CHADALAWADA RAMANAMMA ENGINEERING COLLEGE

(Autonomous)

(Approved by AICTE | NAAC Accreditation with 'A' Grade | Permanently Affiliated to JNTUA)

Chadalawada Nagar, Tirupati - 517506, Andhra Pradesh,India.

OUTCOME BASED EDUCATION
WITH
CHOICE BASED CREDIT SYSTEM

MASTER OF COMPUTER APPLICATIONS

R-20 ACADEMIC REGULATIONS, COURSE STRUCTURE AND SYLLABI UNDER AUTONOMOUS STATUS

M.C.A Regular Two Year Degree Program

(for the batches admitted from the academic year 2020 - 21)

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PRELIMINARY DEFINITIONS AND NOMENCLATURES

Academic Council: The Academic Council is the highest academic body of the institute and is responsible for the maintenance of standards of instruction, education and examination within the institute. Academic Council is an authority as per UGC regulations and it has the right to take decisions on all academic matters including academic research.

Academic Autonomy: Means freedom to an institute in all aspects of conducting its academic programs, granted by UGC for Promoting Excellence.

Academic Year: It is the period necessary to complete an actual course of study within a year. It comprises two consecutive semesters i.e., Even and Odd semester.

AICTE: Means All India Council for Technical Education, New Delhi.

Autonomous Institute: Means an institute designated as autonomous by University Grants Commission (UGC), New Delhi in concurrence with affiliating University (Jawaharlal Nehru Technological University, Anantapur) and State Government.

Backlog Course: A course is considered to be a backlog course if the student has obtained a failure grade (F) in that course.

Board of Studies (BOS): BOS is an authority as defined in UGC regulations, constituted by Head of the Organization for each of the departments separately. They are responsible for curriculum design and updation in respect of all the programs offered by a department.

Choice Based Credit System: The credit based semester system is one which provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching along with provision of choice for the student in the course selection.

Compulsory course: Course required to be undertaken for the award of the degree as per the program.

Commission: Means University Grants Commission (UGC), New Delhi.

Continuous Internal Examination: It is an examination conducted towards internal assessment.

Course: A course is a subject offered by the University for learning in a particular semester.

Course Outcomes: The essential skills that need to be acquired by every student through a course.

Credit: A credit is a unit that gives weight to the value, level or time requirements of an academic course. The number of 'Contact Hours' in a week of a particular course determines its credit value. One credit is equivalent to one lecture hour per week.

Credit point: It is the product of grade point and number of credits for a course.

Cumulative Grade Point Average (CGPA): It is a measure of cumulative performance of a student over all the completed semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.

Curriculum: Curriculum incorporates the planned interaction of students with instructional content, materials, resources and processes for evaluating the attainment of Program Educational Objectives.

Degree with Specialization: A student who fulfills the entire program requirements of her/his discipline and successfully completes a specified set of professional course is eligible to receive a degree with specialization.

Department: An academic entity that conducts relevant curricular and co-curricular activities, involving both teaching and non-teaching staff and other resources in the process of study for a degree.

Detention in a course: Student who does not obtain minimum prescribed attendance in a course shall be detained in that particular course.

Elective Course: An Elective can be chosen from a set of Professional Electives.

Evaluation: Evaluation is the process of judging the academic performance of the student in her/his courses. It is done through a combination of continuous internal assessment and semester end examinations.

Grade: It is an index of the performance of the students in a said course. Grades are indicated by alphabets.

Grade Point: It is a numerical weight allotted to each letter grade on a 10 point scale.

Institute: Means Chadalawada Ramanamma Engineering College, Tirupati unless indicated otherwise by the context.

Pre-requisite: A course, the knowledge of which is required for registration into higher level course.

Core: The courses that are essential constituents of each engineering discipline are categorized as professional core courses for that discipline.

Professional Elective: A course that is discipline centric. An appropriate choice of minimum number of such electives as specified in the program will lead to a degree with specialization.

Program: Means, Master of Computer Applications

Program Educational Objectives: The broad career, professional and personal goals that every student will achieve through a strategic and sequential action plan.

Project work: It is a design or research based work to be taken up by a student during his/her second year to achieve a particular aim. It is a credit based course and is to be planned carefully by the student.

Re-Appearing: A student can reappear only in the semester end examination for the theory component of a course, subject to the regulations contained herein.

Registration: Process of enrolling into a set of courses in a semester of a Program.

Regulations: The regulations for M.C.A programs offered by Institute are designated as "CREC-R17" and are binding on all the stakeholders.

Semester: It is a period of study consisting of 19 to 21 weeks of academic work equivalent to normally 90 working days. The odd semester starts usually in July and even semester in December.

Semester End Examinations: It is an examination conducted for all courses offered in a semester at the end of the semester.

S/he: Means "she" and "he" both.

Student Outcomes: The essential skill sets that need to be acquired by every student during her/his program of study. These skill sets are in the areas of employability, entrepreneurial, social and behavioral.

University: Means the Jawaharlal Nehru Technological University Anantapuramu, Anantapuramu.

Withdraw from a Course: Withdrawing from a course means that a student can drop from a course within the first two weeks of the odd or even semester (deadlines are different for summer sessions). However s/he can choose a substitute course in place of it by exercising the option within 5 working days from the date of withdrawal.

FOREWORD

The autonomy is conferred to Chadalawada Ramanamma Engineering College (CREC), Tirupati by University Grants Commission (UGC), New Delhi based on its performance as well as future commitment and competency to impart quality education. It is a mark of its ability to function independently in accordance with the set norms of the monitoring bodies like J N T University Anantapuramu (JNTUA), Anantapuramu and AICTE. It reflects the confidence of the affiliating University in the autonomous institution to uphold and maintain standards it expects to deliver on its own behalf and thus awards degrees on behalf of the college. Thus, an autonomous institution is given the freedom to have its own **curriculum, examination system** and **monitoring mechanism**, independent of the affiliating University but under its observance.

CREC is proud to win the credence of all the above bodies monitoring the quality in education and has gladly accepted the responsibility of sustaining, if not improving upon the standards and ethics for which it has been striving for more than a decade in reaching its present standing in the arena of contemporary technical education. As a follow up, statutory bodies like Academic Council and Boards of Studies are constituted with the guidance of the Governing Body of the institute and recommendations of the JNTUA to frame the regulations, course structure and syllabi under autonomous status.

The autonomous regulations, course structure and syllabi have been prepared after prolonged and detailed interaction with several expertise solicited from academics, industry and research, in accordance with the vision and mission of the institute to order to produce a quality Master of Computers Applications professionals to the society.

All the faculty, parents and students are requested to go through all the rules and regulations carefully. Any clarifications needed are to be sought at appropriate time and with principal of the college, without presumptions, to avoid unwanted subsequent inconveniences and embarrassments. The Cooperation of all the stake holders is sought for the successful implementation of the autonomous system in the larger interests of the college and brighter prospects of Master of Computers Applications professionals.

PRINCIPAL

CHADALAWADA RAMANAMMA ENGINEERING COLLEGE
(Autonomous)

ACADEMIC REGULATIONS

M.C.A Regular Two Year Degree Program

(for the batches admitted from the academic year 2020 - 21)

For pursuing two year postgraduate Master Degree program of study in computer applications offered by Chadalawada Ramanamma Engineering College under Autonomous status and herein after referred to as CREC.

1.0 CHOICE BASED CREDIT SYSTEM

The Indian Higher Education Institutions (HEI's) are changing from the conventional course structure to Choice Based Credit System (CBCS) along with introduction to semester system at first year itself. The semester system helps in accelerating the teaching learning process and enables vertical and horizontal mobility in learning.

The credit based semester system provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching. The choice based credit system provides a "Cafeteria" type approach, in which the students can take courses of their choice, learn at their own pace, undergo additional courses and acquire more than the required credits and adopt an interdisciplinary approach to learning.

Choice Based Credit System (CBCS) is a flexible system of learning and provides choice for students to select from the prescribed elective courses. A course defines learning objectives and learning outcomes and comprises of lectures / tutorials / laboratory work / field work / project work / comprehensive examination / viva / seminars /journal publications/ assignments / presentations / self-study etc. or a combination of some of these.

Under the CBCS, the requirement for awarding a degree is prescribed in terms of number of credits to be completed by the students.

The CBCS permits students to:

1. Choose electives from a wide range of elective courses offered by the department of the Institute.
2. Undergo additional courses of interest.
3. Adopt an inter-disciplinary approach in learning.
4. Make the best use of expertise of the available faculty.

2.0 MEDIUM OF INSTRUCTION

The medium of instruction shall be English for all courses, examinations, seminar presentations and project work. The curriculum will comprise courses of study as given in course curriculum in accordance with the prescribed syllabi.

3.0 ELIGIBILITY FOR ADMISSION

The admissions for category A and B seats shall be as per the guidelines of Andhra Pradesh State Council for Higher Education (APSCHE) in consonance with government reservation policy.

a) Under Category A: 70% of the seats are filled based on ICET ranks.

b) Under Category B: 30% seats are filled on merit basis as per guidelines of APSCHE.

4.0 UNIQUE COURSE IDENTIFICATION CODE: F0

5.0 TYPES OF COURSES

Courses in a programme may be of three kinds: **Foundation / Skill, Core and Elective.**

5.1 Foundation / Skill Course:
Foundation courses are the courses based upon the content leads to enhancement of skill and knowledge as well as value based and are aimed at man making education. Skill subjects are those areas in which one needs to develop a set of skills to learn anything at all. They are fundamental to learning any subject.

5.2 Core Course:
There may be a core course in every semester. This is the course which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in said discipline of study.

5.3 Elective Course:
Elective course is a course which can be chosen from a pool of courses. It may be:

- Supportive to the discipline of study

- Providing an expanded scope

- Enabling an exposure to some other discipline/domain

An elective may be discipline centric (Professional Elective) focusing on those courses which add generic proficiency to the students.

There shall be two professional elective groups out of which students can choose not more than one courses from each group. Overall, students can opt for Four professional elective courses which suit their project work in consultation with the faculty advisor/mentor.

6.0 SEMESTER STRUCTURE

The institute shall follow semester pattern. An academic year shall consist of a first semester and a second semester. Each semester shall be of 21 weeks (Table 2) duration and this period includes time for course work, examination preparation and conduct of examinations. The duration for each semester shall be a minimum of 16 weeks of instructions. The Academic Calendar is declared at the beginning of the academic year as given in below Table 1.

Table 1: Academic Calendar

I-YEAR FIRST SEMESTER (21 weeks)	I Spell Instructions	8 weeks	
	I Mid Term Examinations	5 days	
	II Spell Instructions	8 weeks	19 weeks
	II Mid Term Examinations	5 days	
	Preparation & Practical Examinations	1 week	
	Semester End Examinations		2 weeks
Semester Break			1 week
I-YEAR SECOND SEMESTER (21 weeks)	I Spell Instructions	8 weeks	
	I Mid Term Examinations	5 days	
	II Spell Instructions	8 weeks	19 weeks
	II Mid Term Examinations	5 days	
	Preparation & Practical Examinations	1 week	
	Semester End Examinations		2 weeks
Summer Vacation			4 weeks
II-YEAR FIRST SEMESTER (21 weeks)	I Spell Instructions	8 weeks	
	I Mid Term Examinations	5 days	
	II Spell Instructions	8 weeks	19 weeks
	II Mid Term Examinations	5 days	
	Preparation and Practical Examinations	1 week	
	Semester End Examinations		2 weeks
Semester Break			1 week
II-YEAR SECOND SEMESTER (21 weeks)	Project Work Phase – I Submission of Abstract to the IDC for Approval Inception and Elaboration		8 Weeks
	Seminar		2 Weeks
	Project Work Phase – II Construction and Transition		8 Weeks
	Submission of Final Thesis / Dissertation		1 Week
	External Viva-Voce Examination		2 Weeks

7.0 PROGRAM DURATION:

A student shall be declared eligible for the award of M.C.A degree, if s/he pursues a course of study and completes it successfully in not less than Two academic years and not more than Four academic years. A student, who fails to fulfill all the academic requirements for the award of the degree within two academic years from the year of his/her admission, shall forfeit his/her seat in M.C.A course.

a) A student will be eligible for the award of M.C.A degree on securing a minimum of 5.0/10.0 CGPA.

b) In the event of non-completion of project work and/or non-submission of the project report by the end of the final semester, the candidate shall re-register by paying the semester fee

for the project. In such a case, the candidate will not be permitted to submit the report earlier than three months and not later than six months from the date of registration.

8.0 CURRICULUM AND COURSE STRUCTURE

The curriculum shall comprise Professional Core Courses, Professional Elective Courses ,Laboratory Course, Internship, seminar, journal publications and Project Work. The list of elective courses may include subjects from allied disciplines also.

Each Theory and Laboratory course carries credits based on the number of hours/week as follows:

- **Lecture Hours (Theory):** 1 credit per lecture hour per week.

- **Laboratory Hours (Practical):** 2 credits for 3 practical hours

- **Project Work:** For courses like Seminar/Project Work, where formal contact periods are not specified, credits are assigned based on the complexity of the work to be carried out.

8.1 Credit distribution for courses offered is shown in Table2.

Table 2: Credit distribution

S. No	Course	Hours	Credits
1	Foundation Courses	3	3
2	Core Courses	3	3
3	Elective Courses	3	3
4	Laboratory Courses	3	2
5	MOOC Courses	-	2
6	Project Work	--	10
7	Seminar	--	2

8.2 Course wise break-up for the total credits:

Total Theory Courses Foundation Courses(3)+Core Courses (11) + Professional Electives (04)	18@ 3 Credits	54
Total Laboratory Courses (9)	9 @ 2 credits	18
MOOC Courses(1)	1@ 2 credits	2
Project Work	---	16
Seminar	---	2
Total Credits		**92**

9.0 EVALUATION METHODOLOGY

Theory Course:

Each theory course will be evaluated for a total of 100 marks, with 40 marks for Continuous Internal Assessment (CIA) and 60 marks for Semester End Examination (SEE).

9.1.1 Semester End Examination (SEE):

The SEE shall be conducted for 60 marks of 3 hours duration. The syllabus for the theory courses shall be divided into FIVE units and each unit carries equal weightage in terms of marks distribution. The question paper pattern shall be as defined below. Two full questions with "either" or choice will be drawn from each unit. Each question carries 12 marks. There could be a maximum of three sub divisions in a question.

The emphasis on the questions is broadly based on the following criteria:

50 %	To test the objectiveness of the concept
30 %	To test the analytical skill of the concept
20 %	To test the application skill of the concept

9.1.2 Continuous Internal Assessment (CIA):

For each theory course the CIA shall be conducted by the faculty/teacher handling the course as given in Table-5. CIA is conducted for a total of 40 marks, with 30 marks for Continuous Internal Examination (CIE) and 10 marks for Alternative Assessment Tool (AAT).

Table-5: Assessment pattern for Theory Courses

COMPONENT	THEORY		TOTAL MARKS
Type of Assessment	CIE Exam (Sessional)	AAT	
Max. CIA Marks	30	10	40

9.1.3 Continuous Internal Examination (CIE):

Two CIE exams shall be conducted at the end of the 9th and 17th week of the semester respectively. The CIE exam is conducted for 30 marks of 2 hours duration consisting of 5 questions, the students has to answer any 3 questions, each question shall be of equal weightage for a total of 30 marks. The final CIE for 30 marks with weightage of 80% to better mid marks and 20% for the other. The valuation and verification of answer scripts of CIE exams shall be completed within a week after the conduct of the Internal Examination.

9.1.4 Alternative Assessment Tool (AAT)

In order to encourage innovative methods while delivering a course, the faculty members have been encouraged to use the Alternative Assessment Tool (AAT). This AAT enables faculty to design own assessment patterns during the CIA. However, the usage of AAT is completely optional. The AAT enhances the autonomy (freedom and flexibility) of individual faculty and enables them to create innovative pedagogical practices. If properly applied, the AAT converts the classroom into an effective learning centre.

The AAT may include

1. Seminars – 4 Marks

2. Assignment – 3 Marks

3. Slip Test – 3 Marks

AAT helps the student for the improvement of self-learning and presentation skills.

9.2 Laboratory Course:

9.2.1 Each lab will be evaluated for a total of 100 marks consisting of 40 marks for internal assessment and 60 marks for semester end lab examination. Out of 40 marks of internal assessment, continuous lab assessment will be done for 30 marks for the day to day performance and 10 marks for the final internal lab assessment.

9.2.2 The semester end lab examination for 60 marks shall be conducted by two examiners, one of them being a internal examiner and another is external examiner, both nominated by the Principal from the panel of experts recommended by Chairman, BOS. The external examiners are appointed /selected from various AICTE approved institutions.

9.3 MOOC Course:

Meeting with the global requirements, to inculcate the habit of self-learning and in compliance with   UGC guidelines, MOOC (Massive Open Online Course) have been introduced as electives.

1. Mandatory MOOCs course is introduced in IV Semester with credits. A student can choose any subject of his/her choice that has more than 30 hours duration.
2. Course content for the selected MOOCs shall be drawn from respective MOOCs links or shall be supplied by the department. Course will be mentored by faculty members and assessment & evaluation of the courses shall be done by the external agencies which offer the courses. .
3. A student should have an opportunity to select two MOOC course with more than 30 hours duration, among elective courses. Two credits will be awarded upon successful completion of each MOOCs.

9.4 Project Work

Every candidate shall be required to submit thesis or dissertation after taking up a topic approved by the college/ institute.

9.4.1. Registration of Project work:
- A candidate is permitted to register for the project work after satisfying the attendance and academic requirements of all the courses (theory and practical courses of I to III Sem) .
- The Project Review Committee (PRC) consisting of HOD, Project Coordinator and one internal senior faculty member shall monitor the progress of the project work.
- The project work shall be initiated and continued in the final semester. The candidate can submit Project thesis with the approval of PRC at the end of the IV semester instruction as per the schedule. Extension of time within the total permissible limit for completing the project is to be obtained from the Head of the Institution.
- The student must submit status report at least in three different phases during the project work period. These reports must be approved by the PRC before submission of the Project Report and award internal assessment marks for 80.
- The project Review may be conducted once in two months for all the candidates who have submitted project report during that period.

- Three copies of the Thesis / Dissertation certified in the prescribed format by the supervisor and HOD. One copy shall be presented to the HOD, One copy is to be forwarded to the Controller Of Examinations and one copy to be sent to the examiner.
- The Department shall submit a panel of three experts for a maximum of 10 students at a time. However, the Thesis / Dissertation will be adjudicated by one examiner nominated by the Chief Controller of Examinations.
- The viva-voce examination shall be conducted by a board consisting of the Supervisor, Head of the Department and the examiner who adjudicated the thesis / dissertation. The board shall jointly award the marks for 120.
- A candidate shall be deemed to have secured the minimum academic requirement in the project work if he/she secures a minimum of 50% marks in the viva-voce examination and a minimum aggregate of 50% of the total marks in the end viva-voce examination and the internal project report taken together. If he fails to get the minimum academic requirement he/she has to appear for the viva-voce examination again to get the minimum marks. If he fails to get the minimum marks at the second viva-voce examination he/she will not be eligible for the award of the degree, unless the candidate is asked to revise and resubmit. If the candidate fails to secure minimum marks again, the project shall be summarily rejected.
- A candidate has to publish a paper in UGC Approved journals before the submission of their Project work.

9.4.2 Seminar
- A student shall present a seminar during the II year IV Semester of the M.C.A Programme
- A student under the supervision of a faculty member, shall collect literature on an allotted topic of his/her choice, critically review the literature, carry out the work and submit it to the department in a form of report as prescribed the Academic section and shall make an oral presentation before the Departmental Committee.
- Evaluation of the seminar shall consist of Continuous Internal Evaluation (CIE) shall be done by a Departmental Committee (DC) consisting of the Head of the Department, faculty supervisor and a senior faculty member of the department for a total of 100 marks.
- CIE shall be carried out for 40 marks on the basis of review presentation as per the academic calendar and evaluation format provided by Academic Section. Other 20 marks for Report writing, 20 marks for subject/topic and 20 marks for questions and answers.
- A student has to secure a minimum of 50 % marks to be declared successful.
- The maximum number of seminar presentations is limited to TWO. After this, the student shall be deemed to secure 'Fail' grade in the seminar and shall re-register for it in the next semester.

9.5 Revaluation / Recounting:
Students shall be permitted for request for recounting/revaluation of the year / Semester-End examination answer scripts within a stipulated period after payment of prescribed fee. After recounting or revaluation, records are updated with changes if any and the student will be issued a revised grade sheet. If there are no changes, the same will be intimated to the students.

9.6 Supplementary Examination:
In addition to the regular year/ Semester- End examinations conducted, the College may also schedule and conduct supplementary examinations for all the subjects of other year/ semesters when feasible for the benefit of students.

10.0 RE-REGISTRATION FOR IMPROVEMENT OF INTERNAL MARKS:

Following are the conditions to avail the benefit of improvement of internal evaluation marks

- The candidate should have completed the course work and obtained examinations results for four semesters.
- He should have passed all the subjects for which the internal evaluation marks secured are more than or equal to 50%.
- Out of the subjects the candidate has failed in the examination due to Internal evaluation marks secured being less than 50%, the candidate shall be given one chance for each Theory subject and for a maximum of three Theory subjects for Improvement of Internal evaluation marks.
- The candidate has to re-register for the chosen subjects and fulfill the academic requirements.
- For each subject, the candidate has to pay a fee equivalent to one third of the semester tuition fee.
- In the event of availing the Improvement of Internal evaluation marks, the internal evaluation marks as well as the End Examinations marks secured in the previous attempt(s) for the reregistered subjects stand cancelled.

11.0 ATTENDANCE REQUIREMENTS AND DETENTION POLICY

11.1 It is desirable for a candidate to put on 100% attendance in each course. In every course (theory/laboratory), student has to maintain a minimum of 75% attendance including the days of attendance in sports, games, NCC and NSS activities to be eligible for appearing in Semester End Examination of the course.

11.2 For cases of medical issues, deficiency of attendance in each course to the extent of 10% may be condoned by the College Academic Committee (CAC) on the recommendation of Head of the Department if his/her attendance is between 75% to 65%, subjected to submission of medical certificate and other needful documents to the department concerned.

11.3 The basis for the calculation of the attendance shall be the period prescribed by the institute by its calendar of events. For late admission, attendance is reckoned from the date of admission to the program.

11.4 A prescribed fee shall be payable towards Condonation of shortage of attendance.

11.5 However, in case of a student having less than 65% attendance, s/he shall be detained in the course and in no case such process will be relaxed.

11.6 If the candidate doesn't satisfy the attendance requirement he is detained for want of attendance and shall reregister for that semester. He / she shall not be promoted to the next semester.

12.0 CONDUCT OF SEMESTER END EXAMINATIONS AND EVALUATION

12.1 Semester End Examination shall be conducted by the Controller of Examinations (COE) by inviting Question Papers from the External Examiners.

12.2 Question papers may be moderated for the coverage of syllabus, pattern of questions by Semester End Examination Committee chaired by Head of the Department one day

before the commencement of Semester End Examinations. External Examiner shall prepare a detailed scheme of evaluation.

12.3 The answer papers of semester end examination should be evaluated by the internal examiner immediately after the completion of exam and the award sheet should be submitted to COE in a sealed cover and evaluated by the external examiner.

12.4 In case of difference is more than 15% of marks, the answer paper shall be re-evaluated by a third examiner appointed by the Examination Committee and marks awarded by him/her shall be taken as final.

12.5 COE shall invite required number of external examiners to evaluate all the end semester answer scripts on a prescribed date(s).

12.6 Examination Control Committee shall consolidate the marks awarded by internal and external examiners to award grades.

13.0   SCHEME FOR THE AWARD OF GRADE

13.1 A student shall be deemed to have satisfied the minimum academic requirements and earn the credits for each theory course, if s/he secures:

I. Not less than 40% marks for each theory course in the semester end examination, and

II. A minimum of 50% marks for each theory course considering both CIA and SEE.

13.2 A student shall be deemed to have satisfied the minimum academic requirements and earn the credits for each Laboratory if s/he secures

I.   Not less than 40% marks for each Laboratory in the semester end examination,

II. A minimum of 50% marks for each Laboratory considering both internal and semester end examination.

13.3 If a candidate fails to secure a pass in a particular course, it is mandatory that s/he shall register and reappear for the examination in that course during the next semester when examination is conducted in that course. It is mandatory that s/he should continue to register and reappear for the examination till s/he secures a pass.

14.0   LETTER GRADES AND GRADE POINTS

14.1   Performances of students in each course are expressed in terms of marks as well as in Letter Grades based on absolute grading system. The UGC recommends a 10 point grading system with the following letter grades as given below:

Range of Marks	Level	Letter Grade	Grade Point
90 – 100	Outstanding	A+	10
80 – 89	Excellent	A	9
70 – 79	Very Good	B	8
60 – 69	Good	C	7
50 – 59	Fair	D	6
40 – 49	Satisfactory	E	5
Below 40	Fail	F	0
Absent	Absent	AB	0

14.2   A student obtaining Grade F shall be declared as failed and will be required to reappear in the examination.

14.3   At the end of each semester, the institute issues grade sheet indicating the SGPA and CGPA of the student. However, grade sheet will not be issued to the student if she/he has any outstanding dues.

15.0 COMPUTATION OF SGPA AND CGPA

The UGC recommends computing the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA). The credit points earned by a student are used for calculating the Semester Grade Point Average (SGPA) and the Cumulative Grade Point Average (CGPA), both of which are important performance indices of the student. SGPA is equal to the sum of all the total points earned by the student in a given semester divided by the number of credits registered by the student in that semester. CGPA gives the sum of all the total points earned in all the previous semesters and the current semester divided by the number of credits registered in all these semesters. Thus,

$$SGPA = \sum_{i=1}^{n} (C_i \times G_i) / \sum_{i=1}^{n} C_i$$

Where, C_i is the number of credits of the ith course and G_i is the grade point scored by the student in the ith course and n represent the number of courses in which a student is registered in the concerned semester.

$$CGPA = \sum_{i=1}^{n} (C_i \times S_i) / \sum_{i=1}^{n} C_i$$

Where, S_i is the SGPA of the ith semester and C_i is the total number of credits up to the semester and n represent the number of semesters completed in which a student registered up to the semester.

The SGPA and CGPA shall be rounded off to 2fractional points and reported in the transcripts.

15.1   ILLUSTRATION OF COMPUTATION OF SGPA AND CGPA

15.1.1. Illustration for SGPA

Course Name	Course Credits	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 1	3	A+	10	3 x 10 =30
Course 2	3	B	8	3 x 8 = 24
Course 3	3	A	9	3 x 9 = 27
Course 4	3	C	7	3 x 7 = 21
Course 5	3	B	8	3 x 8 = 24
Course 6	3	E	5	3 x 5 = 15
Total	18			141

Thus SGPA = 141 / 18 = 7.83

15.1.2 Illustration for CGPA

Semester 1	Semester 2	Semester 3	Semester 4
Credit: 24	Credit: 24	Credit: 24	Credit: 14
SGPA: **7.5**	SGPA: **7.5**	SGPA: **7.5**	SGPA: **8.0**

$$Thus, CGPA = \frac{24 \times 7.5 + 24 \times 7.5 + 24 \times 7.5 + 14 \times 8.0}{86} = 7.58$$

16.0 GRADUATION REQUIREMENTS

The following academic requirements shall be met for the award of M.C.A degree.

- Student shall register and acquire minimum attendance in all courses.

- Student, who fails to secure a minimum CGPA of 5.0 from all the semesters from his /her admission, shall forfeit his/her degree and his/her admission stands cancelled.

17.0 AWARD OF DEGREE

The degree shall be conferred and awarded by Jawaharlal Nehru Technological University Anantapur, Anantapuramu on the recommendations of the Chairman, Academic Council of CREC(Autonomous).

17.1 AWARD OF DIVISION

Classification of degree will be as follows:

CGPA ≥ 7.5	CGPA ≥ 6.5 and < 7.5	CGPA ≥ 5.5 and < 6.5	CGPA ≥ 5.0 and < 5.5	CGPA < 5.0
First Class with Distinction	First Class	Second Class	Pass Class	Fail

17.1.1 In case a student takes more than one attempt in clearing a course, the final marks secured shall be indicated by * mark in the grade sheet.

17.1.2 All the candidates who register for the semester end examination will be issued grade sheets by the Institute. Apart from the semester wise grade sheet, the institute will issue the provisional certificate to the fulfillment of all the academic requirements.

18.0 TERMINATION FROM THE PROGRAM

The admission of a student to the program may be terminated and the student may be asked to leave the institute in the following circumstances:

- The student fails to satisfy the requirements of the program within the maximum period stipulated for that program.
- The student fails to satisfy the norms of discipline specified by the institute from time to time.

19.0 WITH-HOLDING OF RESULTS

If the candidate has not paid any dues to the college / if any case of indiscipline / malpractice is pending against him/her, the results of the candidate will be withheld. The issue of the degree is liable to be withheld in such cases.

20.0 GRADUATION DAY

The institute shall have its own Annual Graduation Day for the award of Degrees to students completing the prescribed academic requirements in each case, in consultation with the University and by following the provisions in the Statute.

The college shall institute prizes and medals to meritorious students annually on Graduation Day.
This will greatly encourage the students to strive for excellence in their academic work.

21.0 DISCIPLINE

Every student is required to observe discipline and decorum both inside and outside the institute and not to indulge in any activity which will tend to bring down the honor of the institute. If a student indulges in malpractice in any of the theory / practical examination, continuous assessment examinations he/she shall be liable for punitive action as prescribed by the Institute from time to time.

22.0 GRIEVANCE REDRESSAL COMMITTEE

The institute shall form a Grievance Redressal Committee for each course in each department with the Course Teacher and the HOD as the members. This Committee shall solve all grievances related to the course under consideration.

23.0 TRANSITORY REGULATIONS

- A student who has been detained in any semester of previous regulations for not satisfying the attendance requirements shall be permitted to join in the corresponding semester of this regulation.

- Semester End Examination in each course under the regulations that precede immediately these regulations shall be conducted three times after the conduct of last regular examination under those regulations. Thereafter, the failed students, if any, shall take examination in the equivalent papers of these regulations as suggested by the Chairman, BOS concerned.

24.0 REVISION OF REGULATIONS AND CURRICULUM

The Institute from time to time may revise, amend or change the regulations, scheme of examinations and syllabi if found necessary and on approval by the Academic Council

and the Governing Body shall come into force and shall be binding on the students, faculty, staff, all authorities of the Institute and others concerned.

25.0 GENERAL

i. The academic regulations should be read as awhole for purpose of any interpretation.

ii. Disciplinary action for Malpractice/improper conduct in examinations is appended.

iii. where the words "he","him","his", occur in the regulations,they include "she","her","her".

iv. In this case of anybody doubt or ambiguity in the interpretation of the above rules, the decision of the principal is final.

v. The college may change or amend the academic regulations or syllabi at any time and the Changes or amendments shall be made applicable to all the students on rolls with effect From the dates notified by the college.

26.0 MALPRACTICES RULES

RULES FOR DISCIPLINARY ACTION FOR MALPRACTICE / IMPROPER CONDUCT IN EXAMINATIONS

	Nature of Malpractices/Improper conduct	Punishment
	If the candidate	
1. (a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, Cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which he is appearing but has not made use of (material shall include any marks on the body of the candidate which can be used as an aid in the subject of the examination)	Expulsion from the examination hall and cancellation of the performance in that subject only.
(b)	Gives assistance or guidance or receives it from any other candidate orally or by any other body language methods or communicates through cell phones with any candidate or persons in or outside the exam hall in respect of any matter.	Expulsion from the examination hall and cancellation of the performance in that subject only of all the candidates involved. In case of an outsider, he will be handed over to the police and a case is registered against him.
2.	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or practical) in which the candidate is appearing	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted to appear for the remaining examinations of the subjects of that Semester/year. The Hall Ticket of the candidate is to be cancelled and sent to The

		University.
3	Comes in a drunken condition to the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall

			not be permitted for the remaining examinations of the subjects of that semester/year.
4		Smuggles in the Answer book or additional sheet or takes out or arranges to send out the question Paper during the examination or answer book or additional sheet, during or after the examination.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
5		Leaves the exam hall taking away answer script or intentionally tears of the script or any part thereof inside or outside the examination hall.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
6		Possess any lethal weapon or firearm in the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat.

27. M.C.A - Program Outcomes (POs)

1. Apply knowledge of mathematics, computer science and management in practice.

2. Identify, critically analyze, formulate and develop computer applications.

3. Select modern computing tools and techniques and use them with dexterity.

4. Design a computing system to meet desired needs within realistic constraints such as safety, security and applicability.

5. Function professionally with ethical responsibility as an individual as well as in multidisciplinary teams with positive attitude.

28. Frequently asked Questions and Answers about autonomy

1. Who grants Autonomy? UGC, Govt., AICTE or University

In case of Colleges affiliated to a university and where statutes for grant of autonomy are ready, it is the respective University that finally grants autonomy but only after concurrence from the respective state Government as well as UGC. The State Government has its own powers to grant autonomy directly to Govt. and Govt. aided Colleges.

2   Shall CREC award its own Degree?

No. Degree will be awarded by Jawaharlal Nehru Technological University, Anantapuramu with a mention of the name CREC on the Degree Certificate.

3   What is the difference between a Deemed University and an Autonomy College?

A Deemed University is fully autonomous to the extent of awarding its own Degree. A Deemed University is usually a Non-Affiliating version of a University and has similar responsibilities like any University. An Autonomous College enjoys Academic Autonomy alone. The University to which an autonomous college is affiliated will have checks on the performance of the autonomous college.

4   How will the Foreign Universities or other stake – holders know that we are an Autonomous College?

Autonomous status, once declared, shall be accepted by all the stake holders. The Govt. of Andhra Pradesh mentions autonomous status during the First Year admission procedure. Foreign Universities and Indian Industries will know our status through our website.

5   What is the change of Status for Students and Teachers if we become Autonomous?

An autonomous college carries a prestigious image. Autonomy is actually earned out of our continued past efforts on academic performances, our capability of self- governance and the kind of quality education we offer.

6 Who will check whether the academic standard is maintained / improved after Autonomy? How will it be checked?

There is a built in mechanism in the autonomous working for this purpose. An Internal Committee called Academic Programme Evaluation Committee, which will keep a watch on the academics and keep its reports and recommendations every year. In addition the highest academic council also supervises the academic matters. The standards of our question papers, the regularity of academic calendar, attendance of students, speed and transparency of result declaration and such other parameters are involved in this process.

7 Will the students of CREC as an Autonomous College qualify for University Medals and Prizes for academic excellence?

No. CREC has instituted its own awards, medals, etc. for the academic performance of the students. However for all other events like sports, cultural on co-curricular organized by the University the students shall qualify.

8 Can CREC have its own Convocation?

No. Since the University awards the Degree the Convocation will be that of the University, but there will be Graduation Day at CREC.

9 Can CREC give a provisional degree certificate?

Since the examinations are conducted by CREC and the results are also declared by CREC, the college sends a list of successful candidates with their final Grades and Grade Point Averages including CGPA to the University. Therefore with the prior permission of the University the college will be entitled to give the provisional certificate.

10 Will Academic Autonomy make a positive impact on the Placements or Employability?

Certainly, the number of students qualifying for placement interviews is expected to improve, due to rigorous and repetitive class room teaching and continuous assessment. Also the autonomous status is more responsive to the needs of the industry. As a result therefore, there will be a lot of scope for industry oriented skill development built-in into the system. The post graduates from an autonomous college will therefore represent better employability.

11 What is the proportion of Internal and External Assessment as an Autonomous College?

Presently, it is 60 % external and 40% internal. As the autonomy matures the internal assessment component shall be increased at the cost of external assessment.

12 Is it possible to have complete Internal Assessment for Theory or Practicals?

Yes indeed. We define our own system. We have the freedom to keep the proportion of external and internal assessment component to choose.

13 Why Credit based Grade System?

The credit based grade system is an accepted standard of academic performance the world over in all Universities. The acceptability of our graduates in the world market shall improve.

14 What exactly is a Credit based Grade System?

The credit based grade system defines a much better statistical way of judging the academic performance. One Lecture Hour per week of Teaching Learning process is assigned One Credit. One hour of laboratory work is assigned half credit. Letter Grades like S,A+,A, B+,B,C,F etc. are assigned for a Range of Marks. (e.g. 90% and above is S, 80 to 89 % could be A+ etc.) in Absolute Grading System while grades are awarded by statistical analysis in relative grading system. We thus dispense with sharp numerical boundaries. Secondly, the grades are associated with defined Grade Points in the scale of 1 to 10. Weighted Average of Grade Points is also defined Grade Points are weighted by Credits and averaged over total credits in a Semester. This process is repeated for all Semesters and a CGPA defines the Final Academic Performance

15 What are the norms for the number of Credits per Semester and total number of Credits for PG programme?

These norms are usually defined by UGC or AICTE. Usually around 26 Credits per semester is the accepted norm.

16 What is a Semester Grade Point Average (SGPA)?

The performance of a student in a semester is indicated by a number called SGPA. The SGPA is the weighted average of the grade points obtained in all the courses registered by the student during the semester.

$$SGPA = \sum_{i=1}^{n}\left(C_i\,G_i\right)/\sum_{i=1}^{n}C_i$$

Where, C_i is the number of credits of the ith course and G_i is the grade point scored by the student in the ith course and i represent the number of courses in which a student registered in the concerned semester. SGPA is rounded to two decimal places.

17 What is a Cumulative Grade Point Average (CGPA)?

An up-to-date assessment of overall performance of a student from the time of his first registration is obtained by calculating a number called CGPA, which is weighted average of the grade points obtained in all the courses registered by the students since he entered the Institute.

$$CGPA = \sum_{j=1}^{m}\left(C_i\,S_i\right)/\sum_{j=1}^{m}C_i$$

Where, S_j is the SGPA of the jth semester and C_j is the total number of credits up to the semester and m represent the number of semesters completed in which a student registered up to the semester. CGPA is rounded to two decimal places.

18 Is there any Software available for calculating Grade point averages and converting the same into Grades?

Yes, the institute has its own MIS software for calculation of SGPA, CGPA, etc.

19 Will the teacher be required to do the job of calculating SGPAs etc. and convert the same into Grades?

No. The teacher has to give marks obtained out of whatever maximum marks as it is. Rest is all done by the computer.

20 Will there be any Revaluation or Re-Examination System?

No. There will double valuation of answer scripts. There will be a makeup Examination after a reasonable preparation time after the End Semester Examination for specific cases mentioned in the Rules and Regulations. In addition to this, there shall be a 'summer term' (compressed term) followed by the End Semester Exam, to save the precious time of students.

21 How fast Syllabi can be and should be changed?

Autonomy allows us the freedom to change the syllabi as often as we need.

22 Will the Degree be awarded on the basis of only final year performance?

No. The CGPA will reflect the average performance of all the semester taken together.

23 What are Statutory Academic Bodies?

Governing Body, Academic Council, Examination Committee and Board of Studies are the different statutory bodies. The participation of external members in everybody is compulsory. The institute has nominated professors from IIT, NIT, University (the officers of the rank of Pro-vice Chancellor, Deans and Controller of Examinations) and also the reputed industrialist and industry experts on these bodies.

24 Who takes Decisions on Academic matters?

The Governing Body of institute is the top academic body and is responsible for all the academic decisions. Many decisions are also taken at the lower level like Boards of Studies. Decisions taken at the Board of Studies level are to be ratified at the Academic Council and Governing Body.

25 What is the role of Examination committee?

The Examinations Committee is responsible for the smooth conduct of internal, End Semester and makeup Examinations. All matters involving the conduct of examinations spot valuations, tabulations preparation of Grade Cards etc, fall within the duties of the Examination Committee.

26 Is there any mechanism for Grievance Redressal?

The institute has grievance redressal committee, headed by Dean - Student affairs and Dean - IQAC.

27 How many attempts are permitted for obtaining a Degree?

All such matters are defined in Rules & Regulation

28 Who declares the result?

The result declaration process is also defined. After tabulation work wherein the SGPA, CGPA and final Grades are ready, the entire result is reviewed by the Moderation Committee. Any unusual

deviations or gross level discrepancies are deliberated and removed. The entire result is discussed in the Examinations and Result Committee for its approval. The result is then declared on the institute notice boards as well put on the web site and Students Corner. It is eventually sent to the University.

29 Who will keep the Student Academic Records, University or CREC?
It is the responsibility of the Dean, Academics of the Autonomous College to keep and preserve all the records.

30 What is our relationship with the JNT University?
We remain an affiliated college of the JNT University. The University has the right to nominate its members on the academic bodies of the college.

31 Shall we require University approval if we want to start any New Courses?
Yes, It is expected that approvals or such other matters from an autonomous college will receive priority.

32 Shall we get autonomy for PG and Doctoral Programmes also?
Yes, presently our PG programmes also enjoying autonomous status.