

**SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,  
NANDED**



स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड.

**Post Graduate Course in Pharmacy (M. Pharmacy)**

**Credit System (Semester Pattern)  
Choice Based Credit System (CBCS)**

*to*

**Affiliated Colleges**

**Academic Regulations and Guidelines  
*for*  
Teaching & Examination Scheme**

***w.e.f.: 2014-2015***



**Swami Ramanand Teerth Marathwada University, Vishnupuri, Nanded**  
**Post Graduate Course in Pharmacy (M. Pharmacy)**  
**Credit System (Semester Pattern) (Choice Based Credit System)**  
**Effective from October 2014**  
**Teaching Scheme**

**Specialization: Pharmacology**

**Semester-I**

Course Code	Subject Title	Contact Hours/Week				Credits
		L	T	P	Total	
PHC-101	Advanced Analytical Techniques	03	01	-	04	04
PCY-101	Molecular Pharmacology	03	01	-	04	04
PHE	Elective-1	03	01	-	04	04
PHE	Elective-2	03	01	-	04	04
PHC-102	Lab-I: Analytical Techniques	-	-	06	06	03
PHC-103	Seminar	One seminar/student				03
<b>Total</b>		<b>12</b>	<b>04</b>	<b>06</b>	<b>20</b>	<b>22</b>

**Semester-II**

Course Code	Subject Title	Contact Hours/Week				Credits
		L	T	P	Total	
PCY-102	Clinical Pharmacology and Toxicology	03	01	-	04	04
PCY-103	Pharmacological Screening Methods	03	01	-	04	04
PHE	Elective-1	03	01	-	04	04
PHE	Elective-2	03	01	-	04	04
PCY-104	Lab-II : Pharmacology (General Laboratory in an area of specialization)	-	-	06	06	03
PHC-104	Seminar	One seminar/student				03
<b>Total</b>		<b>12</b>	<b>04</b>	<b>06</b>	<b>20</b>	<b>22</b>

**Semester-III**

PCY-105	Synopsis and Presentation:	06 Credits
PCY-106	Experimental /Research Work	20 Credits
PCY-107	End term progress and Presentation of Work:	<u>04 Credits</u>
<b>Total:</b>		<b>30 Credits</b>

**Semester-IV**

PCY-108	Experimental /Research Work & Midterm presentation	18 Credits
PCY-109	Dissertation & Defense (Viva-Voce)	<u>08 Credits</u>
<b>Total:</b>		<b>26 Credits</b>



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**Teaching Scheme**

**Specialization: Quality Assurance/Quality Assurance Techniques**

**Semester-I**

Course Code	Subject Title	Contact Hours/Week				Credits
		L	T	P	Total	
PHC-101	Advanced Analytical Techniques	03	01	-	04	04
PQA-101	Quality and its Concepts	03	01	-	04	04
PHE	Elective-1	03	01	-	04	04
PHE	Elective-2	03	01	-	04	04
PHC-102	Lab-I: Analytical Techniques	-	-	06	06	03
PHC-103	Seminar	One seminar/student				03
<b>Total</b>		<b>12</b>	<b>04</b>	<b>06</b>	<b>20</b>	<b>22</b>

**Semester-II**

Course Code	Subject Title	Contact Hours/Week				Credits
		L	T	P	Total	
PQA-102	Pharmaceutical Process Validation	03	01	-	04	04
PQA-103	Method Development and Validation	03	01	-	04	04
PHE	Elective-1	03	01	-	04	04
PHE	Elective-2	03	01	-	04	04
PQA-104	Lab-II : Quality Assurance (General Laboratory in an area of specialization)	-	-	06	06	03
PHC-104	Seminar	One seminar/student				03
<b>Total</b>		<b>12</b>	<b>04</b>	<b>06</b>	<b>06</b>	<b>22</b>

**Semester-III**

PQA-105	Synopsis and Presentation:	06 Credits
PQA-106	Experimental /Research Work	20 Credits
PQA-107	End term progress and Presentation of Work:	04 Credits
<b>Total:</b>		<b>30 Credits</b>

**Semester-IV**

PQA-108	Experimental /Research Work & Midterm presentation	18 Credits
PQA-109	Dissertation & Defense (Viva-Voce)	08 Credits
<b>Total:</b>		<b>26 Credits</b>



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**Teaching Scheme**

**Specialization: Pharmaceutics**

**Semester-I**

Course Code	Subject Title	Contact Hours/Week				Credits
		L	T	P	Total	
PHC-101	Advanced Analytical Techniques	03	01	-	04	04
PPH-101	Advances in Dosage Form Design	03	01	-	04	04
PHE	Elective-1	03	01	-	04	04
PHE	Elective-2	03	01	-	04	04
PHC-102	Lab-I: Analytical Techniques	-	-	06	06	03
PHC-103	Seminar	One seminar/student				03
<b>Total</b>		<b>12</b>	<b>04</b>	<b>06</b>	<b>20</b>	<b>22</b>

**Semester-II**

Course Code	Subject Title	Contact Hours/Week				Credits
		L	T	P	Total	
PPH-102	Pharmaceutical Production Technology	03	01	-	04	04
PPH-103	Advances in Drug Delivery System	03	01	-	04	04
PHE	Elective-1	03	01	-	04	04
PHE	Elective-2	03	01	-	04	04
PPH-104	Lab-II : Pharmaceutics (General Laboratory in an area of specialization)	-	-	06	06	03
PHC-104	Seminar	One seminar/student				03
<b>Total</b>		<b>12</b>	<b>04</b>	<b>06</b>	<b>06</b>	<b>22</b>

**Semester-III**

PPH-105	Synopsis and Presentation:	06 Credits
PPH-106	Experimental /Research Work	20 Credits
PPH-107	End term progress and Presentation of Work:	<u>04 Credits</u>
<b>Total:</b>		<b>30 Credits</b>

**Semester-IV**

PPH-108	Experimental /Research Work & Midterm presentation	18 Credits
PPH-109	Dissertation & Defense (Viva-Voce)	<u>08 Credits</u>
<b>Total:</b>		<b>26 Credits</b>



**Swami Ramanand Teerth Marathwada University, Vishnupuri, Nanded**  
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**Effective from October 2014**  
**List of Elective Courses/Subjects**

**Semester-I**

PHE-101: Research Methodology & Biostatistics  
PHE-102: Regulatory Affairs & IPR  
PHE-103: Pharmacoepidemiology & Pharmacovigilance  
PHE-104: Drug Metabolites  
PHE-105: Pharmacoinformatics

**Semester-II**

PHE-106: Applied Biopharmaceutics and Pharmacokinetics  
PHE-107: Pharmaceutical Biotechnology  
PHE-108: Pharmaceuticals Stability Studies  
PHE-109: Quality Assurance Approach and Improvement  
PHE-110: Clinical Pharmacokinetics  
PHE-111: Pharmacological Aspects of Natural Products  
PHE-112: Drug Design  
PHE-113: Sterile Products Formulation & Technology  
PHE-114: Biomaterials for Drug Delivery  
PHE-115: Nano Drug Delivery Systems  
PHE-116: Polymers in Pharmaceutics  
PHE-117: Phytochemistry

**I & II Semester:**

Full marks for each Theory Course:	100 (50 ESE + 50 CA)
Full marks for each Lab Course:	100 (50 ESE + 50 CA)
Full marks for each Seminar:	50 (50 Internal)

**IIIrd Semester:**

Full marks for Synopsis and Presentation:	50 (100 Internal)
Full marks for Experimental /Research Work	100 (100 Internal)
Full marks for End term progress and Presentation of Work:	50 (100 Internal)

**IVth Semester:**

Full marks for Experimental /Research Work & Midterm presentation	100 (100 Internal)
Full marks for Dissertation & Defense (Viva-Voce)	300 (300 ESE)

## Preamble

SRTMUN is gearing up for several initiatives towards academic excellence, quality improvement and administrative reforms. In view of this priority and in-keeping with Vision and Mission; process was already initiated towards introduction of semester system, grading system and credit system. University is going one step ahead to implement Choice Based Credit System (CBCS) to affiliated colleges from academic year 2014-15 including for PG Courses (M. Pharmacy) under Faculty of Pharmaceutical Sciences & Technology.

## Title

These academic guidelines & regulations shall be called “Choice Based Course Credit Semester System & Grading, 2014” applicable to PG Course of Pharmacy (M. Pharmacy) to affiliated colleges.

## SCOPE, APPLICATION & COMMENCEMENT

The academic guidelines & regulations provided herein shall apply to all specialization subjects as Pharmaceutics, Pharmacology, Quality Assurance, Pharmaceutical Chemistry, and Pharmacognosy, etc., of PG Course of Pharmacy (M. Pharmacy) to affiliated colleges. These regulations include definitions of key terms, critical concepts, mechanics of calculations, committees and the evaluation system. These regulations shall come into force with effect from the admissions commencing from 2014-2015. Provisions under these academic guidelines & regulations hereby supersede all the existing academic guidelines & regulations for the regular PG Course in Pharmacy of affiliated colleges to the extent prescribed herein.

## DEFINITIONS:

- a) **Choice-Based Credit System (CBCS):** CBCS is a flexible system of learning that permits students to,
  - Learn at their own pace,
  - Choose electives from a wide range of elective courses offered by the University,
  - Adopt an inter-disciplinary/inter-departmental approach in learning, and
  - Make best use of the expertise of available faculty.
- b) **Program:** ‘Programme’ means a set of the required number of semesters leading to the award of a PG degree of SRTMUN
- c) **Semester:** ‘Semester’ means a term consisting of a minimum of 450 contact hours distributed over 90 working days spread over 15 weeks of six-day duration each and five contact hours per day. (  $15 \times 6 \times 5 = 450$  ) Depending upon its duration, each academic year will be divided into two semesters. Semesters will be known as either Odd Semester or Even semester. The Semester from July to November will be Semesters I, or III and similarly the semester from December to April will be Semesters II, or IV.
- d) **Academic Week:** ‘Academic Week’ is a unit of six working days during which distribution of work is organized from six to five contact hours of one hour duration on each day.
- e) **Credits:** Credit is a kind of Weightage given to the contact hours to teach the prescribed syllabus, which is in a modular form. Normally one credit is allocated to 15 contact hours.

1. In each of the courses, credits will be assigned on the basis of the number of lectures / tutorials / laboratory work and other forms of learning required for completing the course contents in maximum 15 week schedule.
2. The instructional days as worked out by the UGC for one academic year are 180 working days i.e. 90 days per semester.
3. Mechanics of Credit Calculation: As per SRTMUN standard, 1Credit = 15 contact hours.
4. Contact hours will include all the modes of teaching and it includes forms like lectures / tutorials / laboratory work / fieldwork or other forms. In determining the number of hours of instruction required for a course involving laboratory, 2 hours of laboratory is generally considered equivalent to 1 hour of lecture.

**6. Credit Point (P):**

Credit point is the value obtained by multiplying the grade point (G) by the credit (C):  $P = G \times C$ .

**7. Grade Point:**

Grade point is an integer indicating the numerical *SEMESTER GRADE POINT AVERAGE (SGPA)*:

**I. Semester Grade Point Average (SGPA)** is the value obtained by dividing the sum of credit points (P) earned by a student in various courses taken in a semester by the total number of credits earned by the student in that semester. SGPA shall be rounded off to two decimal places.

**II. Cumulative Grade Point Average (CGPA):**

‘Cumulative Grade Point Average’ (CGPA) is the value obtained by dividing the sum of credit points in all the courses earned by a student for the entire programme, by the total number of credits. CGPA shall be rounded off to two decimal places. CGPA indicate an overall letter grade (Cumulative Grade) for the entire programme shall be awarded to a student depending on his/her CGPA. The comprehensive academic performance of a student in a programme is equivalent of the letter grade.

**8. Features of CBCS System:**

- Assessment shall consist of Continuous assessment (CA) and End of Semester Examination (ESE).
- **Weightage: 50% for ESE & 50% for CA**
- **Paper- (Elective):** Transfer of Credit as per Student choice for **CBCS** system.

**8.1** The Post-graduate degree will be awarded to those students who earn the minimum number of Credits as follow:

Name of the Faculty	Total credits	Average credits per semester
Pharmaceutical Science & Technology	100	25

**8.2 Paper- (Elective):** Transfer of Credit as per Student choice

**8.3** One credit will be equivalent to 15 clock hours of teacher-student contact in a semester.

- 8.4** Four –credit course of theory will be of four clock hours per week running for 15 weeks.
- 8.5** Three- credit course of practical will be of 6 hours of lab exercise for 15 week.
- 8.6** The Project / “Dissertation” will be commencing from Semester III and the final work & report will be completed during Semester IV. The marks & the credits will be allotted as per teaching and evaluation scheme.
- 8.7** There will be no mid-way change allowed from Credit System to Non-credit (external) System or vice versa.
- 8.8** The proportion of Laboratory courses and Project work shall be not less than 50 % of the total credits of a PG program of pharmacy.
- 8.9** A post graduate teacher in a subject shall be affiliated to only ONE post graduate center at any given time.
- 8.10 CBCS:** Among the minimum number of credits to be earned by a student to complete a Post Graduate degree program in pharmacy (100 credits), the student will have to earn minimum 75% credits from the parent Department (subject) and the remaining up to 25 % credits could be earned from the parent Department (subject) or any subject/s of faculty conducted at any Department of college. In any case, a student will have to earn compulsory credits from the parent Department (subject).

## **9. Examination Rules**

- 9.1** Assessment shall consist of Continuous assessment (CA) and End of Semester Examination (ESE).
- 9.2 Weightage: 50% for ESE & 50% for CA**
- 9.3** The CA towards 50% marks will be a continuous activity and at least two written tests must be conducted for a full course of 4 credits theory subject and the teacher should select a variety of mechanisms for evaluation such as:
- i. Written Test (at least two written tests for each course):
  - ii. Home Assignments, Presentation, Quizzes, Group Discussion, Seminars etc:
- The concerned teacher in consultation with the Head of the PG Department of that specialization shall decide the nature of questions for a Written Test.
- 9.4** ESE for the remaining 50% marks will be conducted by the University.
- 9.5** Passing Rules:
- i) P. G.: Student has to obtain minimum 40 % marks in all the components of CA taken together and ESE both these separately.
- 9.6** To pass the degree program, a student will have to obtain a minimum aggregate of 40% Marks (C+ and above in grade point scale) in each course.
- 9.7** If a student remains absent for an internal written test he/she will have a second chance with the endorsement of the Principal in consultation with the concerned department head. Such a second chance shall not be the right of the student.
- 9.8** CA marks will not change. A student cannot repeat CA. In case she/he wants to repeat CA, then she/he can do so only by registering the said course during the semester in which the course is conducted and up to 4 years (2 years program) or 5 years (3 years program) as the case may be, provided the student was failed in that course.



- 9.9** Students who have failed in a course may reappear for the ESE only twice in the subsequent period. If student fail to acquire required Credits within four years from date of admission, such student has to acquire the stipulated Credits to complete the degree with prevailing / revised syllabus at that time. After that, such students will have to seek fresh admission as per the admission rules prevailing at that time.
- 9.10** A student cannot register for the third semester, if she/he fails to complete 75% credits of the total credits expected to be ordinarily completed within two semesters.
- 9.11** 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 PG Center to which the candidate belongs.

## **10. Assessment and Grade point average:**

- 10.1** The system of evaluation will be as follows: Each CA and ESE will be evaluated in terms of marks. The marks for CA and ESE will be added together and then converted into a grade and later a grade point average.
- 10.2** Results will be declared for each semester.
- 10.3** After the gain of minimum number of credits towards a completion of a PG program, a student will get a grade sheet with total grades earned and a grade point average.
- 10.4** Marks/Grade/Grade Point:

### **i) Table 1: Conversion of marks to grades in credit system**

<b>Marks Obtained</b>	<b>Grade</b>	<b>Grade Points</b>
100-90	S	10
89-80	O	09
79-70	A+	08
69-60	A	07
59-55	B+	06
54-45	B	05
44-40	C+	04
39 and Less FC	FC	0 (Fail but Continue)
39 and Less (Internal)	FR	0 (Fail and Repeat the course)

- ii)** A student who passes the internal components (CA) but fails in Semester End Examination of a course shall be given FC grade. Student with FC grade in a course would be granted credit for that course but not the grade for that course and shall have to clear the concerned course within 1.5 year from appearing for first time in the concerned paper, provided the number of courses with FC and FR grades together is 25% or less of the courses of that semester, failing which he/she shall be disqualified for a credit and will have to opt for another credit.
- iii)** Student who has failed in the internal tests of a course shall be given FR grade and shall have to repeat the concerned course to qualify to appear for term end examination of that course. The grade FC and FR will be taken into consideration while calculating Semester

Performance Index (SPI). It shall be replaced only when student clears the course with passing grade within 1.5 year from appearing for first time in the concerned semester.

iv) Grade points earned in each paper shall be calculated as-

Grade points obtained (vide Table 1 above) X Credits for the paper

v) The Semester Performance Index (SPI) gives weighted performance index of a semester with reference to the credits of a course. The SPI shall be calculated as-

$$\text{SPI} = \frac{\text{Total Earned Grade Pointes (as given above) for the Semester}}{\text{Total Credits for the semester}}$$

**10.5** The total grade point earned in each course shall be calculated as:

Grade point obtained as shown in table -1 X Credits for the Course

**10.6 Semester Grade Point Average (SGPA):** The performance of the student in a semester is indicated by number called SGPA. It shall be calculated as follows:

$$\text{SGPA} = \frac{\sum_{i=1}^n C_i p_i}{\sum_{i=1}^n C_i}$$

Where  $C_i$  = The number of Credits earned in the  $i^{\text{th}}$  course of a semester for which SGPA is to be calculated.

$p_i$  = Grade point earned in the  $i^{\text{th}}$  course.

$i$  = 1,2,3,4,.....n; represent the number of courses in which a student is registered in the concerned semester.

That is

$$\text{SGPA} = \frac{\text{Total earned grade point for the semester}}{\text{Total credits for the semester}}$$

**10.7 Final result:**

Up to date assessment of the overall performance of a student from the time of his / her first registration is obtained by calculating a number is called as Cumulative Grade Point Average (CGPA), which is weighted average of the grade points obtained in all courses registered by the student since he / she entered the department.

$$\text{CGPA} = \frac{\sum_{j=1}^m C_j p_j}{\sum_{j=1}^m C_j}$$

Where  $C_j$  = The number of Credits earned in the  $j^{\text{th}}$  course up to the semester for which CGPA is to be calculated.

$p_j$  = Grade point earned in the  $j^{\text{th}}$  course.

$j = 1, 2, 3, 4 \dots m$  represent the number of courses in which a student is registered up to the semester for which the CGPA is to be calculated.

➤ **Final Grade: Table -2**

CGPA	Grade
09.00-10.00	S: Super
08.00-08.99	O : Outstanding
07.50-07.99	A+: Excellent
07.00-07.49	A: Very Good
06.00-06.99	B+: Good
05.00-05.99	B: Satisfactory
04.00 -04.49	C+: Pass
00.00-03.99	F: Fail

**10.8** 'B+' Grade is equivalent to at least 55% of the marks as per circular No. UGC- 1298/ [4619] UNI- 4 dated December 11, 1999.

**10.9** "A" Grade is equivalent to first class

**10.10** If the (C) GPA is higher than the indicated upper limit in the three decimal digit, then higher final grade will be awarded (e.g. a student getting (C)GPA of 3.992 may be awarded 'C+' grade).

**10.11** For grade improvement in case of Pharmacy, a student must reappear for ESE for a minimum 20 credits of theory papers of **I & II semester taken together**. A student can appear only once for the Grade Improvement Program only after the successful completion of PG Degree program and at the end of the next academic year after completion of the Degree.

**10.12** The formula for CGPA will be based on Weighted Average. The final CGPA will not be printed unless a student earns 100 credits, from the courses at PG programs.

## **11. Practical Examination:**

**11.1** The outline of the distribution of maximum marks for various aspects/mechanisms towards ESE (Annual Practical Examination) is as follows: **Total 50**

- Synopsis : **10 marks**
- Experimental Performance : **30 marks**
- Viva-voce & Group discussion of 5/6 students for testing the understanding level of a student & Journal: **10 marks**

**11.2** At least three experiments should be asked for the full course of 4/5 credits and at least two for 2/3 credits.

**11.3** Certified Journal would be compulsory to appear for the ESE practical course.

**11.4** There shall be an experts from the parent Department and two examiners (one of which will be external) per batch.

**11.5** If a student failed to obtain a grade other than F in a course then such a course will not be taken into account for calculating CGPA and overall grade. In fact, all the courses in which a student has passed will be taken into account for calculating the CGPA and overall grade.

## 12. Norms & Procedure for Extra Credit Benefit for NSS or Sport

### Participation:

The following table shows the grades along with grade point to be given to the students participating in the NSS / Sports activities:

The student should avail the only one benefit neither from NSS or Sport activities.

**Maximum addition of Grade point = 0.200**

Sr. No.	Event	Specification	Grade point
1	NSS Performance	2 Year regular Programme [ 240 hrs work + Blood donation + Camp(State / National Level)]	0.200
2	Sports Performance	Intercollegiate : I /II /III	0.150
		Inter- University : I /II /III or Participation	0.200

## **Continuous Assessment (CA): (Internal Evaluation)**

A student shall be continuously evaluated for his/her academic performance in a subject/course by home assignments, seminars, quizzes, projects, and midterm examination which is under purview of department head/mentor. The overall Weightage of CA shall be 50%. The distribution of weightage for each component will be as under-

### **M. Pharm. I<sup>st</sup> & II<sup>nd</sup> Semester**

#### **I) Theory:**

##### **i) Quiz, home assignment, regularity in assigned work (15%):**

There shall be one home assignment **or** one Quiz for each theory course which is under the purview of Department Head/Mentor and it should be decided at the beginning of Semester. Home assignment given to students should be on course content and shall include question-answering, review of articles, review and compilation of any course content or as decided by Department head/mentor.

##### **ii) Presentation, Group Discussion (15%):**

There shall be one Presentation to be presented individually by students for each theory course on allotted topic by concerned teacher **or** one Group Discussion for each theory course, in a group of 3-4 students. The philosophy should be decided at the beginning of Semester.

##### **iii) Internal / Sessional Examination (20%):**

Two Sessional examinations for each theory course shall be conducted for 20 marks each. Paper should include both objective & subjective question. At the end, average of two internal sessional examinations shall be sent to university.

i) Quiz/ home assignment and regularity in assigned work:	15%
ii) Presentation/ Group Discussion:	15%
iii) Mid Term Examination:	20%

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**Total: 50%**

#### **II) Practical:**

##### **i) Day to Day Evaluation (30%):**

For practical course, 15% weightage shall be given to Application, Technical Credibility and Interaction and 15% weightage for Lab. Work, Reporting and Record Keeping.

##### **ii) Internal Practical Examination (20%):**

There shall be one internal practical examination to be conducted in the concluding week of academic session of respective semester but before the university examination. Paper pattern for the same shall be under the purview of Department Head and it will be decided at the beginning of Semester.

i) Application, Technical Credibility, Interactions:	15%
ii) Lab. Work, Reporting, Record keeping:	15%
iii) Internal Practical Examination:	20%

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**Total: 50%**

### III) Seminars: (Semester-I and Semester-II)

There shall be one seminar/student in I<sup>st</sup> and II<sup>nd</sup> semester (3 credits) evaluated for 50 marks by Internal Examiner Panel. Internal examiner panel shall include at least 03 members as-

- a) Head of Institute/ Academic Associate
- b) One subject expert at the level of Assistant/Associate professor or Professor
- c) Mentor

Students are evaluated on following parameters

i) Ideology of topic:	10%
ii) Material and methodology of topic:	30%
iii) Depth of knowledge, Presentation of topic:	30%
iv) Defense and justification of topic:	20%
v) Reference work:	10%

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**Total: 100%**

**M. Pharm. III<sup>rd</sup> & IV<sup>th</sup> Semester**  
**(RESEARCH PROJECT WORK)**  
*(In affiliated Colleges under SRTM University, Nanded)*

The research project work shall be part of M. Pharmacy curriculum for the fulfillment of award of degree 'Master of Pharmacy'. It will be of one year duration (two semesters) and will commence at third semester up to end of fourth semester of course and is of 56 credits. The course structure for III<sup>rd</sup> & IV<sup>th</sup> semester is as below-

**Semester-III**

Synopsis and Presentation:	06 Credits
Experimental /Research Work	20 Credits
End term progress and Presentation of Work:	<u>04 Credits</u>
<b>Total:</b>	<b>30 Credits</b>

**Semester-IV**

Experimental /Research Work & Midterm presentation	18 Credits
Dissertation & Defense (Viva-Voce)	<u>08 Credits</u>
<b>Total:</b>	<b>26 Credits</b>

**Objectives of Research Project Work:**

- To develop research skill
- To inculcate methodological & scientific way of performing a undertaken task of research work
- Sharpen communication & presentation skills
- Develop and improve logical, creative, interpretational and analytical abilities
- To create an envisaged skilled manpower

**Duration of the work**

The project shall be completed in two semesters-

- The selection of project topic and allocation of Mentor/ Guide shall be done in the beginning of III<sup>rd</sup> semester or at the end of second semester.
- The Synopsis shall be submitted to department head within stipulated time period from commencement of III<sup>rd</sup> semester followed by presentation of the same. It shall be the sole discretion of department head and or head of institute. Progress and presentation of work during both semesters will be at discretion of Mentor and head of department.
- After dissertation submission, its evaluation shall be as notified by University from time to time. The dissertation is to be submitted not after 24 months from the date of commencement of first term of M. Pharm Course. If candidate fails to submit his/her dissertation within 24 months, he/she will have to submit dissertation in subsequent semester, for which he/she shall have to register by paying of the semester fees.. The Principal of the concerned College/Institute will forward the dissertation to the University office.

### **Allocation of Guide/Mentor**

Faculties at the level of Associate Professor and Professor within the institute/department shall be involved as a Guide/Mentor where as faculties at the level of Assistant Professor may be involved as Co-guide/Co-mentor and is at the discretion of Head of Institute. Beside this, “**PG Approved Teacher**” by the university at the level of Assistant Professor **or** Assistant Professor whose appointment is for PG program through proper channel and is approved by university with minimum three years of experience may also guide students. A judicious balance of selection *vis-a-vis* guide and students should be maintained. There **shall be not more than eight** submissions of dissertations in one academic year under individual guide/mentor.

### **Role of Research Guide**

- Allocation and Definition of the Topic for the Project.
- Providing internal facilities as well as arranging external facilities that are necessary for the successful completion of the Project Work.
- Guiding, monitoring and evaluating the Progress of the Work.
- Monitoring in compilation of results, their analysis and interpretation as well as final compilation of the entire project work and its submission and presentation in the most appropriate manner or as the procedure let down.

### **I) Synopsis and Presentation: (06 Credits) (50 Marks)**

Students shall submit synopsis through his/her Guide/Mentor as per **Annexure-I** to the Head of Department of Institute. Head of the department shall arrange synopsis presentation by students which will be evaluated by Evaluation Committee. Evaluation Committee shall constitute following members-

1. Head of Institute or his nominee
2. Head of Department
3. Subject Expert
4. Guide/Mentor and or Co-guide/Co-Mentor

The quorum of evaluation committee shall be at least 03 members. The subject expert shall be at the level of Associate Professor and Professor from the institute or in case from outside the institute, will be at the discretion of Head of Institute. Proforma of evaluation is at **Annexure-II**.

### **II) Experimental /Research Work: (20 Credits) (100 Marks)**

During the IIIrd Semester, a student shall submit progress of his/her experimental work for at least two times in the given format of Progress Report (**Annexure-III**). The performance and progress of work will be evaluated by Guide/Mentor which is to be submitted to the Head of Department/Head of Institute. If the research project work is carried out at a research centre of a Pharmaceutical Industry, Clinical Research Centre, Research Centre in a Hospital or Hospital of Repute, as the case may be, the candidate shall submit progress report signed by his/her respective supervisor/in-charge of such research centre to his/her Guide/Mentor at institute level. The performance and progress of work will be evaluated by Guide/Mentor which is to be submitted to the Head of Department/Head of Institute.



### **III) End term progress and Presentation of Work: (04 Credits) (50 Marks)**

A student shall submit end term progress of his/her research work carried out during III<sup>rd</sup> semester in a format (**Annexure-III**) and present his/her work in front of Evaluation Committee. The Evaluation Committee shall constitute following members-

1. Head of Institute or his nominee
2. Head of Department
3. Subject Expert
4. Guide/Mentor and or Co-guide/Co-Mentor

The quorum of evaluation committee shall be at least 03 members. The subject expert shall be at the level of Associate Professor and Professor from the institute or in case from outside the institute, will be at the discretion of Head of Institute.

### **IV) Experimental /Research Work & Midterm presentation: (18 Credits) (100 Marks)**

Similar to III<sup>rd</sup> semester, during the IV<sup>th</sup> Semester also a student shall submit progress of his/her experimental work for at least two times in the given format of Progress Report (**Annexure-III**). The performance and progress of work will be evaluated by Guide/Mentor which is to be submitted to the Head of Department/Head of Institute. If the research project work is carried out at a research centre of a Pharmaceutical Industry, Clinical Research Centre, Research Centre in a Hospital or Hospital of Repute, as the case may be, the candidate shall submit progress report signed by his/her respective supervisor/in-charge of such research centre to his/her Guide/Mentor at institute level. The performance and progress of work will be evaluated by Guide/Mentor which is to be submitted to the Head of Department/Head of Institute.

Midterm presentation of work shall be evaluated for 30 marks out of total 100 marks. It is expected that student shall complete most of his/her laboratory work in the mid of IV<sup>th</sup> semester and should present his/ her work in front of the Evaluation Committee as constituted above. Any suggestions/correction pointed out during presentation shall be included in final dissertation.

### **V) Dissertation & Defense (Viva-Voce): (08 Credits) (300 Marks)**

Student shall submit minimum 05 hard bound copies (one each for University record, Examiner, College, Mentor & candidate) and 02 soft copies of dissertation to the Head of department on date as notified from time to time. Organization of dissertation shall be as per guidelines given in **Annexure-IV**.

The panel for evaluation of dissertation shall consists-

- a) Chairman : Head of Institute/Faculty Dean/ Director of Campus school /HOD
- b) Internal Examiner : Guide/Mentor
- c) External Examiner : From the panel of University approved Examiner from institute or Outside Institute

The Internal and External Examiner will jointly assign the marks for dissertation out of 200. The allotment of marks of the dissertation shall be as under –

1. Introduction	: 20
2. Literature Review	: 20
3. Experimental work/Methodology	: 70
4. Result/Conclusion Drawn	: 40
5. Originality of work	: 20
6. Scope for further research	: 10
7. Reference Work	: 20

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Total : 200

Student shall present his/her work in front of the Evaluation Committee for dissertation. The Internal and External Examiner will jointly assign the marks for viva-voce out of 100 marks.

The allotment of marks of the viva-voce shall be as under-

1. Methods/ Techniques adopted	: 30
2. Presentation	: 30
3. Discussion & Defense	: 40

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Total : 100

### **Guidelines for Synopsis**

**1) Title page**

Title must be informative, specific and short. Title page should include the title, Name of Student, Mentor and Co-mentor (If any); course, course/subject code, course/subject title, Institute name & address, name of affiliating University, academic year etc.

**2) Introduction**

It should start on a new page. Essentially this part must introduce and justify the selection of topic and literature on work that has a direct bearing on the selected topic, Research aims & objectives, purpose of the study and plan of work should be clearly stated.

**3) Literature Survey**

In this section student must quote recent literature survey from National, International Journals & Books of repute authors on selected topic.

**4) Materials and Methods to be employed**

In this section student should state the materials required and the methodology to be used (how the work to be carried out). The methodology / procedure to be carried out should be enlisted. The study design, sources of drugs, instruments required, statistical methods and ethical aspects must be mentioned under the section. The data collection procedure must be described

**5) Interpretation of Data**

In this section student should state sequence and style of presentation of results and how to interpret it along with logic for presentation of systematic observations.

**6) Power Point Presentation before Evaluation Committee**

**Name and Address of College**

**Course, Year, Semester, Academic Year**

**Synopsis**

**Evaluation Proforma**

**Name of Student:** \_\_\_\_\_

**Mentor:** \_\_\_\_\_

**Co-Mentor:** \_\_\_\_\_

**Project Work Title:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Evaluation Parameter					Total Marks
Ideology, Aim & Objective (10)	Plan of Work & Research Design (10)	Literature survey (10)	Methodology (15)	Interpretation (05)	
01	02	03	04	05	06

Member, Evaluation Panel  
(Name & Signature)

**Date:**

**Name and Address of College**

**Course, Year, Semester, Academic Year**

**Synopsis**

**Consolidated Evaluation Sheet**

**Name of Student:** \_\_\_\_\_

**Mentor:** \_\_\_\_\_

**Co-Mentor:** \_\_\_\_\_

**Project Work Title:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Head of Institute or his nominee	Head of department	Subject Expert	Mentor/ Co-mentor	Average

Academic Associate  
(Name & Signature)

**Date:**

**NAME OF COLLEGE**

**Course & Academic Year**  
**Progress Report**

The Progress Report of Research work in the subject \_\_\_\_\_ done by  
Mr./Smt./Ku. \_\_\_\_\_ during the  
period of \_\_\_\_\_ under the guidance of Mentor:

\_\_\_\_\_

Co-Mentor: \_\_\_\_\_

**All the entries should be neatly handwritten**

**02. Title of Research Topic:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**03. Date of Submission of Synopsis:** \_\_\_\_\_

**04. Plan made for research work during present period:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**05. Literature survey carried out so far for:**

\_\_\_\_\_  
\_\_\_\_\_

**06. Any practical work done in respect of research work:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**07. Next steps/plan of research work:**

\_\_\_\_\_  
\_\_\_\_\_

08. Percentage of work done: \_\_\_\_\_

09. Name & Signature of Student: \_\_\_\_\_

10. Remark of Research Mentor/Co-Mentor:

i) Progress of student is satisfactory:                      Yes / No

ii) Any other remark: \_\_\_\_\_

\_\_\_\_\_

**Date:**

**Name & Signature**  
**Mentor & Co-Mentor (if any)**

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**Head of Department**

**Principal**

**DRAFT FOR DISSERTATION / THESIS ORGANIZATION**

The draft of the thesis/dissertation should be organized into following sections with subsections (if any).

- **Introduction**
- **Aim & Objectives**
- **Plan of Work**
- **Review of Literature**
- **Materials and Method**
- **Observations and Results**
- **Discussion**
- **Summary and Conclusion**
- **References /Bibliography**

Refer the following guidelines to organize the draft and final electronic copy of the thesis/dissertation. It is to all subject specializations of M. Pharmacy in affiliated colleges under SRTM University, Nanded

**A) Language:**

Text language must be English. References/literatures related to any *Sanskrit Shloka* can be quoted in Devanagri alphabet.

**B) Binding:**

Dissertation shall be submitted as black/Brown Hard bound with golden embossing or colour laser print of front hard cover with hard back cover.

**C) Front Cover:**

Front cover shall bear clearly all information viz, title, name of candidate & Mentor/ Co-mentor if any, name of institute, year of submission etc. Format for front cover is given herewith separately (**Annexure-V**). The spine of thesis shall bear the name of the candidate, degree for which dissertation submitted, Name of Department & College and Year of submission (**Annexure-VI**)

**D) Paper:**

It must be A4 Size, printed on good quality white paper (Executive bond) on one side of the paper only. Photographs and other special figures or tables may be printed on photographic quality paper.

Oversize or undersize pages if any; can be included but will not be bound into the thesis—they will be placed in a pocket at the back of the thesis.

**E) Margins:**

Left-hand margins should be 1.5" wide, to facilitate binding. All other margins should be well defined at approximately 1". Right-justification is necessary.

**F) Font:**

For the main body of the text, a standard, easily legible, 12-point font is preferred (Times New Roman). Condensed type is not acceptable. Chapter titles and section (sub) headings may be in a different style and should stand out clearly from the text. Text styles and heading/sub heading styles should be consistent throughout the thesis. The thesis must be printed in black ink; printing should be laser or better quality.

Language:	English	Chapter Heading:	16/18 Bold
Headings:	14/16 Bold	Sub Headings:	12/14 Bold
Body Text:	12		



**G) Page Numbers:**

All pages must be numbered in sequence.

The page numbers should be in lower case, Arabic numerals, right side at the bottom of the page, except for the title page, which is not numbered. Font size shall be 12-point and must be consistent throughout the text.

**H) Line Spacing:** 1.5 for main body text.

**I) Order of Items:**

The following should be the order of items in dissertation-

- Title Page
- Certificate from Head of Institute
- Certificate from Head of Department
- Certificate of the Guide/Mentor
- Certificate of Co-guide/Co-mentor; if any
- Certificate from Industry/research centre; if work carried at such place/s
- Declaration by the Candidate
- Dedication Page (if any)
- Acknowledgement
- Table of Contents
- List of Abbreviations
- List of Tables
- List of Figures
- Abstract
- Body of Thesis
- References
- Appendix (If any)

**J) Title page:**

The inside title sheet shall be the first sheet and shall contain all details as that of front cover (**Annexure-V**)

**K) Certificates and Declaration by candidate:**

All the applicable certificates and declaration by the candidate shall be as per give format herein separately (**Annexure-VII**).

**L) Acknowledgement:**

Any acknowledgement related to direct or indirect help/support etc. from the institute and outside the institute shall be mentioned but it should not be more than two pages, counter signed by the candidate.

**M) Table of Contents:**

The thesis must contain a complete table of contents. Individual entries (titles, headings, sub headings etc.) that extend onto more than one line should be single-spaced; line spacing of 1.5 should be maintained between entries. For clarity, titles and sub headings should be in 14/12-point font, bold, regardless of their font size in the main body of the text. Page numbers listed in the table of content should be aligned at the centre of column.

**N) List of Abbreviations, Figures and Tables:**

Individual entries (titles, captions, etc.) that extend onto more than one line should be single-spaced, but line spacing of 1.5 should be maintained between entries. It should follow the table of content shall list all tables, figures in the order in which they occur in the text. The lists should include if any material inserted in a back pocket. All the standard abbreviation along with its full form shall be provided separately.

**O) Abstract:**

The thesis must contain an abstract. This should occupy a single page, and may be single-spaced, if necessary. There should be no illustrations or footnotes. Students are advised that, due to space limitations shorten abstract to minimum 350 words.

**P) Tables in body of thesis:**

Tables should preferably show lines separating columns but not those separating rows except for the top row that shows column captions. Tables should be numbered consecutively in Arabic numerals and bear a brief title in bold face (font 12/14 bold), centrally aligned. Units of measurement should be abbreviated and placed below the column headings. Column headings or captions shall be in font 12 bold face. For units and symbols use of the International System of Units (SI) is recommended.

**Q) Figures in body of thesis –**

Figures including graphs, bar diagram, photographs etc, should be numbered consecutively in Arabic numerals. Figures should bear a brief title with font 12/14 bold face letters centrally aligned and below the figure. Graphs and bar graphs should preferably be prepared using Microsoft Excel and submitted as Excel graph pasted in Word or as that for figures. Photographs should be on glossy paper should bear a brief title with font 12/14 bold face letters centrally aligned and below the photograph.

**R) Biological nomenclature**

Names of plants, animals and bacteria should be in italics in entire dissertation including front cover and in references.

**S) Observations and Result finding:**

All findings shall be presented in tabular or graphical forms in the body of thesis. The data should be statistically analyzed and the level of significance should be clearly stated. All Tables and figures must have a legend to make them self-explanatory.

**T) Chemical reaction Scheme & Synthetic Protocol:**

Chemical reaction scheme if any, shall be included within the text and given their own sequential numbering as scheme number (in sequence, using Arabic numerals - *i.e.* Scheme 1, 2, 3 *etc.*) or short title of scheme. ChemDraw, Chems sketch like preferred format for chemical structures should be used. Molecular structures are identified by bold, Arabic numerals assigned in order of presentation in the text. Once identified in the main text compounds may be referred to by their name or by a defined abbreviation or by the bold Arabic numeral. Thesis must include synthetic experimental protocol, referring to amounts of reagents used. Standard abbreviations for reagents and solvents shall be used. Safety hazards and percent yields should be reported at the end of each protocol.

**U) Spectral Data:**

Spectral data of new compound or material under evaluation shall be submitted as figures, sequentially numbered as those other figures. High quality images of the spectrum shall be a part within the text or on a separate page.

**V) Ethical Aspects:**

Research misconduct as fabrication, falsification, or plagiarism, including misrepresentation of credentials, in proposing, performing, or reviewing research, or in reporting research work results shall be avoided. Investigators who use laboratory animals are obliged to follow humane procedures and shall obtain requisite permission prior to the initiation of such research work.

**W) Discussion**

This section should follow observation & results, deals with the interpretation of results, convey how they helped to increase current understanding of the problem and should be logical. Unsupported hypothesis should be avoided. The Discussion should state the possibilities the

results uncover, that need to be further explored. If results and discussion of results combined under one title as Results and Discussion, observation section should be separate and shall follow materials and Methods.

**X) References:**

The references shall form the last section followed by 'Appendix' if any. It should contain list of works (Papers, Books, etc.) referred to in the body of the text. The numbering shall be done in numerals (e.g. 1, 2,) indicated as superscript along with the author's name & year in the text and shall appear in same sequence in the parenthesis. For any paper, name of author/s, title of paper, the name of journals in full form in *italic*, the volume number, the page number and the year of publication shall be written in parenthesis as per any existing standard format. For any book reference/s, the information shall contain the names of authors, name of chapter, title of book, publisher, page no. and the year of publication in parenthesis. For papers and books with joint authorship the names of all the authors shall be introduced in the same order. The author's name shall be last name followed by initials.

If bibliography is supplied it should be arranged in a logical order each for broad subject class and shall be arranged alphabetically.

**Y) Appendices and other Supplementary Material**

Appendices may include certificates related to authentication of samples, evaluation of sample if carried out outside the institute etc., list of publication/presentation (if any), copyright permission letter (if any) etc.

**Z) Electronic Format of thesis/dissertation:**

Students must include entire dissertation in electronic format. A CD-ROM or DVD-ROM (read-only) containing dissertation in pdf format should be submitted in a hard case and will go in the back pocket of the thesis. A description of the same including file names, formats, and a brief description of the contents, should be included as an appendix in the paper copy of the thesis. The CD/DVD-ROM must include both physical labels that list the name of candidate, Guide, institution and date.

**Title**

*Dissertation submitted to*  
**Swami Ramanand Teerth Marathwada University, Nanded**

*In the Partial Fulfillment of the requirement  
for the award of the Degree of*  
**MASTER OF PHARMACY**  
*in*  
**(SUBJECT SPECILIZATION)**

*Submitted By*

**Full Name of Candidate**

**Guide/ Mentor**

**Name of Guide/Mentor**

*Co-guide/Co-mentor*

**Name of Co-Guide/Co-Mentor**

**Name of College and Address**

**Year of Submission**

<b>M. Pharm.</b> <b>(Subject)</b>
<b>Name of Candidate</b> <b>Name of Department</b> <b>Name of College &amp; Address</b>
<b>Year of</b> <b>Submission</b>

## Certificate

This is to certify that the research work embodied in this thesis entitled  
' \_\_\_\_\_ ,  
submitted to **Swami Ramanand Teerth Marathwada University, Nanded** was carried out by  
\_\_\_\_\_ (Name of Candidate), at  
\_\_\_\_\_ (Name of College/Institute)  
under the supervision of \_\_\_\_\_ (Name of Guide/Mentor) for  
the partial fulfillment of the requirement for the award of degree of **Master of Pharmacy** in the  
subject \_\_\_\_\_.

**Date:**

**Place:**

**Seal**

\_\_\_\_\_  
**Signature of Head of Institute**  
(Name & Address)

**Certificate**

This is to certify that the research work embodied in this thesis entitled  
' \_\_\_\_\_ ,  
submitted to **Swami Ramanand Teerth Marathwada University, Nanded** was carried out by  
\_\_\_\_\_ (Name of Candidate), in  
the \_\_\_\_\_ (Name of Department/ Laboratory) of  
\_\_\_\_\_ (Name of College/Institute)  
under the supervision of \_\_\_\_\_ (Name of Guide/Mentor) in  
the partial fulfillment of the requirement for the award of degree of **Master of Pharmacy** in the  
subject \_\_\_\_\_. The extent and source of information / materials as has  
been obtained by candidate from other sources has been duly acknowledged by him/her in the  
thesis.

**Date:**

**Place:**

\_\_\_\_\_  
**Signature of Head of Department**  
(Name & Address)

**Certificate**

This is to certify that the research work embodied in this thesis entitled  
' \_\_\_\_\_ ,  
submitted to **Swami Ramanand Teerth Marathwada University, Nanded** was carried out by  
\_\_\_\_\_ (Name of Candidate), at  
\_\_\_\_\_ (Name of College/Institute)  
under my/our supervision in the partial fulfillment of the requirement for the award of degree of  
**Master of Pharmacy** in the subject \_\_\_\_\_. The extent and source of  
information / materials as has been obtained by candidate from other sources has been duly  
acknowledged by him/her in the thesis. The research work of his /her is original and Bonafide.

**Date:**

**Place:**

\_\_\_\_\_  
**Signature of Research Guide**  
(Name & Address of the Guide)

\_\_\_\_\_  
**Signature of Research Co-Guide**  
(if any) (Name & Address)



**Certificate**

This is to certify that the research work embodied in this thesis entitled  
' \_\_\_\_\_  
\_\_\_\_\_',  
submitted to **Swami Ramanand Teerth Marathwada University, Nanded** was carried out by  
\_\_\_\_\_ (Name of Candidate), of  
\_\_\_\_\_ (Name of Department) of  
\_\_\_\_\_ (Name of College/Institute) at  
our \_\_\_\_\_ (Name of Department & Industry /  
**research Centre**) under the supervision of \_\_\_\_\_ (Name of  
**Supervisor/In-charge of Industry**) for the partial fulfillment of the requirement for the award of  
Degree of **Master of Pharmacy** in the Subject \_\_\_\_\_. The research work  
of his /her is original and Bonafide.

**Date:**

**Place:**

**Signature of In-charge**

(Name & Address of Department and Industry/Research Centre)

**Declaration by the Candidate**

The research work embodied in this thesis entitled,

‘ \_\_\_\_\_  
\_\_\_\_\_ ’ was

carried out by me in the \_\_\_\_\_ ( **Name of Department /**

**Laboratory**) of \_\_\_\_\_ ( **Name of College**)

under the guidance of \_\_\_\_\_ ( **Name of Guide/ Mentor**)

for the partial fulfillment of the requirement for the award of Degree of **Master of Pharmacy** in

the Subject \_\_\_\_\_ . The extent and source of information / material as has

been obtained from other sources has been duly acknowledged in the thesis. The research work is

original and has not been submitted in part or full for any Diploma or Degree of this or any other

University/Institute.

I hereby further declare that the \_\_\_\_\_ ( **Name of**

**Department / College**) shall have the rights to preserve, use and disseminate this dissertation in

print or electronic format for academic / research purpose.

**Date:**

**Place:**

( **Name and Signature of Candidate**)