Swami Ramanand Teerth Marathwada University, Nanded.

CHOICE BASED CREDIT SYSTEM (CBCS) PATTERN

Under Graduate (UG) Programs
(Affiliated Colleges)
(w. e. f. Academic Year 2016-2017)

Name of the Faculty	Total Credits	Average Credits per Semester
Science	140 / 148*	23/24*
Commerce	140	23
Arts & Humanities	158	26
Social Science	158	26

(* for Mathematics)

The University Grants Commission (UGC) has initiated several measures to bring equity, efficiency and excellence in the Higher Education System throughout the nation. The important measures taken to enhance academic standards and quality in higher education include innovation and improvements in curriculum, teaching-learning process, examination and evaluation systems, besides governance and other matters.

Several initiatives have been taken by Swami Ramanand Teerth Marathwada University (SRTMU), Nanded from time to time to upgrade and enhance the academic excellence, examination reforms and developing the skilled minds and skilled hands. The semester and CGPA pattern has been adopted by S. R. T. M. University, Nanded in 2014. Now the university is going one step ahead to adopt and implement the Choice Based Credit System (CBCS) semester pattern to Undergraduate program run by various colleges affiliated to SRTM University, Nanded.

The general rules for CBCS pattern were formulated under chairmanship of Principal Dr. G. N. Shinde Dean of Faculty of Science S.R.T.M. University, Nanded for PG and UG programs. (Lett. No.: Acad (1)/CGPA/CBCS/2014-2015/509 dated 16/07/2014.).

2. Applicability of the Grading System

These guidelines shall apply to all undergraduate level degree, diploma and certificate programmes under the credit system awarded by the University.

3. Definitions of Key Words:

3.1. Academic Year: Two consecutive (one odd + one even) semesters constitute one academic year.

3.2. Choice Based Credit System (CBCS): The CBCS provides choice for students to select from the prescribed courses (core, elective or minor or soft skill courses).

3.3. Course: Usually referred to, as 'papers' is a component of a programme. All courses need not carry the same weight. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures/ tutorials/laboratory work/ field work/ outreach activities/ project work/ vocational training/viva/ seminars/ term papers/assignments/ presentations/ self-study etc. or a combination of some of these.

3.4. Credit Based Semester System (CBSS): Under the CBSS, the requirement for awarding a degree or diploma or certificate is prescribed in terms of number of credits to be completed by the students.

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

3.6. Credit: A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work for 15 weeks in a semester.

3.7. Cumulative Grade Point Average (CGPA): It is a measure of overall cumulative performance of a student over all 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.

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

3.9. Letter Grade: It is an index of the performance of students in a said course. Grades are denoted by letters O, A+, A, B+, B, C, P and F.

3.10. Programme: An educational programme leading to award of a Degree, diploma or certificate.

3.11. Semester Grade Point Average (SGPA): It is a measure of performance of work done in a semester. It is ratio of total credit points secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.

3.12. Semester: Each semester will consist of 15 weeks of academic work equivalent to 90 actual teaching days. The odd semester may be scheduled from July to December and even semester from January to June.

3.13. Transcript or Grade Card or Certificate: Based on the grades earned, a grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester and CGPA earned till that semester.

4. Types of Courses:

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

4.1. 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 a said discipline of study.

4.2. Elective Course:-

Elective course is a course which can be chosen from a pool of papers. It may be:

- ☐ Supportive to the discipline of study
- ☐ Providing an expanded scope
- ☐ Enabling an exposure to some other discipline/domain
- ☐ Nurturing student's proficiency / skill (SEC).

An elective may be "Generic Elective" focusing on those courses which add generic proficiency to the students. An elective may be "Discipline centric" or may be chosen from an unrelated discipline. It may be called an "Open Elective."

4.3. Foundation Course:-

The Foundation Courses may be of two kinds: Compulsory Foundation and Elective foundation. "Compulsory Foundation" courses are the courses based upon the content that leads to Knowledge enhancement. They are mandatory for all disciplines and may be called as Ability Enhancement Course (AEC). Environmental Studies is mandatory course as per S. R. T. M. University letter no. Aca/01/UGC/Est./Ac/2004-05/14691-870 dated March 01, 2005. Elective Foundation courses are value-based and are aimed at man-making education.

5. Examination and Assessment:-

The HEIs (Higher Education Institutes) are currently following various methods for examination and assessment suitable for the courses and programmes as approved by their respective statutory bodies. In assessing the performance of the students in examinations, the usual approach is to award marks based on the examinations conducted at various stages (sessional, mid-term, end-semester etc.,) in a semester. Some of the HEIs convert these marks to letter grades based on absolute or relative grading system and award the grades. There is a marked variation across the colleges and universities in the number of grades, grade points, letter grades used, which creates difficulties in comparing students across the institutions. The UGC recommends the following system to be implemented in awarding the grades and CGPA under the credit based semester system.

5.1. Letter Grades and Grade Points:-

i. Two methods - relative grading or absolute grading– have been in vogue for awarding grades in a course. The relative grading is based on the distribution (usually normal distribution) of marks obtained by all the students of the course and the grades are awarded based on a cut-off marks or percentile. Under the absolute grading, the marks are converted to grades based on pre-determined class intervals. The S. R. T. M. University, Nanded has decided to implement "absolute grading" system.

ii. The UGC recommends a 10-point grading system with the following letter grades as given below:

Table 1: Grades and Grade Points:

Marks obtained	Grade	Grade pints
=> 80	O (Outstanding)	10
70-79	A+ (Excellent)	09
60-69	A (Very Good)	08
55-59	B+ (Good)	07
50-54	B (Above Average)	06
45-49	C (Average)	05
40-44	P (Pass)	04
< 40	F (Fail)	0
---	Ab (Absent)	0

iii. A student obtaining Grade F shall be considered failed and will be required to reappear in the examination.

iv. For non credit courses 'Satisfactory' or "Unsatisfactory' shall be indicated instead of the letter grade and this will not be counted for the computation of SGPA/CGPA.

v. The statutory requirement for eligibility to enter as assistant professor in colleges and universities in the disciplines of arts, science, commerce etc., is a minimum average mark of 50% and 55% in relevant postgraduate degree respectively for reserved and general category. Hence, it is recommended that the cut-off marks for grade B shall not be less than 50% and for grade B+, it should not be less than 55% under the absolute grading system. Similarly cut-off marks shall be fixed for grade B and B+ based on the recommendation of the statutory bodies (AICTE, NCTE etc.,) of the relevant disciplines.

5.2. Computation of SGPA and CGPA:-

The UGC recommends the following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

i. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

$$\textbf{SGPA}\ (Si) = \Sigma\ (Ci \times Gi) / \Sigma Ci$$

where Ci is the number of credits of the i^{th} course and Gi is the grade point scored by the student in the i^{th} course.

ii. The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$\textbf{CGPA} = \Sigma(Ci \times Si) / \Sigma\ Ci$$

where Si is the SGPA of the i^{th} semester and Ci is the total number of credits in that semester.

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

5.3. Examination Rules:-

Assessment shall consist of End of Semester Examination (ESE) and Continuous Assessment (CA). The CA will be a continuous activity (Internal) conducted by Concern College and ESE will be conducted by University. Each CA & ESE shall have weightages of 20:80 for Science faculty and approximately 50:50 for Arts, Humanities, Social Science & Commerce faculties.

- Science : for 2 Credits (50 Marks) paper:
  CA = 10 marks and ESE = 40 marks (MCQ =10 & Theory = 30)
- Arts , Humanities, Social Science and Commerce for 3 Credits (75 marks) paper:
  CA = 35 marks and ESE = 40 marks (MCQ =10 & Theory = 30)

The test method for CA consists of following mechanism for evaluation such as:

1. Written test
2. Assignment
3. Seminar presentation

The concerned teacher in consultation with the Head of the Department shall decide the nature of questions for a written test.

- A student should obtained 40% marks in the combined examination of CA and ESE with a minimum passing of 40% in both these separately.
- To pass the UG degree program, a student will have to obtain a minimum aggregate of 40% marks (P and above in the grade point scale) in each course.
- If a student remains absent or fails in an internal assessment examination he/she will have a second chance with the endorsement of the principal in consultation with the concerned teacher and Head of the department. Such a second chance shall not be the right of student.
- CA marks will not change. A student cannot repeat CA. In case she/he wants to repeat CA, then she/he can do only by registering their names for course during the semester in which the course is conducted and up to 3 years program provided the student has failed in that course.
- Student who have failed in a course may reappear for ESE only twice in the subsequent period. The student will be finally declared as failed if He /she does not pass in all credits within a total period of three years. After that such students will have to seek fresh admission as per the admission rules prevailing at that time.
- A student cannot register for the III/IV semester, if she/he fails to complete 75% credits of the total credits expected to be ordinarily completed within two semesters (I/II). Also, a student cannot register their name for V/VI semester if he / she fail to complete 100% credits of the total credits of I and II semesters.
- While marks will be given for all examinations, they will be converted into grades.
- The semester end grade sheets will have only grades and final grade sheets and transcripts shall have grade points average and total percentage of marks up to two decimal points). The final grade sheet will also indicate the UG centre to which the candidate belongs.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,

NANDED [M.S.]

Choice Based Credit System

(CBCS Pattern)

Faculty of Computer Studies

Syllabus of B.Sc. Network Technology F. Y.

Under Graduate (UG) Program

Semester	Subject Code	Course Name	Credit		Total Credits
			Internal	External	
Semester – I	S1.1	1. Basics of Computer System	1	3	4
	S1.2	2. Communication and Soft Skills – I	1	3	4
	S1.3	3. Database Management System	1	3	4
	S1.4	4. Web Technology	1	3	4
	S1.Lab 1	5. Lab Course – 1 (DOS, Windows & Linux OS)	-	2	2
	S1.Lab 2	6. Lab Course – 2 (Web Technology)	-	2	2
		TOTAL			**20**
Semester – II	S2.1	1. Fundamental of Digital Logic	1	3	4
	S2.2	2. Programming In C	1	3	4
	S2.3	3. Statistical Techniques in Computer Science	1	3	4
	S2.4	4. Communication and Soft Skills – II	1	3	4
	S2.Lab 1	5. Lab Course – 3 (Programming in C)	-	2	2
	S2.Lab 2	6. Lab Course – 4(Office Automation)	-	2	2
		TOTAL			**20**

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED [M.S.]

Choice Based Credit System

(CBCS Pattern)

Faculty of Computer Science & Technology

Syllabus of B.Sc. Network Technology S.Y

Effective from Academic Year (2017-2018)

Under Graduate (UG) Program

Semester	Subject Code	Course Name	Credit		Total Credit
			Internal	External	
Semester III	S3.AEC.1	Logical Reasoning	1	3	4
	S3.CC.2	Basic of Computer Network	1	3	4
	S3.CC.3	Basic of Computer Hardware	1	3	4
	S3.CC.4	Fundamental of Linux	1	3	4
	S3.CC.5	Elective- Operating System Next Generation Networks Mobile Communication	1	3	4
	S3.Lab 1	Lab Course – 1 (CN)		2	2
	S3.Lab 2	Lab Course – 2 (Comp Hardware)		2	2
	S3.Lab 3	Lab Course – 3 (Linux)		2	2
	S3.SEC.1	1. Office Automation 2. PC Installation 3. Web Development	2		2
		TOTAL	**7**	**21**	**28**
Semester IV	S4. AEC.1	Numerical Aptitude	1	3	4
	S4.CC.2	Network Administration	1	3	4
	S4.CC.3	Network Infrastructure	1	3	4
	S5.CC.4	Linux Administration	1	3	4
	S5.CC.4	Elective- TCP/IP Computer System Security NOSA	1	3	4
	S4.Lab 1	Lab Course – 1 (NA)		2	2
	S4.Lab 2	Lab Course – 2 (NI)		2	2
	S4.Lab 3	Lab Course – 3 (Linux Administration)		2	2
	S4.SEC-1	1. Multimedia and Applications 2. Computer Tricks 3. DTP	2		2
		TOTAL	**7**	**21**	**28**

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED [M.S.]

Choice Based Credit System (CBCS Pattern)

Faculty of Computer Studies

Syllabus of B.Sc. Network Technology Third Year

Effective from Academic Year (2018-2019)

Under Graduate (UG) Program

Semester	Subject Code	Course Name	Credit		Total Credits
			Internal	External	
Semester – V	S5.CC.1	Distributed System	1	3	4
	S5.CC.2	Linux Administration Part – II	1	3	4
	S5.CC.3	Windows Server – 2012 ADC Part-I	1	3	4
	S5.CC.4	Network Administration Part – II	1	3	4
	S5.CC.5	Elective: 1. CCENT 2. Cloud Computing 3. VM ware	1	3	4
	S5.Lab 1	Linux Administration Part – II		2	2
	S5.Lab 2	ADC 2012 Part- I		2	2
	S5.Lab 3	Network Administration Part – II		2	2
	S5.SEC.1	Skills Enhancement Course (SEC) 1. Java script 2. MySQL 3. Accounting with Tally		2	2
		Environmental Studies			
		TOTAL			28
Semester – VI	S6.CC.1	Network Security	1	3	4
	S6.CC.2	Exchange Server 2010	1	3	4
	S6.CC.3	Windows Server 2012 ADC Part – II	1	3	4
	S6.CC.4	Windows 7	1	3	4
	S6.CC.5	Elective: 1. CCNA Security 2. Windows Share Point 2010 3. Adhoc & Sensor Network	1	3	4
	S6.Lab 1	Exchange Server – 2010		2	2
	S6.Lab 2	ADC 2012 Part – II		2	2
	S6.Lab 3	Windows 7		2	2
	S6.SEC.1	Skill Enhancement Course (SEC) 1. SQL Server 2. Macromedia Flash 3. Android Programming		2	2

BBA I Year (Semester I)

Paper No.	Name of the Paper	Course No.	Lecture / Week	Total Periods	Continuous Assessment (CA)	End of Semester Exam (ESE)	Total Marks	Total Credit
I	Principles of Management	CORE-1	4	54	35	40	75	3
II	Financial Accounting	CORE-2	4	54	35	40	75	3
III	Business Mathematics	CORE-3	4	54	35	40	75	3
IV	Business Economics	CORE-4	4	54	35	40	75	3
V	Business Communication	AECC-1	4	54	35	40	75	3
VI	Business Environment	AECC-2	4	54	35	40	75	3
Discipline Specific Elective (Any one of the following)								
VII.1	Computer Applications in Business-I	DSE-1A	4	54	35	40	75	3
VII.2	Entrepreneurship-I	DSE-1B	4	54	35	40	75	3
Total			**28**	**378**	**245**	**280**	**525**	**21**

BBA I Year (Semester II)

Paper No.	Name of the Paper	Course No.	Lecture/Week	Total Periods	Continuous Assessment(CA)	End of Semester Exam (ESE)	Total Marks	Total Credit
VIII	Organisational Behavior	CORE-5	4	54	35	40	75	3
IX	Business Accounting	CORE-6	4	54	35	40	75	3
X	Business Statistics	CORE-7	4	54	35	40	75	3
XI	Indian Economy	CORE-8	4	54	35	40	75	3
XII	Business Correspondence	AECC-3	4	54	35	40	75	3
XIII	Business Ethics	AECC-4	4	54	35	40	75	3
Discipline Specific Elective (Any one of the following)								
XIV.1	Computer Applications in Business II	DSE-2A	4	54	35	40	75	3
XIV.2	Entrepreneurship-II	DSE-2B	4	54	35	40	75	3
Total			**28**	**378**	**245**	**280**	**525**	**21**

BBA II YEAR (III SEMESTER)

Paper No.	Name of the Paper	Course No.	Lecture / Week	Total Periods	Continuous Assessment (CA)	End of Semester Exam (ESE)	Total Marks	Total Credit
XV	Marketing Management	CORE-9	4	54	35	40	75	3
XVI	Human Resource Management	CORE-10	4	54	35	40	75	3
XVII	Financial Management - I	CORE-11	4	54	35	40	75	3
XVIII	Corporate Accounting - I	CORE-12	4	54	35	40	75	3
XIX	Production Management	CORE-13	4	54	35	40	75	3
XX	Strategic Management	CORE-14	4	54	35	40	75	3
XXI	International Business	AECC-5	4	54	35	40	75	3
XXII	Event Management	AECC-6	4	54	35	40	75	3
Skill Enhancement Course (Any one of the following)								
SEC - I.1	Foundation of Tally ERP 9	SEC-1A	3	45	25	25	50	2
SEC - I.2	Soft Skills for Business	SEC-1B	3	45	25	25	50	2
Total			**35**	**477**	**305**	**345**	**650**	**26**

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Structure for B. B. A. II Year

(III Semester)

Sr. No.	Course Code	Subject	No. of periods weekly		Total
			Lectures	Practical (Seminar, Assignment)	
1	301	Marketing Management-I	04	01	05
2	302	Retail Management-I	04	01	05
3	303	Production & Operations Managements-I	04	01	05
4	304	Computer Application-I	04	01	05
5	305	Human Resource Management-I	04	01	05
6	306	Financial Management-I	04	01	05
7	307	Advanced Business Accounts-I	04	01	05

Structure for B. B. A. II Year

(IV Semester)

Sr. No.	Course Code	Subject	No. of periods weekly		Total
			Lectures	Practical (Seminar, Assignment)	
1	401	Marketing Management-II	04	01	05
2	402	Retail Management-II	04	01	05
3	403	Production & Operations Managements-II	04	01	05
4	404	Computer Application-II	04	01	05
5	405	Human Resource Management-II	04	01	05
6	406	Financial Management-II	04	01	05
7	407	Advanced Business Accounts-II	04	01	05

COURSE STRUCTURE FOR BACHELOR OF BUSINESS ADMINISTRATION (BBA)

Choice Based Credit System (CBCS) SYLLABUS WITH EFFECT FROM 2018-19

BBA II YEAR (IV SEMESTER)								
Paper No.	Name of the Paper	Course No.	Lecture/ WEEK	Total Periods	Continuous Assessment (CA)	End of Semester Exam (ESE)	Total Marks	Total Credit
XXIII	Integrated Marketing Communication	CORE-15	4	54	35	40	75	3
XXIV	Public Relations Management	CORE-16	4	54	35	40	75	3
XXV	Financial Management - II	CORE-17	4	54	35	40	75	3
XXVI	Corporate Accounting - II	CORE-18	4	54	35	40	75	3
XXVII	Operations Management	CORE-19	4	54	35	40	75	3
XXVIII	Business Laws	CORE-20	4	54	35	40	75	3
XXIX	Export-Import Management	AECC-7	4	54	35	40	75	3
XXX	Social Entrepreneurship	AECC-8	4	54	35	40	75	3
Skill Enhancement Course (Any one of the following)								
SEC - II.1	Tally ERP 9 with GST	SEC-2A	3	45	25	25	50	2
SEC - II.2	E-Business	SEC-2B	3	45	25	25	50	2
Total			35	477	305	345	650	26

BBA III YEAR (V SEMESTER)								
Paper No.	Name of the Paper	Course No.	Lecture / Week	Total Periods	Continuous Assessment (CA)	End of Semester of Exam (ESE)	Total Marks	Total Credit
XXXI	Business Tax-I	CORE-21	4	54	35	40	75	3
XXXII	Research Methodology	CORE-22	4	54	35	40	75	3
XXXIII	Cost Accounting	CORE-23	4	54	35	40	75	3
Discipline Specific Elective (Any one Group from following)								
Group A- Marketing Management								
XXXIV	Rural Marketing	DSE-3A	4	54	35	40	75	3
XXXV	Product and Brand Management	DSE-3B	4	54	35	40	75	3
XXXVI	Field-Work & Dissertation	DSE-3C	4	54	35	40	75	3
Group B- Financial Management								
XXXIV	Banking	DSE-3A	4	54	35	40	75	3
XXXV	Introduction to Financial Markets	DSE-3B	4	54	35	40	75	3
XXXVI	Field-Work & Dissertation	DSE-3C	4	54	35	40	75	3
Group C- Human Resource Management								
XXXIV	Training and Development	DSE-3A	4	54	35	40	75	3
XXXV	Industrial Relations	DSE-3B	4	54	35	40	75	3
XXXVI	Field-Work & Dissertation	DSE-3C	4	54	35	40	75	3
Generic Elective Course (Any one of the following)								
GE-I.1	Start-Up Project Management	GE-1A	4	54	35	40	75	3
GE-I.2	NGO Management	GE-1B	4	54	35	40	75	3
Skill Enhancement Course (Any one of the following)								
SEC - III.1	Financial Literacy Skills	SEC-3A	3	45	25	25	50	2
SEC - III.2	Leadership & Negotiation Skills	SEC-3B	3	45	25	25	50	2
Total			31	423	270	305	575	23
Compulsory Paper for all Disciplines (Streams)								
Environmental Studies*		*Compulsory Paper for all Disciplines (Streams) & will be only represented in the form of grade.						

Structure for B. B. A. III Year

(V Semester)

Sr. No.	Course Code	Subject	No. of periods weekly		Total
			Lectures	Practical (Seminar, Assignment)	
1	501	Business Taxation	04	01	05
2	502	Strategic Management	04	01	05
3	503	Business Laws	04	01	05
4	504	Cost & Management Accounting	04	01	05
5	505	Web Designing & E-Commerce	04	01	05
6	506	Research Methodology	04	01	05

COURSE STRUCTURE FOR BACHELOR OF BUSINESS ADMINISTRATION (BBA)

Choice Based Credit System (CBCS) SYLLABUS WITH EFFECT FROM 2018-19

BBA III YEAR (VI SEMESTER)								
Paper No.	Name of the Paper	Course No.	Lecture/ Week	Total Periods	Continuous Assessment (CA)	University Assessment (UA)	Total Marks	Total Credit
XXXVII	Business Tax-II	CORE-24	4	54	35	40	75	3
XXXVIII	Industrial Laws	CORE-25	4	54	35	40	75	3
XXXIX	Management Accounting	CORE-26	4	54	35	40	75	3
Discipline **Specific Elective** (Any **one** Group **from** following)								
Group A- Marketing Management								
XXXX	Retail Management	DSE-4A	4	54	35	40	75	3
XXXXI	Digital Marketing	DSE-4B	4	54	35	40	75	3
XXXXII	Field-Work & Dissertation	DSE-4C	4	54	35	40	75	3
Group B- Financial Management								
XXXX	International Finance	DSE-4A	4	54	35	40	75	3
XXXXI	Introduction to Financial Services	DSE-4B	4	54	35	40	75	3
XXXXII	Field-Work & Dissertation	DSE-4C	4	54	35	40	75	3
Group **C- Human Resource Management**								
XXXX	EmployeeWelfareandSocialSecurity	DSE-4A	4	54	35	40	75	3
XXXXI	Performance Management System	DSE-4B		54	35	40	75	3
XXXXII	Field-Work & Dissertation	DSE-4C	4	54	35	40	75	3
Generic Elective Course (Any one of the following)								
GE-IL3	Agri-Business Management	GE-2C	4	54	35	40	75	3
GE-IL4	Intellectual Property Rights	GE-2D	4	54	35	40	75	3
Skill Enhancement Course (Any one of the following)								
SEC - IV.1	Excel Lab	SEC-4A	3	45	25	25	50	2
SEC - IV.2	E-Filling of Returns	SEC-4B	3	45	25	25	50	2
Total			31	423	270	305	575	23

Swami Ramanand Teerth Marathwada University, Nanded

M. Sc. Programs in (System Administration & Networking)

Credit Based System First Year (Two Semesters)

Semester-I					
Course Code	**Title of the paper**	**External Credits**	**Internal Credits**	**Total Credits**	**Total No. of Classes**
M.Sc. SAN-101	Fundamental of Computer	3	1	4	40hrs
M.Sc. SAN-102	Computer Network	3	1	4	40hrs
M.Sc. SAN-103	Fundamental of Linux OS	3	1	4	40hrs
M.Sc. SAN-104	TCP/IP	3	1	4	40hrs
M.Sc. SAN-105	**Elective – I** 1] Core Networking 2] Cryptography 3] Mobile Computing	3	1	4	40hrs
M.Sc. SAN-106	Lab-1 (FC and DOS)	2	0	2	60hrs
M.Sc. SAN-107	Lab-2 (Computer Network/H/W)	2	0	2	60hrs
M.Sc. SAN-108	Lab-3 (Linux OS)	1	0	1	40hrs
Total Credits		**20**	**5**	**25**	

Semester-II					
Course Code	**Title of the paper**	**External Credits**	**Internal Credits**	**Total Credits**	**Total No. of Classes**
M.Sc. SAN-101	Operating System	3	1	4	40hrs
M.Sc. SAN-102	Network Administration Part I	3	1	4	40hrs
M.Sc. SAN-103	Windows 2012 ADC Part-I	3	1	4	40hrs
M.Sc. SAN-104	Linux Administration - Part I	3	1	4	40hrs
M.Sc. SAN-105	**Elective – II** 1] Next generation networking 2] Adhoc and Senser network 3] System and N/W Administration	3	1	4	40hrs
M.Sc. SAN-106	Lab-1 (Network Administration Part I)	2	0	2	60hrs
M.Sc. SAN-107	Lab-2 (Windows 2012 ADC Part-I)	2	0	2	60hrs
M.Sc. SAN-108	Lab-3 (Linux Administration - Part I)	1	0	1	40hrs
Total Credits		**20**	**5**	**25**	

Swami RamanandTeerthMarathwada University, Nanded

Choice Based Course Credit System (distribution and details of CBCS System)

M.Sc. (System Administration & Networking) SecondYear Two Semester)

M.Sc. (SAN) Second Year (Two Semesters)

Semester-III

Course Code	Title of the paper	External Credits	Internal Credits	Total Credits	Total No. of Classes
M.Sc. SAN-301	Exchange Server Part I	3	1	4	40hrs
M.Sc. SAN-302	Network Administration Part II	3	1	4	40hrs
M.Sc. SAN-303	Windows 2012 ADC Part-II	3	1	4	40hrs
M.Sc. SAN-304	Linux Administration - Part II	3	1	4	40hrs
M.Sc. SAN-305	**Elective – III** 1] Cloud Computing 2] NOSA 3] Advanced Operating System	3	1	4	40hrs
M.Sc. SAN-306	Lab-1 (Network Admin Part II + Linux Administration - Part II)	1	1	2	40hrs
M.Sc. SAN-307	Lab-2 (Windows 2012 ADC Part-II + Exchange Server Part I)	1	1	2	40hrs
M.Sc. SAN-308	Seminar	0	1	1	
Total Credits		17	8	25	

Semester-IV

Course Code	Title of the paper	External Credits	Internal Credits	Total Credits	Total No. of Classes
M.Sc. SAN-401	Exchange Server Part II	3	1	4	40hrs
M.Sc. SAN-402	Windows 7 Configuration	3	1	4	40hrs
M.Sc. SAN-403	Network Security	3	1	4	40hrs
M.Sc. SAN-404	Windows 2008 Network Infrastructure	3	1	4	40hrs
M.Sc. SAN-405	**Elective – III** 1] CCENT 2] VMWARE 3] CCNA Security	3	1	4	40hrs
M.Sc. SAN-406	Lab-1 (Windows 7 + Windows 2008 Network Infrastructure)	1	1	2	40hrs
M.Sc. SAN-407	Lab-2 (Windows 2012 ADC Part-II + Exchange Server Part I)	1	1	2	40hrs
M.Sc. SAN-408	Open Elective	0	1	1	
Total Credits		17	8	25	

Semester-I					
Course Code	Title of the Paper	External credit	Internal credit	Total credit	No. of Classes
M.SC. CM-101	Elements of Information Technology	3	1	4	40hrs
M.SC. CM-102	Introduction to Programming in "C"	3	1	4	40hrs
M.SC. CM-103	Operating System	3	1	4	40hrs
M.SC. CM-104	Management Information System	3	1	4	40hrs
M.SC. CM-105	Lab-1 (EIT+OS)	1	1	2	60hrs
M.SC. CM-106	Lab-2 (Programming in C)	1	1	2	60hrs
Total Credits		**14**	**6**	**20**	280 hrs

Semester-II					
Course Code	Title of the Paper	External credit	Internal credit	Total Credits	No. of Classes
M.SC. CM-201	RDBMS AND Oracle PL/SQL	3	1	4	40hrs
M.SC. CM-202	Programming in C++	3	1	4	40hrs
M.SC. CM-203	Software Engineering	3	1	4	40hrs
M.SC. CM-204	Programming with Visual Basic 6.0	3	1	4	40hrs
M.SC. CM-205	**Elective-II** 1: Next Generation Networks 2: ADHOC & Sensor Networks 3: System & Network Administration	3	1	4	40hrs
M.SC. CM-206	Lab-3(Oracle PL/SQL+ C++)	1	1	2	60hrs
M.SC. CM-207	Lab-4(Visual Basic 6.0)	1	1	2	60hrs
M.SC. CM-208	Seminar	1	0	1	40hrs
Total Credits		**18**	**7**	**25**	360hrs

M.Sc. (CM) Second Year (Two Semesters)

Semester-III					
Course Code	**Title of the paper**	**External credit**	**Internal credit**	**Total Credits**	**Total Nor of Classes**
M.SC. CM-301	Java Programming	3	1	4	40hrs
M.SC. CM-302	Operation Research	3	1	4	40hrs
M.SC. CM-303	Visual Basic.Net	3	1	4	40hrs
M.SC. CM-304	Software Testing Tools	3	1	4	40hrs
M.SC. CM-305	**Elective - III** 1. Advanced Operating System 2. JavaScript 3. PHP & My SQL	3	1	4	40hrs
M.SC. CM-306	Lab-1 (Java Prog. VB.Net)	1	1	2	60hrs
M.SC. CM-307	Lab-2 (Software Testing Tools)	1	1	2	60hrs
M.SC. CM-308	Seminar	0	1	1	
Total Credits		**18**	**7**	**25**	

Semester-IV					
Course Code	**Title of the paper**	**External credit**	**Internal credit**	**Total Credits**	**Total Nor of Classes**
M.SC. CM-401	Linux Operating System & Administration	3	1	4	40hrs
M.SC. CM-402	Web Page Design & Active Server Pages 3.0	3	1	4	40hrs
M.SC. CM-403	Network Management	3	1	4	
M.SC. CM-404	Software Project Management	3	1	4	40hrs
M.SC. CM-405	**Elective-IV** 1. ORACLE DBA 2. Distributed Database Concepts 3. Data Mining	3	1	4	40hrs
M.SC. CM-406	Lab-1 (Linux OS & Adm. + WPD & ASP)	1	1	2	60hrs
M.SC. CM-407	Lab-2 (Project Work)	1	1	2	
M.SC. CM-408	Open Elective	0	1	1	
Total Credits		**18**	**7**	**25**	

M.Sc. (CS) First Year (Two Semesters)

Semester-I					
course code	**Title of the paper**	**External credit**	**Internal credit**	**Total Credits**	**Total Nor of Classes**
CS-101	Computer Architecture & Microprocessor	3	1	4	40hrs
CS-102	Programming in C++	3	1	4	40hrs
CS-103	Design Analysis of Algorithm	3	1	4	40hrs
CS-104	Distributed Database Concepts	3	1	4	
CS-105	Elective-I 1. Web Technology with PHP & MySQL 2. JAVA Technology 3. Principles of Programming Language	3	1	4	40hrs
CS-106	Lab-1 (Programming in C++)	1	1	2	60hrs
CS-107	Lab-2 (Computer Architecture)	1	1	2	60hrs
CS-108	Seminar	0	1	1	40hrs
Total Credits		**17**	**8**	**25**	

Semester-II					
course code	**Title of the paper**	**External credit**	**Internal credit**	**Total Credits**	**Total Nor of Classes**
CS-201	Advance Networking Concepts	3	1	4	40hrs
CS-202	Mobile Computing	3	1	4	40hrs
CS-203	C#.NET	3	1	4	40hrs
CS-204	Compiler Design	3	1	4	40hrs
CS-205	Elective-II 1. Discrete Event System simulation 2. Distributed Computing 3. Network Programming	3	1	4	40hrs
CS-206	Lab-3(Advance N/W Concepts)	2	1	4	60hrs
CS-207	Lab-4(C#.NET)	2	1	4	60hrs
CS-208	Seminar	1	0	1	40hrs
Total Credits		**18**	**7**	**25**	

M.Sc. (CS) Second Year (Two Semesters)

Semester-III					
course code	**Title of the paper**	**External credit**	**Internal credit**	**Total Credits**	**Total Nor of Classes**
CS-301	Advance Database Administration	3	1	4	40hrs
CS-302	Java Server Pages, Servlets & Struts	3	1	4	40hrs
CS-303	Data Mining and Data Warehousing	3	1	4	40hrs
CS-304	Digital Image Processing Using MATLAB	3	1	4	
CS-305	Elective-III 1. Advanced Operating System 2. Mobile Programming 3. Research Methodology	3	1	4	40hrs
CS-306	Computer laboratory 1 (Adv Database Admin + D.I.P)	1	1	2	60hrs
CS-307	Computer laboratory 2 (JSP & Servlet + DM & DW	1	1	2	60hrs
CS-108	Seminar	0	1	1	40hrs
Total Credits		**17**	**8**	**25**	

Semester-IV					
course code	**Title of the paper**	**External credit**	**Internal credit**	**Total Credits**	**Total Nor of Classes**
CS-401	Fuzzy System and ANN	3	1	4	40hrs
CS-402	Linux Administration	3	1	4	40hrs
CS-403	Elective : 1. Embedded system Design through C & C++ 2. Artificial Intelligence 3. Introduction to Bioinformatics	3	1	4	40hrs
CS-404	Cloud Computing	3	1	4	40hrs
CS-405	Project	3	1	4	40hrs
CS-405	Computer Laboratory 3 (FS&ANN) +Linux	3	1	4	40hrs
CS-407	Computer Laboratory 4 (Elective)	2	1	4	60hrs
CS-408	Open Elective	0	1	1	40hrs
Total Credits		**18**	**7**	**25**	

Semester-I					
course code	Title of the paper	External Credits	Internal Credits	Total Credits	Total No of Classes
SE-101	Programming with C++	3	1	4	40hrs
SE-102	PHP And MySQL	3	1	4	40hrs
SE-103	Linux Operating Sytem & Administration	3	1	4	40hrs
SE-104	Client Server Technology	3	1	4	40hrs
SE-105	Lab-1 (C++ + PHP)	1	1	2	60hrs
SE-106	Lab-2 (Linux + CST)	1	1	2	60hrs
Total Credits		**14**	**6**	**20**	280hrs

Semester-II					
course code	Title of the paper	External Credits	Internal Credits	Total Credits	Total No of Classes
SE-201	Visual Basic.NET	3	1	4	40hrs
SE-202	Windows Programming Using VC++	3	1	4	40hrs
SE-203	Software Engineering	3	1	4	
SE-204	Data Structures using C++	3	1	4	40hrs
SE-205	**Elective-II** 1.Computer System Security 2.Network Security 3. Network Programming	3	1	4	40hrs
SE-206	Lab-3(VB.Net+VC++)	1	1	2	60hrs
SE-207	Lab-4(DS)	1	1	2	60hrs
SE-208	Seminar	1	0	1	40hrs
Total Credits		**18**	**7**	**25**	360hrs

M.Sc. (SE) Second Year (Two Semesters)

Semester-III					
Course Code	**Title of the paper**	**External Credit**	**Internal Credit**	**Total Credits**	**Total No of Classes**
SE-301	Advanced Java Programming	3	1	4	40hrs
SE-302	Advanced Database Administration	3	1	4	40hrs
SE-303	Distributed Operating System	3	1	4	40hrs
SE-304	Fuzzy System and Artificial Neural Network	3	1	4	
SE-305	Elective-III 1. Advanced operating System 2. Mobile Programming 3. Research Methodology	3	1	4	40hrs
SE-306	Lab-1 (Java + DBA)	1	1	2	40hrs
SE-307	Lab-2 (FS & ANN + Mini Project)	1	1	2	80hrs
SE-308	Seminar	1	0	1	01hrs
Total Credits		**17**	**8**	**25**	

Semester-IV					
Course Code	**Title of the paper**	**External Credit**	**Internal Credit**	**Total Credits**	**Total No of Classes**
SE-401	Data Mining	3	1	4	40hrs
SE-402	Digital Image Processing	3	1	4	40hrs
SE-403	ASP.NET Through C#.NET	3	1	4	
SE-404	Elective-IV 1. Bioinformatics 2. Mobile Communications 3. Structured Systems Analysis & Design	3	1	4	40hrs
SE-405	Project	3	1	4	
SE-406	Lab-1(DIP)	1	1	2	80hrs
SE-407	Lab-4(ASP.NET)	1	1	2	40hrs
SE-408	Open Elective	0	1	1	01hrs
Total Credits		**18**	**7**	**25**	

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,
NANDED [M.S.]
Choice Based Credit System (**CBCS Pattern**)
Faculty of Science and Technology
Syllabus of BCA SECOND YEAR
Under-Graduate (UG) Programs

Semester	Subject Code	Course Name	Credit		Total Credits
			Internal	External	
Semester – III	S3.AEC.1	1. **Logical Reasoning**	1	3	4
	S3.CC.2	2. Object Oriented Programming using C++	1	3	4
	S3.CC.3	3. Data Structure	1	3	4
	S3.CC.4	4. System Analysis and Design	1	3	4
	S3.CC.5	5. **Elective** 1) Multimedia and Applications 2) Data Communications 3) E-Commerce Technologies & Cyber Security	1	3	4
	S3.Lab 1	6. Lab Course – 1 (OOC)	-	2	2
	S3.Lab 2	7. Lab Course – 2 (Data Structure)	-	2	2
	S3.Lab 3	8. Lab Course – 3 (Elective)		**2**	**2**
	S3.SEC.1	9. 1. Desktop Publishing I 2. Web Development and PHP Programming 3. PC Installation.		**2**	**2**
		TOTAL			**28**
Semester – IV	S4. AEC.1	1) Numerical Aptitude	1	3	4
	S4.CC.2	2) Java Programming	1	3	4
	S4.CC.3	3) Relational Database Management System	1	3	4
	S5.CC.4	4) Operating System	1	3	4
	S5.CC.4	5) **Elective** 1) Computer Graphics. 2) Computer Architecture and Microprocessor 3) **Event Driven Programming**	1	3	4
	S4.Lab 1	6) Lab Course – 1 (Java Programming)	-	2	2
	S4.Lab 2	7) Lab Course – 2 (RDBMS)	-	2	2
	S4.Lab 3	8) Lab Course – 3 (Elective)		2	2
	S4.SEC-1	9) 1. Desktop Publishing II 2. XML Programming 3. System Administration and Maintenance		2	2
		TOTAL			**28**

Note: S3➔Semester 3, S4➔ Semester 4, **AEC➔ Ability Enhancement Course, CC➔ Core Course, SEC➔ Skill Enhancement Course**

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,

NANDED [M.S.]

Choice Based Credit System

(CBCS Pattern)

Faculty of Computer Studies

Syllabus of Bachelor of Computer Applications (B.C.A)

Effective from Academic Year (2016-2017)

Under Graduate (UG) Program

Semester	Subject Code	Course Name	Credit		Total Credits
			Internal	External	
Semester – I	S1.1	1. Basics of Computer System	1	3	4
	S1.2	2. Communication and Soft Skills – I	1	3	4
	S1.3	3. Database Management System	1	3	4
	S1.4	4. Web Technology	1	3	4
	S1.Lab 1	5. Lab Course – 1 (DOS, Windows & Linux OS)	-	2	2
	S1.Lab 2	6. Lab Course – 2 (Web Technology)	-	2	2
		TOTAL			**20**
Semester – II	S2.1	1. Fundamental of Digital Logic	1	3	4
	S2.2	2. Programming in C	1	3	4
	S2.3	3. Statistical Techniques in Computer Science	1	3	4
	S2.4	4. Communication and Soft Skills – II	1	3	4
	S2.Lab 1	5. Lab Course – 3 (Programming in C)	-	2	2
	S2.Lab 2	6. Lab Course – 4(Office Automation)	-	2	2
		TOTAL			**20**

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED [M.S.]

Choice Based Credit System (CBCS Pattern)

Faculty of Computer Studies

Syllabus of Bachelor of Computer Application (BCA) Third Year

Effective from Academic Year (2018-2019)

Under Graduate (UG) Program

Semester	Subject Code	Course Name	Credit		Total Credits
			Internal	External	
Semester – V	S5.CC.1	Windows Programming with C#.NET	1	3	4
	S5.CC.2	Advance Java	1	3	4
	S5.CC.3	Linux and Shell Programming	1	3	4
	S5.CC.4	Project	1	3	4
	S5.CC.5	Elective: 1. Cloud Computing 2. Distributed Computing 3. Digital Image Processing	1	3	4
	S5.SEC.1	Skills Enhancement Course (SEC) 1. Java script 2. MySQL 3. Accounting with Tally		2	2
	S5.Lab 1	Advance Java		2	2
	S5.Lab 2	Linux and Shell Programming		2	2
	S5.Lab 3	C#.NET		2	2
		Environmental Studies			
		TOTAL			**28**
Semester – VI	S6.CC.1	Adv. Networking Concept	1	3	4
	S6.CC.2	Software Engineering	1	3	4
	S6.CC.3	Linux Administration	1	3	4
	S6.CC.4	Software Testing	1	3	4
	S6.CC.5	Elective: 1. Mobile Communication 2. Data Mining and Data warehousing 3. Enterprise Resource Planning (ERP)	1	3	4
	S6.SEC.1	Skill Enhancement Course (SEC) 1. SQL Server 2. Macromedia Flash 3. Android Programming		2	2
	S6.Lab 1	Linux Administration		2	2
	S6.Lab 2	Software Testing		2	2
	S6.Lab 3	Seminar		2	2
		TOTAL			**28**

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,

NANDED [M.S.]

Choice Based Credit System

(CBCS Pattern)

Faculty of Computer Studies

Syllabus of B.Sc. Computer Science F. Y.

Effective from Academic Year (2016-2017)

Under Graduate (UG) Program

Semester	Subject Code	Course Name	Credit		Total Credits
			Internal	External	
Semester – I	S1.1	1. Basics of Computer System	1	3	4
	S1.2	2. Communication and Soft Skills – I	1	3	4
	S1.3	3. Fundamental of Digital Logic	1	3	4
	S1.4	4 Statistical Techniques in Computer Science	1	3	4
	S1.Lab 1	5. Lab Course – 1 (DOS, Windows & Linux OS)	-	2	2
	S1.Lab 2	6. Lab Course – 2 (Office Automation)	-	2	2
		TOTAL			**20**
Semester – II	S2.1	1. Database Management System	1	3	4
	S2.2	2. Programming in C	1	3	4
	S2.3	3. Web Technology	1	3	4
	S2.4	4. Communication and Soft Skills – II	1	3	4
	S2.Lab 1	5. Lab Course – 3 (Programming in C)	-	2	2
	S2.Lab 2	6. Lab Course – 4 (Web Technology)	-	2	2
		TOTAL			**20**

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED [M.S.]

Choice Based Credit System
(CBCS Pattern)
Faculty of Science and Technology
Syllabus of B.Sc. Computer Science S.Y.
Effective from Academic Year (2017-2018)
Under Graduate (UG) Program

Semester	Subject Code	Course Name	Credit				Total	
			Internal	Marks	External	Marks	Credits	Marks
Semester – III	S3.1(AEC)	Numerical Aptitude	1	25	3	75	4	100
	S3.2(CC)	Data Structure	1	25	3	75	4	100
	S3.3(CC)	Object Oriented Concepts Using C++	1	25	3	75	4	100
	S3.4(CC)	Data Communication	1	25	3	75	4	100
	S3.5(DSE)	Elective:	1	25	3	75	4	100
		Programming Language Concept						
		Multimedia						
		8085 Programming						
	S3.6(SEC1)	Sci Lab 1	1	25	1	25	2	50
		Web Development						
		PC Installation						
	S3.Lab1	Data Structure Using C			2	50	2	50
	S3.Lab2	Object Oriented Concepts Using C++			2	50	2	50
	S3.Lab3	Elective:			2	50	2	50
		TOTAL	**6**	**150**	**22**	**550**	**28**	**700**

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED [M.S.]

Choice Based Credit System (CBCS Pattern)

Faculty of Computer Studies

Syllabus of B.Sc. Computer Science Third Year

Effective from Academic Year (2018-2019)

Under Graduate (UG) Program

Semester	Subject Code	Course Name	Credit		Total Credits
			Internal	External	
Semester – V	S5.CC.1	Windows Programming with C#.NET	1	3	4
	S5.CC.2	Python Programming	1	3	4
	S5.CC.3	JSP and Servlet	1	3	4
	S5.CC.4	Project	1	3	4
	S5.CC.5	Elective: Operating System Mobile Communication Distributed Computing	1	3	4
	S5.SEC.1	Skills Enhancement Course (SEC) Java script Linux and Shell Programming R Lang.		2	2
	S5.Lab 1	C#.NET		2	2
	S5.Lab 2	Python		2	2
	S5.Lab 3	JSP Servlet		2	2
		Environmental Studies			
		TOTAL			28
Semester – VI	S6.CC.1	Cloud Computing	1	3	4
	S6.CC.2	Android Programming	1	3	4
	S6.CC.3	Digital Image Processing	1	3	4
	S6.CC.4	Software Engineering	1	3	4
	S6.CC.5	Elective: Software Testing Data Mining and Data warehousing Cyber Security	1	3	4
	S6.SEC.1	Skill Enhancement Course (SEC) XML Programming SQL Server MySQL		2	2
	S6.Lab1	Android		2	2
	S6.Lab2	DIP		2	2
	S6.Lab3	Seminar		2	2
		TOTAL			28

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,

NANDED [M.S.]

Choice Based Credit System

(CBCS Pattern)

Faculty of Computer Studies

Syllabus of B.Sc. Software Engineering F. Y.

Effective from Academic Year (2016-2017)

Under Graduate (UG) Program

Semester	Subject Code	Course Name	Credit		Total Credits
			Internal	External	
Semester – I	S1.1	1. Basics of Computer System	1	3	4
	S1.2	2. Communication and Soft Skills – I	1	3	4
	S1.3	3. Fundamental of Digital Logic	1	3	4
	S1.4	4. Statistical Techniques in Computer Science	1	3	4
	S1.Lab 1	5. Lab Course – 1 (DOS, Windows & Linux OS)	-	2	2
	S1.Lab 2	6. Lab Course – 2 (Office Automation)	-	2	2
		TOTAL			**20**
Semester – II	S2.1	1. Database Management System	1	3	4
	S2.2	2. Programming in C	1	3	4
	S2.3	3. Web Technology	1	3	4
	S2.4	4. Communication and Soft Skills – II	1	3	4
	S2.Lab 1	5. Lab Course – 3 (Programming in C)	-	2	2
	S2.Lab 2	6. Lab Course – 4 (Web Technology)	-	2	2
		TOTAL			**20**

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,

NANDED [M.S.]

Choice Based Credit System

(CBCS Pattern)

Faculty of Science and Technology

Syllabus of B.Sc. Software Engineering S. Y.

Effective from Academic Year (2016-2017)

Under Graduate (UG) Program

Semester	Subject Code	Course Name	Credit		Total Credits
			Internal	External	
Semester – III	S3.AEC.1	1. Language Aptitude	1	3	4
	S3.CC.2	2. Object Oriented Concepts	1	3	4
	S3.CC.3	3. Data Communications.	1	3	4
	S3.CC.4	4. Data Structure	1	3	4
	S3.CC.5	5. **Elective** 1) Computer Algorithms 2) Theory of Computation 3) Internet Technologies with PHP Programming	1	3	4
	S3.Lab 1	6. Lab Course – 1 (OOC)	-	2	2
	S3.Lab 2	7. Lab Course – 2 (Data Structure)	-	2	2
	S3.Lab 3	8. Lab Course – 3 (Elective)		**2**	**2**
	S3.SEC.1	9. 1. Programming in SCILAB 2. PC Installation 3. Office Automation Tools			
		TOTAL			**26**
Semester – IV	S4.CC.1	1) Logical Reasoning	1	3	4
	S4.CC.2	2) Operating System	1	3	4
	S4.CC.3	3) Java Programming	1	3	4
	S4.CC.4	4) Relational Database Management System	1	3	4
	S4.CC.5	5) **Elective** 1) Computer Graphics 2) Compiler Designing 3) Computer Architecture and Microprocessor	1	3	4
	S4.Lab 1	6) Lab Course – 1 (Java Programming)		2	2

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

[M.S.]

Choice Based Credit System

(CBCS Pattern)

Faculty of Computer Studies

Syllabus of B.Sc. Software Engineering Third Year

Effective from Academic Year (2018-2019)

Under Graduate (UG) Program

Semester	Subject Code	Course Name	Credit		Total Credits
			Internal	External	
Semester – V	S5.CC.1	Software Engineering	1	3	4
	S5.CC.2	Digital Image Processing	1	3	4
	S5.CC.3	JSP and Servlet	1	3	4
	S5.CC.4	Project	1	3	4
	S5.CC.5	Elective: 1. Cloud Computing 2. Distributed Computing 3. Data Mining and Data warehousing	1	3	4
	S5.SEC.1	Skills Enhancement Course (SEC) 1. Java script 2. SQL Server 3. DTP		2	2
	S5.Lab 1	DIP		2	2
	S5.Lab 2	JSP and Servlet		2	2
	S5.Lab 3	Seminar		2	2
		Environmental Studies			
		TOTAL			28
Semester – VI	S6.CC.1	Software Testing and Quality Assurance	1	3	4
	S6.CC.2	Python Programming	1	3	4
	S6.CC.3	Linux and Shell Programming	1	3	4
	S6.CC.4	Window Programming with C#.NET	1	3	4
	S6.CC.5	Elective: 1. ANN and FS 2. ERP 3. Cyber Security	1	3	4
	S6.SEC.1	Skill Enhancement Course (SEC) 1. Android Programming 2. R Lang. 3. Macromedia Flash		2	2
	S6.Lab1	Python		2	2
	S6.Lab2	Linux		2	2
	S6.Lab3	C#.NET		2	2
		TOTAL			28

Swami Ramanand Teerth Marathwada University, Nanded

Syllabus B.Sc. Biotechnology

CBCS (Choice Based Credit system) Pattern- June-2016

B. Sc. Biotechnology First Year (First Semester)

Course Code No.	Course Title	Periods/ Week	Total Period	Internal	External	Total Marks	Credits
AECCBT-1A	English and Science Communication Skills-I	3	45	10	40	50	2
CCBT-2A	Introduction to Biotechnology	3	45	35	40	75	3
CCBT-3A	Basics of Biosciences	3	45	35	40	75	3
CCBT-4A	Microbiology-I	3	45	35	40	75	3
CCBT-5A	Fundamentals of Chemistry	3	45	35	40	75	3
CCBTP-1A	Practical Based on CCBT-2A & 3A	03+03	20	20	80	100	4
CCBTP-2A	Practical Based on CCBT-4A & 5A	03+03	20	20	80	100	4
					Total	**550**	**22**

B. Sc. Biotechnology First Year (Second Semester)

Course Code No.	Course Title	Periods/ Week	Total Period	Internal	External	Total Marks	Credits
AECCBT-1B	English and Science Communication Skills-II	3	45	10	40	50	2
CCBT-2B	Principles of Genetics	3	45	35	40	75	3
CCBT-3B	Bioinstrumentation techniques	3	45	35	40	75	3
CCBT-4B	Microbiology-II	3	45	35	40	75	3
CCBT-5B	Biomolecules	3	45	35	40	75	3
CCBTP-1B	Practical Based on CCBT-2B & 3B	03+03	20	20	80	100	4
CCBTP-2B	Practical Based on CCBT-4B & 5B	03+03	20	20	80	100	4
					Total	**550**	**22**

Swami Ramanand Teerth Marathwada University, Nanded
Syllabus B. Sc. Biotechnology
Choice Based Credit system (CBCS Pattern)
(With effect from June-2017)

B. Sc. Biotechnology Second Year (Third Semester)

Course Code No.	Course Title	Periods/ Week	Total Period	CA	ESE	Total Marks	Credits
AECCBT1C	English and Science Communication Skills- III	03	35	10	40	50	2
CCBT-2C	Metabolism-I	04	45	35	40	75	3
CCBT-3C	Cytology	04	45	35	40	75	3
CCBT-4C	Molecular Biology	04	45	35	40	75	3
CCCBT-5C	Mathematics, Biostatistics and Computers	04	45	35	40	75	3
CCBTP- 1C	Practical Based on CCBT-2C+3C	03+03	20	20	80	100	4
CCBTP-2C	Practical Based on CCBT-4C +5C	03+03	20	20	80	100	4
SECBT-I	Skill Enhancement course (Any one of SECBT-IA / IB) IA-Advanced Microbiological Techniques IB- Algal Culture Technology	01+02	-	25	25	50	2
					Total	600	24

B. Sc. Biotechnology Second Year (Fourth Semester)

Code No.	Paper Title	Periods/ Week	Total Period	CA	ESE	Total Marks	Credits
AECCBT-1D	English and Science Communication Skills- IV	03	35	10	40	50	2
CCBT-2D	Metabolism-II	04	45	35	40	75	3
CCBT-3D	Applied & Medical Microbiology	04	45	35	40	75	3
CCBT-4D	Immunology and Virology	04	45	35	40	75	3
CCCBT-5D	Plant and Animal Cell Culture	04	45	35	40	75	3
CCBTP- 1D	Lab Course VII Practical Based on (CCBT 2D +3D)	03+03	20	20	80	100	4
CCBTP-2D	Lab Course VIII Practical Based on (CCBT 4D+5D)	03+03	20	20	80	100	4
SECBT-II	Skill Enhancement course (Any one of SECBT-IIA / IIB) IIA-Diagnostic Biology IIB-Enzyme Technology	01+02	-	25	25	50	2
					Total	600	24

Swami RamanandTeerthMarathwada University, Nanded

Choice Base Credit System (CBCS) Course Structure

Faculty of Science

B.Sc. Third Year

Fifth Semester Biotechnology Syllabus

Effective From June 2018

Core Course /Code No.	CourseTitle	Instruction Hrs/Week	Total Period	Credits
DSEBT- 1E	Environmental Studies	03	45	***
DSEBT-2E	r-DNA Technology	03	45	3
DSEBT-3E	Animal and Plant Development	03	45	3
DSEBT-4E	Bioprocess Engineering	03	45	3
DSEBT-5E	Agriculture Biotechnology	03	45	3
DSEBTP-1E	Practicals based on DSEBT -2E & 3E	03+03	20	4
DESBTP-2E	Practicals based on DSEBT -4E& 5E	03+03	20	4
DESBTP-3E	Industrial training / Industrial Visit	....	....	2
SEC-III	**Skill enhanced Course-3 III A) Mushroom Cultivation Technology III B) Techniques in Plant Tissue Culture (Micropopagation)	02	10	2
Total Credits				24

Swami RamanandTeerthMarathwada University, Nanded

Choice Base Credit System (CBCS) Course Structure

Faculty of Science

B.Sc. Third Year

Sixth Semester Biotechnology Syllabus

Effective From June 2016

Core Course /Code No.	Course Title	Instruction Hrs/Week	Total Period	Credits
DSEBT-1F	Pharmaceutical Biotechnology	03	45	3
DSEBT-2F	Industrial Biotechnology	03	45	3
DSEBT-3FA	Environmental Biotechnology	03	45	3
DSEBT-4FA DSEBT-4FB DSEBT-4FC DSEBT-4FD DSEBT-4FE	*Herbal Drugs Development * Food Biotechnology *Advanced Bioinformatics *fundamentals of Nanobiotechnology *Medical Biotechnology	03	45	3
DSEBTP-1F	Practicals based on DSEBT-1F & 2F	03+03	20	4
DSEBTP-2F	Practicals based on DSEBT - 3F&4F(A or B or C or D or E)	03+03	20	4
DSEBTP-3F	Dissertation Project Work	02	45	2
SEC-IV	**Skill enhanced Course-4 IV A) Biofertilizers and Biopesticides. IV B) Fermentation Technology	02	10	2
Total Credits				24
TotalCredits of B.Sc. I, II & III Year	Total Marks of B.Sc. Biotechnology Degree (Three years course with dissertation CBCS Pattern)			44+ 48+ 48= 140

M. Sc. Biotechnology Second Year (Third Semester)

Paper No.	Paper Title	External (ESE)	Internal (CA)	Total
BT -XI	Genetic Engineering	75 Marks	25 Marks (2Test: 15 Marks + Assignments:10 Marks)	Credit :4 (100 Marks)
BT -XII	Industrial Biotechnology	75 Marks	25 Marks (2Test: 15 Marks + Assignments:10 Marks)	Credit :4 (100 Marks)
BT -XIII	Animal Biotechnology	75 Marks	25 Marks (2Test: 15 Marks + Assignments:10 Marks)	Credit :4 (100 Marks)
* BT -XIV (Elective)	Plant & Agriculture Biotechnology	75 Marks	25 Marks (2Test: 15 Marks + Assignments:10 Marks)	Credit :4 (100 Marks)
BT- XV	Seminar	25 Marks		Credit:1
			Total for Sem.: III	**Credit:17**

M. Sc. Biotechnology Second Year (Fourth Semester)

Paper No.	Paper Title	External (ESE)	Internal (CA)	Total
BT -XVI	Computational Biology & Biostatistics	75 Marks	25 Marks (2Test: 15 Marks + Assignments:10 Marks)	Credit :4 (100 Marks)
BT -XVII	Pharmaceutical Biotechnology	75 Marks	25 Marks (2Test: 15 Marks + Assignments:10 Marks)	Credit :4 (100 Marks)
BT -XVIII	Environmental Biotechnology	75 Marks	25 Marks (2Test: 15 Marks + Assignments:10 Marks)	Credit :4 (100 Marks)
* BT -XIV (Elective)	Applied Biotechnology	75 Marks	25 Marks (2Test: 15 Marks + Assignments:10 Marks)	Credit :4 (100 Marks)
BT- XX	Seminar	25 Marks		Credit:1
			Total for Semester IV	**Credit:17**

Lab Course Work (Annual Practical)	Lab Course Work- V	75 Marks	25 Marks	Credit :4 (100 Marks)
	Lab Course Work- VI	75 Marks	25 Marks	Credit :4 (100 Marks)
	Lab Course Work-VII	75 Marks	25 Marks	Credit :4 (100 Marks)
	Lab Course Project Work-VIII (Dissertation/ Elective Lab Course Work)	75 Marks	25 Marks	Credit :4 (100 Marks)
	Total for Lab Course Work (Annual)			**Credit: 16**
	Total for M.Sc. II Year: Sem. III +Sem. IV + Lab Course Work (Annual)			**Credit:50**
	Total For M.Sc. (I Year + II Year)			**Credit:100**

Note: *Paper IV (Elective): Transfer of Credit as per Students Choice
** The Evaluation of Seminar should be from Panel of Experts

Swami Ramanand Teerth Marathwada University, Nanded

Syllabus M.Sc. Biotechnology (Revised)

Choice Base Credit System (CBCS) (June - 2014)

M. Sc. Biotechnology First Year (First Semester)

Paper No.	Paper Title	External (ESE)	Internal (CA)	Total
BT-I	Cell and Developmental Biology	75 Marks	25 Marks (2Test: 15 Marks + Assignments: 10 Marks)	Credit :4 (100 Marks)
BT-II	Microbiology & Virology	75 Marks	25 Marks (2Test: 15 Marks + Assignments: 10 Marks)	Credit :4 (100 Marks)
BT-III	Biochemistry	75 Marks	25 Marks (2Test: 15 Marks + Assignments: 10 Marks)	Credit :4 (100 Marks)
*BT-IV (Elective)	Techniques in Biology	75 Marks	25 Marks (2Test: 15 Marks + Assignments: 10 Marks)	Credit :4 (100 Marks)
BT-V	Seminar	25 Marks		Credit: 1
			Total for Sem.: I	**Credit: 17**

M. Sc. Biotechnology First Year (Second Semester)

Paper No.	Paper Title	External (ESE)	Internal (CA)	Total
BT -VI	Molecular Genetics	75 Marks	25 Marks (2Test: 15 Marks + Assignments: 10 Marks)	Credit :4 (100 Marks)
BT -VII	Immunotechnology	75 Marks	25 Marks (2Test: 15 Marks + Assignments: 10 Marks)	Credit :4 (100 Marks)
BT -VIII	System Physiology	75 Marks	25 Marks (2Test: 15 Marks + Assignments: 10 Marks)	Credit :4 (100 Marks)
* BT -IX (Elective)	Process Biotechnology	75 Marks	25 Marks (2Test: 15 Marks + Assignments: 10 Marks)	Credit :4 (100 Marks)
BT -X	Seminar	25 Marks		Credit: 1
			Total for Sem.: II	**Credit: 17**

Lab Course Work (Annual Practical)	Lab Course Work-I	75 Marks	25 Marks	Credit :4 (100 Marks)
	Lab Course Work- II	75 Marks	25 Marks	Credit :4 (100 Marks)
	Lab Course Work- III	75 Marks	25 Marks	Credit :4 (100 Marks)
	Lab Course Work-IV	75 Marks	25 Marks	Credit :4 (100 Marks)
			Total for Lab Course Work (Annual)	**Credit: 16**
	Total for M.Sc. I Year: Sem. I+ Sem. II +Lab Course Work (Annual)			**Credit: 50**