

**N.B.K.R. INSTITUTE OF SCIENCE & TECHNOLOGY  
(AUTONOMOUS)**

**ACADEMIC REGULATIONS (R19)  
for  
B.Tech Degree Program  
(effective for the students admitted into I B.Tech  
from the academic year 2019 -20 onwards)  
&  
B.Tech. (Lateral Entry Scheme)  
(effective for the students admitted into II B.Tech  
from the academic year 2020 -21 onwards)**

**1. Minimum Qualifications for Admission :**

A candidate seeking admission into first year B.Tech. Degree Program should have passed the Intermediate Examination of the Board of Intermediate Education, Andhra Pradesh with Mathematics, Physics and Chemistry as optional subjects (or any equivalent examination recognized by JNTUA, Anantapuramu).

A candidate seeking admission into second year of the four year B.Tech Degree Program should have passed Diploma in Engineering conducted by the Board of Technical Education, Andhra Pradesh (or equivalent examination recognized by JNTUA, Anantapuramu).

Any other admission, authorized by the University and the Government of Andhra Pradesh, will be as per the eligibility criterion and procedure laid down by the said authorities.

**2. Branches of Study :**

- 2.1** The branches of study in B.Tech. Degree Program offered by the Institute are
- (a) Civil Engineering
  - (b) Electrical & Electronics Engineering
  - (c) Electronics & Communication Engineering
  - (d) Mechanical Engineering
  - (e) Computer Science & Engineering
  - (f) Information Technology

**2.2** A student is required to choose the branch of study at the time of admission. No change of branch shall be permitted after the closure of admissions by the competent authority, nominated by the Government of Andhra Pradesh.

### **3 Course Pattern:**

**3.1** The duration of the regular B.Tech program is of four academic years and that for B.Tech. (Lateral Entry Scheme) is of three academic years. Semester pattern shall be followed for all the years of study with two semesters in each academic year.

### **3.2 Instruction Days:**

Each semester shall consist of a minimum of 90 working days, including the days allotted for tests.

## **4. Classification of Courses**

### ***Credit Courses:***

Courses of a B.Tech programme which can be registered by a student in a semester in order to earn *credits* are called credit courses. These courses comprise of Basic Sciences (BS), Engineering Sciences (ES), Humanities and Social Sciences (H&S), Professional Core and Professional Elective courses (PC and PE), Massive Open Online Courses (MOOCS) and Open Electives (OE).

The Professional Core courses will cover all essential skills associated with a given Department.

Professional Electives will be taken from a list prescribed by the Department concerned, covering courses from the same and allied disciplines. These courses shall reflect different specialized topics in a field including the latest developments taking place around the world.

### ***Mandatory Courses:***

Courses which develop familiarity on peripheral subjects in a programme are the mandatory courses. These are the non-credit courses. Only a pass is sufficient to qualify for the award of a degree.

### ***Open Electives:***

Open electives shall cover courses from any Department of the Institute. They will generally be broad based courses that will widen the knowledge horizon of the students. A given course may be a core subject for one Department and an elective for another.

### ***Audit Courses:***

Students to be able to register for *Courses* outside the prescribed range of *Credits* for *audit* only, when interested to supplement their knowledge/skills; Optional for students to appear/pass in Continuous Internal Evaluation (CIE), *Semester End Examination (SEE)* of these courses and/or seek their inclusion in the *Grade* cards or *Transcripts* issued (but, not for earning *Credit*);

### ***MOOCS and e-Learning:***

Massive Open Online Courses (MOOCS) enable the students to access high quality reading resources; take tests and academic grades.

Students may register for the course of minimum 40 hours duration offered by authorized Institutions/Agencies through online at any time from the first semester with the approval of the Head of the Department concerned. This course may be completed by the end of seventh semester.

### ***Internship / Skill Development Course (SDC):***

Every student shall undergo a four-week Internship / SDC during the B.Tech programme. The Internship / SDC may be completed in a phased manner with a minimum duration of one week in any phase during inter-semester break / summer vacation. The student shall obtain prior permission from the concerned head of the department regarding the industry / company in which the internship / SDC is to be carried out. Every student shall submit a report on the work carried out during the internship / SDC in the format specified by the department and shall also submit evidence of on-site internship from the concerned authorities in the industry / company in which the internship / SDC is carried out. The report of internship / SDC will be evaluated by the examiners for the award of two credits in VIII semester.

### **Mini Project / Project Work:**

Mini project should be under taken in 5<sup>th</sup> semester and Project work in the 8<sup>th</sup> semester. These will enable the students to take up either theoretical or practical investigative study in the broad field of respective branch of study under the guidance of a supervisor. These are to be assigned by the department on an individual or group basis.

### **Credits:**

Credit defines the quantum of contents/syllabus prescribed for a course and the number of instruction hours per week. The norms for assigning credits to a course for duration of one semester shall be as follows :

I	One credit for every one hour lecture
II	One credit for every one hour of tutorial
III	One credit for every two hours of practical / drawing)

## **5. Evaluation:**

**5.1** The performance of the students in each semester shall be evaluated subject-wise. The distribution of marks between Sessional marks and end examination is as follows :

	Sessional Marks	End Examination Marks	Total
Theory courses	40	60	100
Design/Drawing	40	60	100
Practical's	40	60	100
Mini Project	40	60	100
Internship / SDC	40	60	100
MOOC	40	60	100
Project work	80	120 (Viva voce)	200

## **5.2 Sessional Marks (Internal Marks)**

- 5.2.1** For the award of sessionals for 40 marks for theory courses in each semester, two tests, each for 34 marks shall be conducted. Day to day assignments shall be evaluated for the remaining 6 marks. Each test shall be of two hours duration and the test shall be evenly distributed during the semester. The final sessional marks shall be taken giving a weightage of 0.80 for the better of the two sessionals and 0.20 for the other.
- 5.2.2** In case of practical subjects the sessional marks will be awarded based on day-to-day class work and one test at the end of Semester. The distribution of sessional marks shall be 30 for day-to-day class work and 10 for the test conducted at the end of semester.
- 5.2.3** For the subject having design and / or drawing, such as Engineering Drawing, Machine Drawing and estimation etc., the distribution shall be 40 marks for internal evaluation. The Internal evaluation for sessionals will be 20 marks for day-to-day work in the class that shall be evaluated by the concerned subject teacher based on the reports/submissions prepared in the class. And there shall be two midterm exams in a Semester for a duration of 2 hrs each, evenly distributed over the syllabi, for 40 marks each and the sessional marks shall be taken as enunciated in clause 5.2.1. The sum of day-to-day evaluation for 20 marks and the half of the midterm examinations marks will be the final sessional marks for the subject.
- 5.2.4** In case of internship the sessional marks will be awarded based on the performance during internship at the industry / company. The distribution of sessional marks shall be 10 for the preparatory work before commencing internship and 30 for the performance awarded by the supervisor at the industry / company.
- 5.2.5** For the mini project / project the evaluation shall be for 40 / 80 internal marks. The performance shall be evaluated by the concerned guide and two other examiners based on the reviews / reports.

**5.2.6** For MOOC the evaluation shall be for 40 internal marks. The performance shall be evaluated by the faculty concerned based on the reviews.

**5.2.7** If a student is absent for any test or examination, the marks awarded for that test or examination shall be zero. Further, re-examination shall in no case be conducted if a student is absent for any test or examination.

## **6. End Examinations**

**6.1** For each of the theory, design/drawing courses, there shall be an end Examination of three hours duration at the end of each semester, except where stated otherwise explicitly in the detailed scheme of instruction.

**6.2** Supplementary examinations of odd semesters will be conducted soon after completion of end examinations of the even semesters. Supplementary examinations of even semesters will be conducted at the beginning of the odd semesters. These examinations are conducted for the benefit of those students only, who failed in the subjects of any particular semester, but not for improving the marks.

A student eligible for the end examination in a subject, but absent at it or has failed in the end Examination may appear for that subject at the next examination as and when it is held.

## **6.3 Revaluation / Recounting**

Students shall be permitted to request for revaluation / recounting of the end theory examination answer scripts within a stipulated period after payment of the requisite fee.

If a student gets higher marks after revaluation, those marks shall be considered. Otherwise the previous marks shall be retained. Revaluation shall be done by another examiner appointed by Principal / Director.

After recounting, records are updated with changes if any, and the student shall be issued a revised memorandum of marks. If there are no changes, the student shall be intimated the same.

In the recounting process the valued answer script shall be scrutinized jointly by the Controller of Examinations and a faculty nominated by the Principal / Director.

#### **6.4 Conduct of Examinations**

Question paper setting shall be undertaken by the institute, choosing external examiner from the panels recommended by the respective Board of Studies. Evaluation of answer scripts shall also be undertaken by the Institute by choosing external /internal examiners from the panels recommended by the respective Board of Studies.

For each practical examination, the end examination will be conducted jointly by the laboratory teacher and another examiner nominated by the Principal / Director.

For Internship / Mini project the end examination will be conducted jointly by the guide and another examiner nominated by the Principal / Director.

For MOOC the certificate issued by the Institutions/Agencies after successful completion of the course will be considered for the award of the grade to that course in eighth semester.

In case a student fails in securing the grade from the Authorized Institutions/Agency, the assessment will be done by the department concerned by conducting a test in the course and credits are awarded on passing the course.

Project Viva-voce examination shall be conducted by two internal examiners and one external examiner. The appointment of internal and external examiners for the conduct of Viva voce examinations shall be made by the Principal / Director from the panels recommended by the respective Board of Studies. Panel of Examiners must consist of two internal and six external examiners.

## 6.5 Malpractice in sessional and end examinations

The detailed guidelines for disciplinary action for malpractices / in examinations are enclosed as annexure -1.

## 7. Grading

After each subject is evaluated for 100 marks, the marks obtained in each subject will be converted to a corresponding letter grade as given below depending on the range in which the marks obtained by the student fall.

### Conversion into grades and grade points assigned

Marks Range	Grade	Grade points Assigned
$\geq 90$	S (Superior)	10
80-89	A (Excellent)	9
70-79	B (Very Good)	8
60-69	C (Good)	7
50-59	D (Average)	6
40-49	E (Below Average)	5
$< 40$	F (Fail)	0
Absent	Ab (Absent)	0

### 7.1 Semester Grade Point Average (SGPA)

The Semester Grade Point Average for each semester is calculated as follows:

$$SGPA = \frac{\sum_{i=1}^n (C_i)(GP_i)}{TC}$$

where

$n$  = number of subjects in the semester



- $C_i$  = Credits for the subject, i  
 $GP_i$  = Grade Point of the subject, i  
 $TC$  = Total number of credits in the semester

## 7.2 Cumulative Grade Point Average (CGPA)

The CGPA is computed for every student at the end of each semester. The CGPA would give the cumulative performance of a student from the first year up to the end of the semester to which it refers and is calculated as follows:

$$CGPA = \frac{\sum_1^m (GPA_j)(TC_j)}{\sum_1^m TC_j}$$

where

- $m$  = Number of semesters under consideration  
 $TC_j$  = Total number of credits for a particular semester, j  
 $GPA_j$  = The grade point average of that semester, j

Both SGPA and CGPA will be rounded off to the second place after the decimal and recorded as such. While computing SGPA/CGPA, the course in which the candidate is awarded zero grade points will also be included.

## 7.3 Grade Sheet

The grade sheet (memorandum) will be issued to each student indicating his performance in all the courses taken in that semester in the form of grades, also indicating the SGPA of that semester.

## 7.4 Withholding of results

If any case of indiscipline / malpractice is pending against him/her, the result of the student will be withheld and he/she will not be allowed

into the next semester and his/her degree will be withheld in such cases.

The guidelines for disciplinary action for malpractice in examinations is appended in Annexure – I.

## **8. Attendance Requirements**

- 8.1** A student shall be eligible to appear for the end examinations if s/he acquires a minimum of 75% of attendance in aggregate of all subjects in a semester.
- 8.2** However, a student has to put in a minimum of 50% attendance in each course/subject, in addition to the condition laid down in clause 8.1.
- 8.3** Condonation of shortage of attendance may be recommended provided a student puts in at least 65% attendance in all the subjects put together as calculated in clause 8.1 above, along with a minimum of 50% attendance in each course as stated in clause 8.2. For condonation of shortage of attendance, the student shall pay the prescribed fee and submit an application in writing clearly stating the reason for shortage of attendance along with necessary documentary evidence. The final decision for condonation of attendance shall be taken by the college academic committee considering the merits of the case.
- 8.4** Shortage of attendance below 65% in aggregate shall in no case be condoned.
- 8.5** Students whose shortage of attendance is not condoned in any semester are not eligible to register for end examinations of that particular semester.
- 8.6** A student, who could not satisfy these requirements of attendance, as given in clauses 8.1 through 8.5 in any semester, shall have to repeat that semester.
- 8.7** A student shall not be permitted to study any semester for more than three times during the course of his / her study. Further,

a student is required to complete the course of study of B.Tech. program, satisfying all the attendance requirements in all the four years of the program within a period of eight academic years from the year of admission, failing which he/she shall forfeit his/her admission.

- 8.8** A student, who has satisfied the minimum attendance requirements in any semester, may repeat that semester with the permission of the Principal/Director and cancelling the record of attendance and sessional marks of that semester. A student who gets detained in any even semester may rejoin the odd semester of that particular academic year with the permission of the Principal/Director and cancelling the previous record of sessional and end semester marks of that odd semester. However, the facility may be availed of by the student not more than twice during the entire course of his/her studies and the entire course of study shall be within eight academic years, as stipulated in clause 8.7.

## **9. Minimum Academic Requirements**

A candidate shall be declared to have passed in each theory, design/drawing, practical and project work, if he / she secures not less than 35% marks in the end examination and the sum total marks of 40% in the end examination plus the sessional marks secured by the student in that theory/design/drawing/practical.

## **10. Conditions for Promotion**

- 10.1** A student shall be eligible for promotion to the next semester if he/she satisfies the minimum attendance requirement in the immediately preceding semester as given in clause 8.
- 10.2** A student shall be promoted from IV to V Semester only if he/she fulfils the academic requirement of securing 40% of the credits (24.5 credits) in the subjects that have been studied up to III semester irrespective of whether the candidate takes the Regular / Supplementary end semester examinations or not during the normal course of study.

**10.3** A student shall be promoted from VI semester to VII semester only if he/she fulfils the academic requirements of securing 40% of the credits (42 credits) in the subjects that have been studied up to V semester from the following examinations, irrespective of whether the candidate takes the Regular / Supplementary end semester examinations or not during the normal course of study.

## **11. Award of B.Tech. Degree**

**11.1** A student who is admitted into I B.Tech will be declared eligible for the award of the B.Tech degree if s/he fulfills the following requirements.

(i) Pursues a course of study for not less than four academic years and not more than eight academic years.

(ii) Registers for 160 credits and secures all 160 credits.

**11.2** A student who is admitted into II B.Tech under LES will be declared eligible for the award of the B.Tech degree if s/he fulfills the following requirements.

(i) Pursues a course of study for not less than four academic years and not more than eight academic years.

(ii) Registers for **140** credits and secures all **140** credits.

**11.3** Those who fail to fulfill all the academic requirements will forfeit their seat in B.Tech course and their admission stands cancelled.

## **11.4 Minor degree in a discipline**

This concept is introduced in the curriculum of all conventional B. Tech. programmes offering a major degree. The main objective of Minor in a discipline is to provide additional learning opportunities for academically motivated students and it is an optional feature of the B. Tech. programme. In order to earn a Minor in a discipline a student has to earn 20 extra credits by studying any seven theory subjects from the programme core &

professional elective courses of the minor discipline or equivalent MOOC courses available under SWAYAM platform. The list of courses to be studied either in MOOCs or conventional type will be decided by the Institute at the time of registration for Minor degree.

- a. Students having a CGPA of 8.0 (for SC/ST students CGPA of 7.5) or above up to II year-I semester and without any backlog subjects will be permitted to register for Minor discipline programme. An SGPA and CGPA of 7.5 (for SC/ST students CGPA of 7.0) has to be maintained in the subsequent semesters without any backlog subjects in order to keep the Minor discipline registration live or else it will be cancelled.
- b. Students aspiring for a Minor must register from V semester onwards and must opt for a Minor in a discipline other than the discipline he/she is registered in. However, Minor discipline registrations are not allowed before V semester and after VI semester.
- c. Students will not be allowed to register and pursue more than two subjects in any semester.
- d. The Evaluation pattern of theory subjects will be similar to the regular programme evaluation.
- e. Students may enlist their choice of Minor discipline programmes, in order of preference, for which they wish to register. It will not be permissible to alter the choices after the application has been submitted. However, students are allowed to opt for only one Minor discipline programme in the order of preference given by them.
- f. Minimum strength required for offering a Minor in a discipline is considered as 20% of the class size and Maximum would be 80% of the class size.
- g. Completion of a Minor discipline programme requires no addition of time to the regular Four year Bachelors’

programme. That is, Minor discipline programme should be completed by the end of final year B. Tech. program along with the major discipline.

- h. Separate course/class work and time table of the various Minor programmes shall be arranged. Attendance regulations for these Minor discipline programmes will be as per regular courses.
- i. Reservations shall be followed as per the rules of Government of Andhra Pradesh i.e., State-wide Universities Presidential Order 371 Article D in consonance to Section 95 of the A.P. Reorganization Act, 2014 for admissions to Minor degree programmes.
- j. A student registered for Minor in a discipline shall pass in all subjects that constitute the requirement for the Minor degree programme. No class/division (i.e., second class, first class and distinction, etc.) shall be awarded for Minor degree programme.
- k. The Minor in a discipline will be mentioned in the degree certificate as Bachelor of Technology in XXX with Minor in YYY. For example, Bachelor of Technology in Computer Science & Engineering with Minor in Electronics & Communication Engineering. This fact will also be reflected in the transcripts, along with the list of courses taken for Minor programme with CGPA mentioned separately.

#### 11.5 Honors degree in a discipline:

This concept is introduced in the curriculum for all conventional B. Tech. programmes. The main objective of Honors degree in a discipline is to provide additional learning opportunities for academically motivated students and it is an optional feature of the B. Tech. programme. In order to earn a Honors degree in his/her discipline, a student has to earn 20 extra credits by studying five advanced courses for 15 credits and by carrying out a mini project for 5 credits in the concerned branch of Engineering. In place of advanced courses, he/she can study equivalent MOOC courses

available under SWAYAM or other platform, as decided by the Institute from time to time. The Evaluation pattern of theory subjects will be similar to the regular programme evaluation. The mini project shall be evaluated by the committee consisting of Head of the department, Supervisor and External examiner. Students aspiring for Honors degree must register from V semester onwards. However, Honors degree registrations are not allowed before V semester and after VI semester. Student may register for mini project from V semester onwards and complete the same before VIII semester after completing at least two advanced courses or equivalent.

## 12 Award of Class

After a student has satisfied the requirements prescribed for the completion of the program and is eligible for the award of B.Tech. degree s/he shall be placed in one of the following four classes.

Class Awarded	CGPA Secured
First Class with Distinction	$\geq 7.5$
First Class	$\geq 6.5 < 7.5$
Second Class	$\geq 5.5 < 6.5$
Pass Class	$\geq 4.5 < 5.5$

## 13 Award of Rank

- 13.1** Ranks shall be awarded in each branch of specialization for the top three students.
- 13.2** Only such candidate who completes the B.Tech. program within four academic years from the year of their admission are eligible for the award of rank.
- 13.3** For the purpose of awarding rank in each branch, total marks, i.e. end examination and sessional marks put together of all the semesters of I, II, III and IV B.Tech secured in the first attempt only shall be taken into account. Candidates who have failed in

any course in any semester are not eligible for the award of Rank.

## **14 Gap - Year**

Students who wish to pursue entrepreneurship are allowed to take a break of one year at any time after I year/II year/III year II semester to pursue entrepreneurship full time. This period may be extended to two years at the most. An evaluation committee shall be constituted to evaluate the proposal submitted by the student and the committee shall decide on permitting the student for having the Gap Year Duration of completion of course of B.Tech degree in case of the students who utilize the gap-year is extended by the number of gap-years.

## **15 Transitory Regulations**

**15.1** Candidates who studied the four year B.Tech. Degree course under Old Regulations but who could not satisfy the minimum attendance requirements in any year may join the first year/appropriate semester in the New Regulations applicable for the batch for the remaining part of the course and be governed by the Regulations of that batch from then on. Any candidate, admitted under Old Regulations, who wished to join in any particular year in the New Regulations under any other circumstances, shall also be governed by the New Regulations from that year onwards.

**15.2** Candidates who satisfy the minimum attendance requirements in any year under old regulations but who are yet to pass some subjects of that year even after three chances shall appear for the equivalent subjects specified by the Board of Studies of the concerned branch.

## **16 Amendment of Regulations**

N.B.K.R. Institute of Science & Technology reserves the right to amend these regulations at any time in future without any notice. Further, the interpretation of any of the clauses of these regulations rests with the standing committee and the decision shall be reported to the Academic Council.