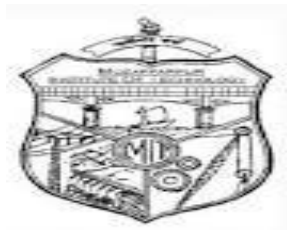


**DEPARTMENT OF PHARMACY**  
**M.I.T., MUZAFFARPUR**



**AFFILIATED TO**  
**ARYABHATTA KNOWLEDGE UNIVERSITY,**  
**MITHAPUR, PATNA**

**NAME OF FACULTY: Dr. N.R. BARNWAL**  
**ASSOCIATE PROFESSOR**

**DEPARTMENT OF PHARMACY,**  
**M.I.T. MUZAFFARPUR**  
Contact Details:  
Email ID

**NAME OF COURSE: PHARMACOGNOSY I**  
**COURSE CODE (T): 91104**  
**COURSE CODE (P): 1104P**  
**SEMESTER: FIRST SEMESTER**

**ACADEMIC: 2018-2019****Academic Calendar (Odd Semesters): 2018-19**

S.No	Events	B.Pharm 1 <sup>st</sup> sem	B.Pharm 3 <sup>rd</sup> sem	B.Pharm 5 <sup>th</sup> sem	B.Pharm 7 <sup>th</sup> sem
<b>1</b>	Class Start Date		<b>16.7.2018</b>	<b>16.7.2018</b>	<b>16.7.2018</b>
<b>2</b>	First Sessional Exam start date				
<b>3</b>	First Sessional Exam End date				
<b>11</b>	Theory exam Date		<b>Dec -2018</b>	<b>Dec-2018</b>	<b>Dec- 2018</b>
<b>12</b>	Practical Exam Start Date/Final Presentation		<b>Jan-2019</b>	<b>Jan-2019</b>	<b>Jan-2019</b>
<b>13</b>	Practical Exam End Date/ Final Presentation		<b>Jan-2019</b>	<b>Jan-2019</b>	<b>Jan-2019</b>

### List of Holidays

S.No	Holiday	Date	Day
1	Independence Day	15.08.2018	Wednesday
2	Bakrid	22.08.2018	Wednesday
3	Sri Krishna Janmashthami	03.09.2018	Monday
4	Muharam	21.09.2018	Friday
5	Gandhi Jayanti	02.10.2018	Tuesday
6	Durga Puja	13.10.2018-21.10.2018	Saturday to Saturday
7	Chehallum	30.10.2018	Tuesday
8	Deepabali	07-11,2018 -16.11.2018	Wednesday to Friday
9	Hazarat Mohamad sahib Birthday	21.11.2018	Wednesday
10	Christmas	25-12-2018 -31.12.2018	Tuesday To Monday

## Time Tables (Odd Semesters): 2018-19

MUZAFFARPUR INSTITUTE OF TECHNOLOGY								
ODD SEM (JULY- DEC 2018) TIME TABLE FOR 3 <sup>rd</sup> , 5 <sup>th</sup> & 7 <sup>th</sup> SEMESTER, B.PHARM, WITH EFFECT FROM 16.07.20								
DAY	SEMESTER	9 AM TO 10	10 -11 AM	11- 12 AM	12 -1 PM	2- 3 PM	3 PM	
MON	THIRD SEM	APHE II SK	PHARM ANAL II GT	PHARMACEUTICS III AB	PHARMACOGNOSY II NRB		CLAS	
	FIFTH SEM	PHARMACEUTICS V RKC	PHARMACEUTICS V LAB RKC					CLAS
	SEVENTH SEM	PHARMA. BIOTECH SNS	PHARM CHEM VII RP	PHARMA. INDUST. MANAG.	PHARMACOLOGY III RP		CLAS	
TUES	THIRD SEM	PHARMACEUTICS III AB	PHARM CHEM IV SW	PHARMACEUTICS III AB(T)	PHARM ANAL II GT(T)		PHARMA LAB	
	FIFTH SEM	PHARM CHEM V SNS	PHARMACEUTICS VI AB	PHARMA CEUTICS V RKC	PHARMACOLOGY I SK		PHARM C S	
	SEVENTH SEM	PHARMACEUTICS VIII RKC	PHARM CHEM VII RP	PHARMACOLOGY III RP	PHARMACEUTICS VIII RKC(T)		PHARMA LAB	
WED	THIRD SEM		PHARMACOGNOSY II NRB(T)	PHARMACOGONOSY II NRB	PHAR ANAL II GT		PHARMA II LAB	
	FIFTH SEM	PHARMACOLOGY I SK	PHARM CHEM V SNS	PHARMACEUTICS VI AB	PHARMACOLOGY I SK(T)		PHARMA LAB	
	SEVENTH SEM	PHARM CHEM VII RP(T)	PHARMACEUTICS VIII RKC	PHARM CHEM VII RP	ELECTIVE OPT		PHARM C	
THURS	THIRD SEM	APHE II SK(T)	PHARM CHEM IV SW	APHE II SK	PHARM CHEM IV SW(T)		PHARM A C	
	FIFTH SEM	PHARM CHEM V SNS	PHARMACEUTICS VI AB	PHARMACOGONOSY IV SW			PHARMA IV LA	

	SEVENTH SEM	PHARMACEUTICS VIII RKC	PHARMA. BIOTECH SNS(T)	PHARMACOLOGY III RP	ELECTIVE OPT	ELECTIVE
FRI	THIRD SEM	APHE II SK	PHARMACUTICAL CHEMISTRY IV LAB SW			APHE I
	FIFTH SEM	PHARMACOGONOSY IV SW	PHARMACEUTICS V RKC	PHARMACOGONOSY IV SW(T)	PHARMACEUTICS V RKC(T)	PHARMA LAB C
	SEVENTH SEM		ELECTIVE OPT (T)	ELECTIVE OPT	PHARMA. BIOTECH.SNS	PHARMA III RK
SAT	THIRD SEM	PHARMACOGONOSY II NRB	PHARM CHEM IV SW	PHAR ANAL II GT	PHARMACEUTICS III AB	
	FIFTH SEM	PHARM CHEM V SNS(T)	PHARMACOLOGY I SK	PHARMACEUTICS VI AB	PHARMACOGONOSY IV SW	
	SEVENTH SEM	PHARMACOLOGY III RP(T)	PHARMA. INDUST. MANAG.	PHARMA. BIOTECH SNS		

## PHARMACOGNOSY -1

### B. PHARM – FIRST SEMESTER

#### 1. Course Syllabus

Module:-1. Definition, history, scope and development of Pharmacognosy, .Sources of drugs: Biological, marine, mineral and plant tissue cultures as sources of drugs, Classification of drugs: Alphabetical, morphological, taxonomical, chemical and pharmacological classification of drugs.

Module :- 2 Plant taxonomy: study of the following families with special reference to medicinally important plants -Apocynaceae, Solanaceae, Rutacease, Umbelliferae, Leguminosae, Rubiaceae, Liliaceae, Graminae, Labiatae, Cruciferae, Papaveraceae.

Module :-3 Cultivation, Collection, Processing and storage of crude drugs: Factors influencing cultivation of medicinal plants. Types of soils and fertilizers of common use. Pest management and natural pest control agents. Plant hormones and their applications. Polyploidy, mutation and hybridization with reference to medicinal plants.

Module:- 4 Quality control of crude drugs: Adulteration of crude drugs and their detection by organoleptic, microscopic, physical, chemical and biological methods and properties..An introduction to active constituents of drugs: their isolation, classification and properties.

Module:- 5 Systematic pharmacognostic study of following:

a)Carbohydrates and derived products: agar, guar gum, acacia, Honey, Isabgol, pectin, Starch, sterculia and Tragacanth.

b)Lipids: Bees wax, Castor oil, Cocoa butter, Cod~liver oil, Hydnocarpus oil, Kokum butter, Lard, Linseed oil, Rice, Bran oil, Shark liver oil and Wool fat.

## 2. Program Objectives

The graduates of the programme will possess:

1. The knowledge of medicinally important plants.
2. The knowledge about source, cultivation, collection, chemical nature, chemical test, adulterants and uses of medicinal plants from different categories.

### 3. Course Outcomes (CO'S)

After completion of the course, the students are will be able to:

1. Describe the cultivation, collection, processing, storage and use of medicinal plant with its industrial importance. (Blooms Level II)

2. Discuss various pharmacognostic parameters of Resins and Tannins. (Blooms Level II)
3. Identify, classify, isolation, analyze the methods of extraction of volatile oils from plants. (Blooms Level II)
4. Demonstrate the phytochemical screening techniques and able to identify the phytoconstitutes of plants. (Blooms Level III)

#### 4. Mapping of COs with PO'S

PO	CO1	CO2	CO3	CO4
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1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

## 5. Assessment Methods for CO'S

### 5.1. Theory

S.No	Assessment Tools	Marks	Outcomes
1	Sessional Examination	20	CO1 CO2 CO3 CO4
2	Assignment	02	CO1 CO2 CO3 CO4
3	Presentation	02	CO1 CO2 CO3 CO4
4	Quizzes	01	CO1 CO2 CO3 CO4
5	Attendance	05	NA
6	University Examination	70	NA

## 5.2. Practical

S.No	Assessment Tools	Marks	Outcomes
1	Attendance	05	CO1 CO2 CO3 CO4
2	Experiment valuation	10	CO1 CO2 CO3 CO4
3	Internal Viva- voce	05	CO1 CO2 CO3 CO4
4	University Practical Exam	30	CO1 CO2 CO3 CO4

## 6. Delivery Methodology

Outcomes	Methods	Supporting Tools
CO 1	Chalk-Talk, Interactive classroom, ICT usage, Case study discussion about diseases, Group discussions, , Web based learning	Board, Laptop, Projector, You Tube, Whatsapp, Google,
CO2	Chalk-Talk, Interactive classroom, ICT usage, Case study discussion about diseases, Group discussions, , Web based learning	Board, Laptop, Projector, You Tube, Whatsapp, Google,
CO3	Chalk-Talk, Interactive classroom, ICT usage, Case study discussion about diseases, Group discussions, , Web based learning	Board, Laptop, Projector, You Tube, Whatsapp, Google,
CO4	Chalk-Talk, Interactive classroom, ICT usage, Case study discussion about diseases, Group discussions, , Web based learning	Board, Laptop, Projector, You Tube, Whatsapp, Google,

## 7. Teaching plan

### 7.1. Theory

Lecture No.	Contents
1	Introduction of cultivation collection, processing & storage of crude drugs.
2	Cultivation, collection of crude drugs.
3	Processing & storage of crude drugs.
4	Introduction to factors effecting cultivation
5	Factors effecting cultivation
6	Introduction of types of soil & fertilizers.
7	Types of soil & fertilizers.
8	Introduction of Pest and Pest Management.
9	Pest and Pest Management
10	Pest and Pest Management
11	Introduction of Poly houses and Green houses for cultivation CLASS TEST
12	Introduction of Resins.
13	Introduction of Resins.
14	Introduction of drugs containing Resins Podophyllum and Cannabis.
15	Introduction of drugs containing Resins Capsicum and Myrrh.
16	Introduction of drugs containing Resins Asafoetida and Balsam of Tolu.
17	Introduction of drugs containing Resins Balsam of Peru and Benzoin. CLASS TEST
18	Introduction of drugs containing Resins Turmeric and Ginger.
19	Introduction of Tannins.
20	Introduction of drugs containing Tannins like Black catechu.
21	Introduction of drugs containing Tannins like Gall.
22	Introduction of drugs containing Tannins like Arjuna.
23	Introduction of Volatile oils.
24	Introduction of Volatile oils like Mentha and Lemon peel.
25	Methods of extraction of volatile oils like Orange peel Sandalwood.
26	Methods of extraction of volatile oils like Citronella and Dill.
27	Methods of extraction of volatile oils like Nutmeg and Chenopodium.
28	Methods of extraction of volatile oils like Valerian and Musk.
29	Methods of extraction of volatile oils like Palmarosa and Gaultheria. CLASS TEST
30	Methods of extraction of volatile oils like Clove and Coriander

31	Methods of extraction of volatile oils Lemon Grass, Cardamom
32	Methods of extraction of volatile oils like Cinnamon and Eucalyptus.
33	Introduction of Phytochemical Screening.
34	Introduction of Phytochemical Screening
35	Introduction of Phytochemical Screening
36	Introduction of Alkaloids
37	Introduction of Cardenolides
38	Introduction of Bufadienolides
39	Introduction of Flavonoids
40	Introduction of Leucoanthocyanidine
41	Introduction of Cyanogenetic glycosides
42	Introduction of Glycosides.
43	Introduction of Saponins.
44	Introduction of Cardioactive sterols.
45	Introduction of Anthraquinone cathartics.
46	Introduction of drugs containing glycosides like Ginseng & Dioscorea,
47	Introduction of drugs containing glycosides like Sarsaparilla., Digitalis & Digitalis
48	Introduction of drugs containing glycosides like Thevetia, Aloe, Rhubarb & Cascara.
49	Introduction of drugs containing glycosides like Psoralea., Ammi Majus, Ammi Visnaga
50	Introduction of drugs containing glycosides like Gentian, Chirata,& Quassia.

## 7.2. Practical

Exp. No	Experiment
1	To perform macroscopic examination of the given crude drugs (Ginger, Turmeric, Nutmeg & Cinnamon)
2	To perform macroscopic examination of the given crude drugs (Clove, Coriander, Cardamon & Fennel)
3	To perform macroscopic examination of the given crude drugs (Benzoin, Capsicum, Arjuna & Asafeotida)
4	To perform macroscopic examination of the given crude drugs (Chirata, Rhubarb, Aloes & Orange peel)
5	To perform macroscopic & microscopic evaluation of the given drug (Vinca leaf)
6	To perform macroscopic & microscopic evaluation of the given drug (Vinca leaf)
7	To study the apparatus for the determination of volatile oils.
8	To perform macroscopic & microscopic evaluation of the given drug (Clove)
9	To Study the effect of Auxins & Gibberlins
10	To study the different method of extraction of crude drugs.
11	To study general chemical tests for Alkaloids, Glycosides, Steroids, Phenols, Flavonoids, Resins & Tannins.