

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C.G.)

Scheme of Teaching and Examination

Master of Pharmacy (M. Pharm)

(Pharmaceutics)

II Semester

S. No.	Board of Study	Subject Code	Subject	Periods per Week			Scheme of Examination			Total Marks	Credit L+(T+P)/ 2
				Theory / Practical							
				L	T	P	ESE	CT	TA		
1	Pharmacy	566211(41)	Pharmacognosy – I	4	1	-	100	20	20	140	
2	Pharmacy	566212(41)	Pharmacognosy – II	4	1	-	100	20	20	140	
3	Pharmacy	566213(41)	Pharmacognosy – III	4	1	-	100	20	20	140	
4	Pharmacy	566214(41)	Pharmacognosy – IV	4	1	-	100	20	20	140	
5	Pharmacy	566221(41)	Pharmacognosy – I Lab	-	-	6	100	-	50	150	
6	Pharmacy	566222(41)	Pharmacognosy – II Lab	-	-	6	100	-	50	150	
7	Pharmacy	566223(41)	Pharmacognosy – III Lab	-	-	6	100	-	40	140	
Total				16	4	18	700	80	220	1000	

L – Lecture, T – Tutorial, P - Practical,

Duration of Theory Paper 3 Hours

ESE – End Semester Examination, CT – Class Test, TA – Teacher Assessment

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Semester: **M-Pharm. 2nd Semester**

Subject: **Pharmacognosy- I**

Total Theory period: **50**

Total marks in the end Semester: **100**

Minimum of class test to be conducted: **2**

Branch: **Pharmacy**

Code: 566211(41)

Total Tutorial period: **12**

Unit -1:

Commerce and quality control of crude drugs.

Unit -2:

Indian soils, soil analysis and soil fertilizers.

Unit -3:

Plant growth regulators.

Unit -4:

Cultivation technology for commercial production of some selected medicinal and aromatic plants.

Unit -5:

Medicinal plant based industry, export and import of plants, threatened and endangered plants.

Unit -6:

Pest management and natural pesticides.

Book Recommended:

1. Quality Control of Herbal Drug, third print, Poluk Mukherjee.
2. Herbal Drug Technology, S.S. Agrawal.
3. Textbook of Pharmacognosy, Trease and Evans.
4. Natural Product, Siddhi Verasham.
5. Medicinal natural products (a biosynthetic approach), 1st edition, by Paul M. Dewick, John Wiley & Sons Ltd., England, 1998.
6. Natural Products from Plants, 1st edition, by Peter B. Kaufman.

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Semester: **M-Pharm. 2nd Semester**

Subject: **Pharmacognosy- II**

Total Theory period: **50**

Total marks in the end Semester: **100**

Minimum of class test to be conducted: **2**

Branch: **Pharmacy**

Code: 566212(41)

Total Tutorial period: **12**

Unit – 1:

Origin of secondary metabolism in relation to the basic metabolic pathway – Methods of investigation of biosynthetic pathway such as tracer techniques and autoradiography, biogenesis of some important secondary metabolites, stress compound.

Unit – 2:

Microbiological conversion, aberrant synthesis in higher plants.

Unit – 3:

Principal of procedure of microtome sectioning and staining procedure.

Unit – 4:

Quantitative microscopy as applied to drug evaluation.

Unit – 5:

WHO guidelines for assessment of crude drug.

Book Recommended:

1. Quality Control of Herbal Drug, third print, Poluk Mukherjee.
2. Herbal Drug Technology, S.S. Agrawal.
3. Textbook of Pharmacognosy, Trease and Evans.
4. Natural Product, Siddhi Verasham.
5. Cultivation of medicinal and aromatic crops, 1st edition, by AA Farooqui and B.S.Sreeramu.
6. Medicinal Plants of India, 1st edition, by S.N. Yoganarasimhan.3

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Semester: **M-Pharm. 2nd Semester**

Subject: **Pharmacognosy- III**

Total Theory period: **50**

Total marks in the end Semester: **100**

Minimum of class test to be conducted: **2**

Branch: **Pharmacy**

Code: 566213(41)

Total Tutorial period: **12**

Unit -1:

Mutation – polyploidy and hybridization in relation to the improvement of vegetable drugs, chemical rashes.

Unit -2:

Cell – tissue culture techniques role of plants growth regulators, micro-propagation of medicinal and aromatic plants, germplasm storage and methods of cell immobilization.

Unit -3:

Recombinant DNA technology and its application with special reference to production of antibiotics and non-antibiotic drugs from lower plants.

Unit -4:

Transgenic plant and its application.

Book Recommended:

1. Plant tissue culture – Bhagwani, Vol 5. (Elsevier)
2. Plant cell and Tissue Culture (Lab. Manual) – J.R.M.M. Yeoman.
3. Medicinal Natural products IInd Edn. (A Biosynthetic Approach) Paul M. Dewick.
4. Elements in biotechnology by P. K. Gupta.
5. Molecular biology and biotechnology by J. M Walker and E. D. Gingold.
6. An introduction to plant tissue culture by M. K. Razdan.
7. Breeding field crops by John. M. P and David A. S.
8. Phytochemistry -Vol. I to IV. Miller Jan Nostrant Renhold.
9. Recent Advances in Phytochemistry- Vol. 1&4: Scikel Runeckles.
10. Chemistry of Natural Products- Vol. 1
11. Natural Products Chemistry Nakanishi Golo.
12. The Essential Oils- Ernest Guenther- Robbert E. Kreiaer
13. The Alkaloids chemistry & Physiology- Vols. RH F Manske
14. Introduction to Molecular Phytochemistry- Paul J. Schewer

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Semester: **M-Pharm. 2nd Semester**

Subject: **Pharmacognosy- IV**

Total Theory period: **50**

Total marks in the end Semester: **100**

Minimum of class test to be conducted: **2**

Branch: **Pharmacy**

Code: 566214(41)

Total Tutorial period: **12**

Unit -1:

Different types and formulation of traditional system of medicines (Ayurvedic, Unani, Siddhi, Tibbi) Assessment of their quality, safety and efficacy.

Unit -2:

Phyto-pharmaceuticals, Anticancer, Antidiabetic, Anti-inflammatory, Cardiovascular and Hepatoprotective.

Unit -3:

Natural product used as coloring agent, Excipients, Polymers, Photosensitizing agent, Flavours and Bio fuels.

Unit -4:

Biodiversity, Environmental management and pollution control in relation to pharmaceutical field.

Book Recommended :

1. Comparative Phytochemistry edited by T. Swain.
2. Chemical Plant Taxonomy edited by T. Swain.
3. Cultivation of Medicinal Plants by C.K. Atal & B.M. Kapoor.
4. Cultivation and Utilization of Aromatic Plants By C.K. Atal & B.M. Kapoor
5. Plant Propagation Principles and Practices- Hartmann Kester.
6. Ayurvedic Formulary of India , Government of India.
7. Herbal Drug Industry by RD. Choudhary, 1st edition
8. Pharmacognosy and Phytochemistry of medicinal plants by Jean Bruneton, Technique and documentation
9. Text book of Pharmacognosy by C.K.Kokate, Purohit, Ghokhale, 4th edition.
10. Pharmacognosy and Pharmacobiotechnology by Ashutoshkar..
11. Text Book of Pharmacognosy by T.E. Wallis
12. Pharmacopoeial Standards for Ayurvedic Formulations, Central Council for Research in Ayurveda and Siddha, New Delhi.

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Semester: **M-Pharm. 2nd Semester**
Subject: **Pharmacognosy – I Lab**
Total Theory period: **72**
Total marks in the end Semester: **100**
Minimum of class test to be conducted: **2**

Branch: **Pharmacy**
Code: 566221(41)
Total Tutorial period: **12**

List of Experiments

List of Experiment :

1. To study the microtome sectioning of given samples
2. To determine the Stomatal number and Stomatal index.
3. To determine the Veinlet and vein termination number of the given drugs.
4. To determine the Palisade ratio of the given drugs.
5. To study of macroscopy, microscopy and powder microscopy of the given drugs.

Books Recommended:

1. The Pharmacological basis of therapeutics-Goodman and Gill man's
2. Pharmacology- Rang & Dale.
3. Pharmacology-Katzung.
4. Fundamentals of experimental Pharmacology-By M.N.Ghosh
5. Hand book of Experimental Pharmacology-S.K.Kulakarni
6. Text book of in vitro practical Pharmacology by Ian Kitchen
7. Pharmacological Experiments on intact preparations by Churchill Living stone.
8. Hand book of Clinical Pharmacokinetics Gibaldi and Prescott.
9. Indian Pharmacopoeia and other Pharmacopeias.
10. Screening methods in Pharmacology by Robert Turner.A
11. Clinical trials and tribulations by Allien E.Cato
12. Drug discovery and Evaluation by Vogel H.G.

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
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Semester : **M-Pharm. 2nd Semester**
Subject : **Pharmacognosy – II Lab**
Total Practical period: **72**
Total marks in the end Semester: **100**
Minimum of class test to be conducted: **2**

Branch : **Pharmacy**
Code : **566222(41)**
Total Tutorial period : **12**

List of Experiment :

1. Isolation of DNA in given samples.
2. Isolation of RNA in given samples.
3. To prepare and sterilize different type of Culture media.
4. To establish the callus culture from the given plant material.
5. To establish the pollen culture from the given plants and calculate the growth index.
6. To establish the Anther culture from the given plants and calculate the growth index.

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1. Quality Control of Herbal Drug, third print, Poluk Mukherjee.
2. Herbal Drug Technology, S.S. Agrawal.
3. Textbook of Pharmacognosy, Trease and Evans.
4. Natural Product, Siddhi Verasham.
5. Medicinal natural products (a biosynthetic approach), 1st edition, by Paul M. Dewick,
6. John Wiley & Sons Ltd., England, 1998.
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14. Breeding field crops by John. M. P and David A. S.
15. Phytochemistry -Vol. I to IV. Miller Jan Nostrant Renhold.
16. Recent Advances in Phytochemistry- Vol. 1&4: Scikel Runeckles.

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Semester : **M-Pharm. 2nd Semester**
Subject : **Pharmacognosy – III Lab**
Total Practical period: **72**
Total marks in the end Semester: **100**
Minimum of class test to be conducted: **2**

Branch : **Pharmacy**
Code : 566223(41)
Total Tutorial period: **12**

List of experiment :

1. To determine the extractive value of given crude drugs.
2. To study quantitative Standardization study of crude drugs.
3. To determine the Pesticides of given crude drugs.
4. To prepare and submit Herbal cream.
5. To prepare and submit Herbal emulsion.
6. To prepare and submit Herbal ointment.
7. To prepare and submit Herbal powder.
8. To perform the screening of anticancer activity.
9. To perform the screening of antimicrobial activity.
10. To perform the screening of Anti-Inflammatory activity.
11. To perform the screening of Anti-diabetic activity.

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1. Elements in biotechnology by P. K. Gupta.
2. Molecular biology and biotechnology by J. M Walker and E. D. Gingold.
3. An introduction to plant tissue culture by M. K. Razdan.
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9. Pharmacology-Katzung.
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