getting the prior approval from the Departmental Project Committee.

The following points need attention by the student regarding project/dissertation evaluation purpose:

- i. All students are assigned internal guide for their project by their department.
- ii. If the project is done in an industry, there should be an external guide in the industry where the project is being done, in addition to the internal guide (from the department/institute).
- iii. The internal guide will visit the project site at least once during the course of the project. The internal guide should also have constant interaction with the external guide and monitor the progress of the students. (Applicable to S. No. ii)
- iv. Students have to finalize their project title, the guide, their batch mates, and the place of work and the schedule of work along with 'Gantt Chart' (activity chart) and submit to the Departmental Project Committee as notified by the departments.
- v. A project diary (a Project/Training Diary is provided by the department to each student having Project/Training as a part of the curriculum) will have to be maintained by every student.
- vi. The project work is intended to inculcate the following in the students.
  - Project planning & scheduling skills (Project Management)
  - Practical experience
  - Team working
  - Creativity and research orientation
  - Report writing skills
- vii. Final Year B. Tech. project work may be done individually or in a group not exceeding 4 students.
- viii. There should be continuous evaluation of the students' performance in the project work and evaluation plan should be notified by the department well in advance.
- ix. Project review and evaluation will be done by a Project Evaluation Committee constituted by the Departmental Project Committee. The Project Guide, the Project Co-ordinator must be members of the Project Evaluation Committee.
- x. The final viva-voce will be conducted as per the schedule given by the Controller of Examinations. The evaluation during the final viva-voce will be done jointly and in presence of both internal and external examiners (appointed by the Controller of Examinations). The evaluation will be done as per distribution mentioned in "Project Evaluation Form".
- xi. External examiners for evaluation of B. Tech. projects shall be interdisciplinary faculty within the University.
- xii. Any extension required to be given to any project shall require formal approval of Hon'ble VC through proper channel.

The Marking scheme is divided into two sections. The following is the breakup regarding the marks in the Project/Dissertation:-

SECTION	CATEGORY	MARKS
A (MID TERM EVALUATION)	COMMITTEE ASSESSMENT	20%
	SUPERVISOR'S ASSESSMENT	10%
B (SEM END EVALUATION)	QUANTUM OF WORK ( <b>DEMONSTRATION OF THE MODEL IF ANY</b> )	15%
	WRITTEN REPORT	15%
	PRESENTATION	10%
	ANSWERING QUESTIONS	10%
	SUPERVISOR	20%

#### 4.4 Grading Method

The NorthCap University is having relative grading system. The grading reflects a student's own proficiency in any course.

In relative grading, students are in competition with one another for a limited number of grades in each category, and a student's grade is based on his or her relative position in the class.

This system is well established and working well in leading university and accounts for tests that are too hard or too easy, too strict or too lenient evaluation etc.) because the scale automatically moves up or down. Students appreciate relative grading for much the same reason.

The key features of the "Relative Grading" methodology adopted at THE NORTHCAPU are as follows:

1. Marks have no absolute correlation with grades. The relationship between the marks obtained and the grade awarded in a course is relative, based on the average performance of the batch in that course.
2. Minimum 80% marks will be required for getting "A+" grade (Highest Grade). However, mere getting 80% marks will not make any student entitled for getting an "A+" Grade. Hence, it is a necessary condition, but not the sufficient one.
3. Minimum 40% Marks (with atleast 30% in theory) is required to get a "D" grade (Lowest pass grade).
4. "Standard deviation technique" of relative grading will be adopted to grade student's performance in a course having more than 40-45 registrations, as it is expected to follow a normal distribution. In this system student grades are based on their distance from the mean score for the class rather than on an arbitrary scale.
5. "Clustering approach with natural gaps" of relative grading will be adapted to grade student's performance in a course having less than 40-45 registrations. In this method, students' total course scores are arranged in a descending order and the teacher looks for naturally-occurring gaps in the distribution of the scores to decide the marks spread for any grade. This reduces variance of marks within a grade.

#### 4.5 Grade Point Averages – SGPA and CGPA.

There are two types of Grade Point Averages (GPA), which are:-

- i. Semester Grade Point Average (SGPA)
- ii. Cumulative Grade Point Average (CGPA)

While SGPA is a measure for a semester performance only, CGPA is a measure of performance upto any specified semester beginning from the first semester. Every student earns a distinct SGPA and a distinct CGPA at the end of each specified semester.

##### 4.5.1 Calculations of SGPA for a Semester

All the courses (except audit type and Non-Credit courses) for which a student has registered in the semester and awarded one of the A+, A, B+, B, C+, C and D grades in this semester are considered for computing SGPA.

The Mathematical Formula:

$$SGPA = \frac{\sum C_i P_i}{\sum C_i}$$

Where,

= Course Credit of the course of a semester for which SGPA is to be calculated for a student.

= Grade Point earned by the student in the course.

= 1, 2, 3.....m, represents the number of courses passed as per table in section 4.3 in that semester.

#### 4.5.2 Calculation of CGPA upto a Semester

All the courses (except audit type and Non-Credit courses) for which a student has registered upto that semester beginning from the first semester and awarded one of the A+, A, B+, B, C+, C & D grades are considered in computing the CGPA upto a specified semester.

The Mathematical Formula

$$CGPA = \frac{\sum C_j P_j}{\sum C_j}$$

where

= Credits of the course in which the student has passed as per the table in section 4.3.

= Grade Points earned in the course

= 1, 2, 3...n, represent the number of courses in which the student has passed till that semester.

#### 4.5.3 A Hypothetical Example Showing Computation of SGPA and CGPA:-

Consider the performance of a student Mr. Z in Semester-I, as mentioned below (supposing that Mr. Z has registered for the following six courses as per his scheme).

COURSE NO.	TYPE OF THE COURSE	COURSE CREDIT	GRADE AWARDED (TO THE STUDENT)	EARNED CREDITS (BY THE STUDENT)	EARNED GRADE POINTS (BY THE STUDENT)	POINT EARNED (BY THE STUDENT)
ITLXXX	CORE	5	C+	5	6	30
CSLXXX	CORE	4	C	4	5	20
CSLXXX	CORE	4	A+	4	10	40
PHLXXX	CORE	2	B+	2	8	16
MELXXX	ELECTIVE	4	D	4	4	16
TOTAL =		19		19		122

From the above table, the following are computed:-

Credits registered by Mr. Z in this Semester-I is = 19  
 Earned credits in this semester = 19  
 Points Earned by Mr. Z in this semester = 122  
 SGPA = 122/19 = 6.42  
 CGPA = 122/19 = 6.42

Semester-I performance :-

$$\text{SGPA} = 6.42$$

$$\text{CGPA} = 6.42 \text{ (Upto Semester-I)}$$

Now, consider the performance of the same student Mr. Z in Semester-II, as mentioned below (supposing that Mr. Z has registered for the following seven courses as per his scheme).

COURSE NO.	TYPE OF THE COURSE	COURSE CREDIT	GRADE AWARDED (TO THE STUDENT)	EARNED CREDITS (BY THE STUDENT)	EARNED GRADE POINTS (BY THE STUDENT)	POINT EARNED (BY THE STUDENT)
PHLXXX	CORE	5	B+	5	8	40
CSLXXX	CORE	4	F	0	0	00
CSPXXX	CORE	2	B	2	7	14
CSLXXX	CORE	4	D	4	4	16
CALXXX	ELECTIVE	4	A+	4	10	40
TOTAL =		19		15		110

From the above table, the following are computed:-

$$\text{Credits registered by Mr. Z in this Semester-II is} = 19$$

$$\text{Earned credits in this semester} = 15$$

$$\text{Points Earned in this semester} = 110$$

$$\text{SGPA} = 110/15 = 7.33$$

Points Earned in all semesters done so far

$$= 122 \text{ (total of all previous semesters)} + 110 \text{ (current semester)} = 232$$

Credits Earned in all semesters done so far

$$= 19 \text{ (total of all previous semesters)} + 15 \text{ (current semester)} = 34$$

$$\text{CGPA} = 232/34 = 6.82$$

Semester-II performance:

$$\text{SGPA} = 7.33$$

$$\text{CGPA} = 6.82 \text{ (Upto Semester-II)}$$

#### 4.5.4 Performance Classification

A student has to be declared eligible for award of the degree as per section 5.1 for UG and section 6.1 for PG students. Classification of performance of the students at the end of the programme (after completing all the programme requirements) will be based on CGPA (Cumulative Grade Point Average) earned, as indicated below:

CLASSIFICATION OF PERFORMANCE FOR B.Tech PROGRAMMES	CGPA
FIRST CLASS WITH DISTINCTION	8.50 AND ABOVE AND HAVE PASSED ALL COURSES IN FIRST ATTEMPT
FIRST CLASS	6.00 TO 8.49
SECOND CLASS	4.50 TO 5.99
NOT SUCCESSFUL	BELOW 4.50



<b>CLASSIFICATION OF PERFORMANCE FOR M.Tech PROGRAMMES</b>	<b>CGPA</b>
FIRST CLASS WITH DISTINCTION	8.50 AND ABOVE AND HAVE PASSED ALL COURSES IN FIRST ATTEMPT
FIRST CLASS	6.00 TO 8.49
SECOND CLASS	5.00 TO 5.99
NOT SUCCESSFUL	BELOW 5.00

#### 4.5.5 Moderation of Grades

Moderation of grades is required to minimize the effect of individual marking/checking techniques. The award of grades in various courses is moderated by a high level committee dually appointed by Hon'ble Vice-Chancellor The NorthCap University from time to time.

## 5. UG DEGREE REGULATIONS & PERFORMANCE

### MONITORING

#### 5.1 Degree Requirements

All the following requirements are mandatorily to be fulfilled for award of a B. Tech. Degree:

- Completion of earned credits as specified in the scheme of each B. Tech. Programmes.
- Obtaining a minimum CGPA of 4.50 at the end of the programme.
- If a student completes required credits for B. Tech. with CGPA less than 4.50, he may be allowed to do additional elective course under any category to improve the CGPA within the maximum time limit for the completion of B. Tech. degrees.
- Completion of practical training as prescribed by the concerned department.

#### 5.2 For continuation of registration at the end of every Academic year

The following rules will be applicable:

To be eligible for continuation of registration at the end of every Academic Year (including summer semester), the number of earned credits for a student should not be less than those specified in the table below:

For B. Tech. Programme

<b>S. NO.</b>	<b>ACADEMIC YEAR</b>	<b>MINIMUM NO. OF EARNED CREDITS (EC)</b>
		<b>B. Tech.</b>
<b>1</b>	<b>I</b>	<b>15% of total credits of the programme</b>
<b>2</b>	<b>II</b>	<b>30% of total credits of the programme</b>
<b>3</b>	<b>III</b>	<b>45% of total credits of the programme</b>
<b>4</b>	<b>IV</b>	<b>60% of total credits of the programme</b>
<b>5</b>	<b>V</b>	<b>80% of total credits of the programme</b>
<b>6</b>	<b>VI</b>	<b>100% of total credits of the programme</b>

### 5.3 Maximum Time to Complete the Degree

The maximum time for completion of B. Tech. degree is six years. This will not be increased under any circumstances.

## 6. PG DEGREE REGULATIONS & PERFORMANCE MONITORING

### 6.1 Degree Requirements

All the following requirements are mandatorily to be fulfilled to get M. Tech. Degree:

- i. Completion of earned credits as specified in the scheme of each M. Tech. Programme.
- ii. Obtaining a minimum CGPA of 5.00 at the end of the programme.
- iii. If a student completes required credits for M. Tech. with CGPA less than 5.00, he may be allowed to do additional elective Course under any category to improve the CGPA within the maximum time limit for the completion of M. Tech. degree.
- iv. Completion of practical training as prescribed by the concerned department.

### 6.2 For continuation of registration at the end of every Academic Year

The following rules will be applicable:

To be eligible for continuation of registration at the end of every Academic Year (including summer semester), the number of earned credits for a student should not be less than those specified in the table below:

Full time student (M. Tech.)

S. NO.	ACADEMIC YEAR	MINIMUM NO. OF EARNED CREDITS (EC)
1	I	20% of total credits of the programme
2	II	45% of total credits of the programme
3	III	70% of total credits of the programme
4	IV	100% of total credits of the programme

#### Part time student (M.Tech)

S. NO.	ACADEMIC YEAR	MINIMUM NO. OF EARNED CREDITS (EC)
1	I	10% of total credits of the programme
2	II	30% of total credits of the programme
3	III	50% of total credits of the programme
4	IV	70% of total credits of the programme
5	V	100% of total credits of the programme

### 6.3 Maximum Time to Complete the Degree

The maximum time for completion of M. Tech. degree is 4 years for full time students and 5 years for part time students respectively. This will not be increased under any circumstances.

## 7. RE-MAJOR TEST

NCU has the provision to conduct Re-Major Test during the summer in a very limited numbers to cater for extremely exceptional failure cases.

The eligibility guidelines in this regards are summarized below:-

- I. Student(s) leading to "Year loss" due to failure in only one course.
- II. Student(s) missing placements or joining after placements obtained through SPA due to failure in only one course.

- III. Mass failures (atleast 33% failure) in any course except VA & audit courses.
- IV. Re-Major Test opportunity in accordance to S. No. (i & ii) will be available to any student only once in his/her whole programme.

## **8. MANAGEMENT OF RE-APPEAR STUDENTS**

NCU has a very comprehensive policy to manage re-appear students. There are two categories of re-appear students. First is "Detained students" who have not met minimum attendance requirement as mentioned in Para. 3.2 and second is "Failed students" who have not secured minimum passing marks as mentioned in Para. 4.3.

The rules in this regards are summarized below:-

- I. Detained Students:
  - a) Detained students will require registering under "Regular Study Mode" only and will require attending regular classes with junior batches as per the availability of time-table.
  - b) In case of clashing of re-appear courses with courses of regular semester, detained students will have to drop one or more course of regular semester.
  - c) If no free slots are available during regular duration of the programme, such students will attend classes of re-appear course(s) after the completion of the programme, but within the maximum duration allowed for the programme.
  - d) University will not be responsible for providing free slots for such cases.
- II. Failed Students:
  - a) Failed students will be allowed to register under "Supplementary Exam Mode" as and when the course is offered, but within the maximum period of completion of programme.
  - b) Students registering under "Supplementary Exam Mode" will be allowed to appear in Minor Tests as well along with Major Test to pass a course. Marks under other heads remain unchanged.

## **9. UNDERGRADUATE PROGRAMME STRUCTURES**

The following pages give details of the programme definitions that includes course in each category for every B. Tech. and M. Tech. programmes.

- 1. Department of Computer Science and Engineering & Information Technology
  - Master of Technology in Computer Science & Engineering (with an option of specialization).
  - Bachelor of Technology in Computer Science & Engineering
- 2. Department of Electrical, Electronics & Communication Engineering
  - Master of Technology in Electronics and Communication Engineering
  - Master of Technology in VLSI Design
  - Bachelor of Technology in Electronics and Communication Engineering
- 3. Department of Mechanical Engineering
  - Master of Technology in Mechanical Engineering (with an option of specialization).
  - Bachelor of Technology in Mechanical Engineering (With Specialization).
- 4. Department of Civil & Environmental Engineering
  - Master of Technology in Civil Engineering
  - Bachelor of Technology in Civil Engineering



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