

**Course curriculum for Second Professional
BAMS (PRESCRIBED BY NCISM)**

**Dravyaguna
Vigyan**

(SUBJECT CODE : AyUG-DG)

(Applicable from 2021-22 batch, from the academic year 2023-24 onwards for 5 years or until further notification by NCISM, whichever is earlier)

II Professional Ayurvedacharya (BAMS)

Subject Code : AyUG-DG

Summary

Total number of Teaching hours: 400			
Lecture hours(LH)-Theory		150	150(LH)
Paper I	75		
Paper II	75		
Non Lecture hours(NLH)-Theory		250	250(NLH)
Paper I & II	75		
Non Lecture hours(NLH)-Practical			
Paper I & II	175		

Examination (Papers & Mark Distribution)					
Item	Theory Component Marks	Practical Component Marks			
		Practical	Viva	Elective	IA
Paper I	100	100	70	-	30
Paper II	100				
Sub-Total	200	200			
Total marks	400				

Table 2 : Contents of Course

Paper 1 Fundamental Dravyaguna							
Sr. No	A2 List of Topics	B2 Term	C2 Marks	D2 Lecture hours	E2 Non-Lecture hours	Name of Faculty	Date/Month
1	1.Dravyaguna Vigyana	1	1	1	1	Dr Pawar	oct 2023
2	2.Dravya <ul style="list-style-type: none"> ♦ 2.1 Panchabhoutikatwa of Dravya ♦ 2.2 Classification of Dravya based on Utpattibheda, Yonibheda, Prayogabheda, Prabhavbheda, Doshaghnabheda, Rasabheda and Karmbheda 	1	6	5	4	Dr Tupe	Oct
3	Guna <ul style="list-style-type: none"> ♦ 3.1 Panchabhoutikata, characteristics and classification ♦ 3.2 Gurvediguna and its karma on Dosha, Dhatu and Mala, clinical application and research updates ♦ 3.3 Paradiguna with examples, clinical applications and research updates 	1	11	4	2	Dr Pawar	Nov 2023
4	Rasa <ul style="list-style-type: none"> ♦ Meaning of "Rasa" in various contexts ♦ 4.1 Shadrassa in relative correlation with taste of chemical constituents ♦ 4.2 Rasotpatti and Panchabhoutika constitution of Shadrassa ♦ 4.3 Rasopalabdhi and pathway of taste perception & sites of taste receptors in the body ♦ 4.4 Rasa -Lakshana, Guna & Karmas of each Rasa on Dosha, Dhatu and Mala ♦ 4.5 Atiyogalakshana, ♦ 4.6 Clinical application and Research updates of Shadrassa ♦ 4.7 Anurasa ♦ 4.8 Rasa Sevanakrama of Aushadha 	1	11	7	4	Dr Pawar	Nov.

5	5. Vipaka <ul style="list-style-type: none"> ♦ 5.1 Trividha Vipaka ♦ 5.2 Vipak karma on Dosha, Dhatu and Mala ♦ 5.3 Clinical application and Research updates ♦ 5.4 Vipakopalabdhi (Determination of Vipaka) & Taratamya (Degree of variation) 	1	6	3	1	Dr Pawar	Dec
6	6. Virya <ul style="list-style-type: none"> ♦ 6.1 Difference between Guna and Virya ♦ 6.2 Karmas of Virya on Dosha, Dhatu and Mala ♦ 6.3 Clinical application and Research updates ♦ 6.4 Viryaopalabdhi (Determination of Virya) and understanding of Virya with respect to actions of active constituents 	1	6	2	2	Dr Pawar	Dec
7	7. Prabhava <ul style="list-style-type: none"> ♦ 7.1 Samanapratyayarabdha and Vichitrapratyayarabdha ♦ 7.2 Clinical application of Prabhava and Research updates 	1	5	2	1	Dr Tupe	Nov
8	8. Interrelation of Rasa-Guna-Virya-Vipaka-Prabhava <ul style="list-style-type: none"> ♦ Interrelation of Rasa-Guna-Virya-Vipaka-Prabhava with respect to their strength-Pharmacodynamics 	1	1	1	2	Dr Pawar	Jan2024
9	9. Karma <ul style="list-style-type: none"> ♦ 9. Individual Karma, correlation with contemporary pharmacological action, examples, clinical application and research updates ♦ 9.1 Deepana ♦ 9.2 Pachana 	1	11	9	5	Dr Pawar	Feb

	<ul style="list-style-type: none"> ♦ 9.3 Samshodhana ♦ 9.4 Samshamana ♦ 9.5 Anulomana ♦ 9.6 Sransana ♦ 9.7 Bhedana ♦ 9.8 Rechana ♦ 9.9 Chhedana ♦ 9.10 Lekhana ♦ 9.11 Grahi ♦ 9.12 Sthambhana ♦ 9.13 Madakari ♦ 9.14 Pramathi ♦ 9.15 Abhishyandi ♦ 9.16 Vyavayi ♦ 9.17 Vikashi ♦ 9.18 Rasayana ♦ 9.19 Vajeekarana ♦ 9.20 Medhya 					
10	10. Karmas of Dashemani Gana	1	5	12	3	Dr Tupe
11	11. Principles of General Pharmacology <ul style="list-style-type: none"> ♦ 11 Drug definition, drug dosage forms, route of drug administration, pharmacokinetics (ADME), pharmacodynamics, Drug dose, principles of drug action, mechanism of drug action & bio- availability ♦ 11.1 Drugs Acting on Central Nervous System: Anaesthetics, Sedative Hypnotics, Antiepileptics, Antiparkinsonian, Antidepressants, Antianxiety Drugs, Opioid - Analgesics Drugs ♦ 11.2 Drugs Acting on Peripheral (somatic) Nervous System: Skeletal Muscle Relaxants, Local Anaesthetics ♦ 11.3 Autacoids and Related Drugs: Nonsteroidal, Anti-inflammatory (NSAIDs)/Antipyretic and Analgesics Drugs ♦ 11.4 Drugs for Respiratory Disorders: Bronchodilators, Aerosols/ Inhalants Expectorants, Antitussive Drugs ♦ 11.5 Cardiovascular Drugs: Antihypertensive, Antianginal Drugs ♦ 11.6 Drugs Acting on Kidney: Diuretics ♦ 11.7 Drugs Affecting Blood: Haematinics, Coagulants, Anticoagulants, Hypolipidaemic Drugs 	3	20	15	1	

	12.					Name of Faculty
--	-----	--	--	--	--	------------------------

	13.					Dr Pawar
--	-----	--	--	--	--	----------

	14.					Dr Tupe
--	-----	--	--	--	--	---------

	15.					Dr Pawar
--	-----	--	--	--	--	----------

12	12. Mishraka Gana <ul style="list-style-type: none"> ♦ 12. Mishrakagana: its composition, guna karma and therapeutic uses. ♦ 12.1 Brihatpanchamoola. ♦ 12.2 Laghupanchamoola. ♦ 12.3 Vallipanchamoola. ♦ 12.4 Kantakapanchamoola. ♦ 12.5 Trinapanchamoola. ♦ 12.6 Panchavalkala. ♦ 12.7 Triphala. ♦ 12.8 Trikatu. ♦ 12.9 Trimada. ♦ 12.10 Chaturusana. ♦ 12.11 Panchakola. ♦ 12.12 Shadusana ♦ 12.13 Chaturbeeja. ♦ 12.14 Trijataka. ♦ 12.15 Chaturajataka. ♦ 12.16 Panchatikta. ♦ 12.17 Chaturbhadra. ♦ 12.18 Trikarshika. 	3	6	6	2	DR Pawar
13	13. Nomenclature of dravya as per Nighantu, Vedic taxonomy and Botany	3	1	0	2	DR Pawar
14	14. Prashasta Bshhaja, Bshhaja Pariksha and drug evaluation method with correlation as per Pharmacognosy	3	1	1	2	DR Tupe
						Dr Pawar

15	15. Dravyasangrahana and Drug collection methods as per GFCP (Good Field collection practices)	3	1	1	0	Dr Tupe
16	16. GCP (Good cultivation practices), seed bank, conservation of medicinal plants, knowledge about RET (Rear, Endangered & Threatened) medicinal plants.	3	1	1	0	Dr Pawar
17	17. Abhava Pratinidhi Dravya (substitutes)	3	1	1	1	Dr Tupe
18	18. Classifications and techniques of aqueous and alcoholic extracts	3	1	0	2	Dr Pawar
19	19. Adverse drug reaction and Pharmacovigilance with recent updates	3	1	1	2	Dr Pawar
20	20. NMPB (National Medicinal Plant Board), CCRAS (Central Council of Research in Ayurveda Sciences), API (Ayurvedic Pharmacopeia of India), GCTM (Global Centre for Traditional Medicine), PCIMH (Pharmacopeia Commission of Indian Medicine and Homeopathy)	3	1	1	0	Dr Pawar
21	21. Vrikshayurveda and Ethno-medicine	3	1	1	1	Dr Tupe
22	22. Network pharmacology and Bioinformatics	3	2	1	1	Dr Tupe
Total Marks			100	75 hr	39 hr	

Paper 2 Applied Dravyaguna						
Sr. No	A2 List of Topics	B2 Term	C2 Marks	D2 Lecture hours	E2 Non-Lecture hours	
23	1. Bheshajavacharaniya (Criteria's to be considered for selection of drugs in vyadhis)	2	5	1	6	Dr Tupe
24	2.1 Dravya (Drug) Nama-Guna-Karma Jnana	2	55	45	10	

- ♦ Amalaki
- ♦ Aragwadha
- ♦ Arjuna
- ♦ Ashoka
- ♦ Ashwagandha
- ♦ Ativisha
- ♦ Bala
- ♦ Beejaka
- ♦ Bhallataka
- ♦ Bharangi
- ♦ Bhrungaraja
- ♦ Bhumyamalaki
- ♦ Bilva
- ♦ Brahmi
- ♦ Chandana
- ♦ Chitraka
- ♦ Dadima
- ♦ Dhataki
- ♦ Dhamasa
- ♦ Eranda
- ♦ Gokshura
- ♦ Guduchi
- ♦ Guggulu
- ♦ Haridra
- ♦ Haritaki
- ♦ Hingu
- ♦ Jambu
- ♦ Jatamansi
- ♦ Jyotishmati
- ♦ Kanchanara
- ♦ Kantakari
- ♦ Kapikachhu
- ♦ Karkatshrungi
- ♦ Katuki
- ♦ Khadira
- ♦ Kumari
- ♦ Kutaja
- ♦ Latakaranja
- ♦ Lodhra
- ♦ Agnimanth
- ♦ Ahiphena (NK)
- ♦ Ajamoda (DK)
- ♦ Apamarga (DK)
- ♦ Asthishrunkhala
- ♦ Bakuchi
- ♦ Bruhati
- ♦ Chakramarda
- ♦ Dhanyaka
- ♦ Ela
- ♦ Gambhari

	<ul style="list-style-type: none"> ♦ Japa ♦ Jatiphala ♦ Jeeraka ♦ (DK) ♦ Kalamegha ♦ Kampillaka ♦ Kulatha ♦ (NK) ♦ Kumkum Lajjalu Lavanga 				
25	2.2 Dravya (Drugs) Nama -Guna-Karma-Jnana <ul style="list-style-type: none"> ♦ Madanphala ♦ Mandukapar ♦ ni Manjishta ♦ Maricha ♦ Meshashrun ♦ gi Methika ♦ Musta ♦ Nagkeshar ♦ Nimba ♦ Nirgundi ♦ Palasha ♦ Pashanabhe ♦ da Patha ♦ Pippali ♦ Punarnava ♦ Rasna ♦ Rasona ♦ Sarapagand ♦ ha Sairayak ♦ Sariva ♦ Shallaki ♦ Shalmali(Mocharasa) ♦ Shankhapushpi ♦ Shatavari ♦ Shigru ♦ Shunthi ♦ Talisapatra (NK) ♦ Trivrut ♦ Tulasi ♦ Twak ♦ Usheera ♦ Vacha ♦ Varuna ♦ Vasa ♦ Vatsanab ha 	3	40	29	20

	<ul style="list-style-type: none"> ♦ Vibhitaki ♦ Vidanga ♦ Yashtimadhu 				
Total Marks			100	75 hr	36 hr

List of Practicals (Topics and Hours)

PRACTICALS (Marks-100)			
S.No	List of Topics	Term	Hours
1	1. Assessment and Understanding the relation between Parthivatwa & subjective/ objective parametric tests	1	10
2	2. Assessment of objective parametric measures of Guna	1	12
3	3. Assessment of Rasa	1	6
4	4. Comparative organoleptic and macroscopic examination	1	23
5	5. Microscopic Identification of genuine and adulterated drug	1	4
6	6. Demonstration of skills to identify the medicinal plants in the college garden.	1	10
7	7. Out campus visit (Cultivated gardens, Tissue culture lab, Herbaria, Pharmacognosy lab, Quality control lab and Forest plant demonstration)	1	10
8	8. Dravya prayoga	1	12
9	9. Physico-chemical study	2	8
10	10. Phytochemical	2	4
11	11. Thin Layer Chromatography (TLC) technique	2	2
12	12. Demonstration of skills to identify the medicinal plants in the college garden	2	10
13	13. Out campus visit (cultivated gardens & In-situ plant demonstration)	2	10
14	14. Ekala dravya prayoga	2	10
15	15. Different Cultivation technique including methods mentioned in Vrikshayurveda	2	6
16	16. Exercise on Network pharmacology	3	6
17	17. Preparations of digital herbarium	3	2
18	18. Demonstration of skills to identify the medicinal plants in the college garden	3	10
19	19. Out campus visit (cultivated gardens & In-situ plant demonstration)	3	10
20	20. Ekala dravya prayoga	3	10

List of Practical

S. No	Name of practical	Term	Activity	Practical hrs	Name of Faculty
1	1. Assessment and Understanding the relation between Parthivatwa & subjective/ objective parametric tests	1	<p>Assessment and Understanding the relation between Parthivatwa & subjective/ objective parametric tests</p> <ul style="list-style-type: none"> ♦ Density (bulk) ♦ Specific gravity (solid) ♦ Drugs to study for e.g.- Asthishrnkhala, Sariva, Vidari, Maricha, Shatavari, Jambu, Godhuma & Ushira ♦ 1.2 Assessment and Understanding the relation between Jaliyatwa & subjective/ objective parametric tests ♦ Viscosity ♦ Specific gravity ♦ Moisture content ♦ Drugs to study for e.g.- Kumari, Vidari, Sariva, Shunthi, Ikshu, Usheera, Kamala & Apamarga ♦ 1.3 Assessment and Understanding the relation between Aagneyatwa & subjective/ objective parametric tests ♦ pH ♦ Moisture content ♦ Drugs to study for e.g.: Shunthi, Shatavari, Maricha, Dhataki, Chitraka, Gokhura, Hingu & Chandana ♦ 1.4 Assessment and Understanding the relation between Vayaviytwā & subjective/ objective parametric tests ♦ Fat content ♦ Specific gravity ♦ Density (bulk) ♦ Drugs to study for e.g. : Usheera, Ashwagandha, Nimba, Vidari, 	10	

			<p>Khadira, Tila, Jambu & Kapikacchu</p> <ul style="list-style-type: none"> ♦ 1.5 Assessment and <p>Understanding the relation between Aakashiyatwa & subjective/ objective parametric tests</p> <ul style="list-style-type: none"> ♦ Density (Bulk) ♦ Drugs to study for e.g.: Usheera, Kumari, Apamarga, Jeeraka & Jatamansi 	
2	2. Assessment of objective parametric measures of Guna	1	<ul style="list-style-type: none"> ♦ 2.1 Assessment of objective parametric measures Guru & Laghu Guna ♦ Density (bulk) ♦ Specific gravity (Liquid and solid) Drugs to study for e.g. : Guru: Shatavari, Bala ; Laghu: Yava, Dhanyaka ♦ 2.2 Assessment of objective parametric measures of Snigdha and Ruksha guna drugs ♦ Total fat content Moisture content ♦ Swelling index ♦ Drugs to study for e.g. : Snigdha: Tila, Eranda ; Ruksha: Kullatha, Vidanga 	12
3	3. Assessment of Rasa	1	<p>Assessment of Rasa based on classical symptoms for each rasa dravyas.</p> <p>One Example For each rasa</p>	6
4	4. Comparative organoleptic and macroscopic examination	1	<ul style="list-style-type: none"> ♦ Comparative organoleptic (Taste, Color, Smell, Sound, Touch) and macroscopic examination (Size, Shape, Fracture, External markings like lenticels, ridges, nodes, furrows, cracks, etc)of the following group of drugs. ♦ a. Root: Aswagandha, Chitraka, Manjistha, Musta, Shatavari, Vatsanabha, Yashtimadhu. ♦ b. Rhizome/Stolon: 	23

			<p>Haridra, Katuki, Shunthi, Vacha.</p> <ul style="list-style-type: none"> ♦ c. Stem: Asthishrinkhala, Guduchi. ♦ d. Bark: Arjuna, Ashoka, Kutaja, Nimba, Twak. ♦ e. Heart wood: Beejaka, Chandana, Khadira. ♦ f. Leaf: Kumari, Meshashringi, Vasa. ♦ g. Flower: Dhataki, Kunkum (kesara), Lavanga. ♦ h. Fruit: Amalaki, Aragavadha, Bhallataka, Bibhitaki, Gokshura, Haritaki, Madanphala, Maricha, Pippali, Vidanga. ♦ i. Phalaraja: Kampillaka ♦ j. Seed: Bakuchi, Ela, Eranda, Jyotishmati, Kapikacchu ♦ k. Unorganized drugs: Guggulu, Hingu, Mocharasa ♦ l. Whole plant: Apamarga, Bhrungaraja, Bhumyamalaki, Brahmi, Kalmegha, Mandukaparni. ♦ m. Galls: Karkatshrungi 		
5	5. Microscopic Identification of genuine and adulterated drug	1	<ul style="list-style-type: none"> ♦ Microscopic identification of genuine and adulterated drug, minimum 2 samples from Root/stem/leaf /bark/fruits. ♦ (E.g. Sariva/Manjishta/Vidanga/Maricha/Ashoka) 	4	
6	6. Demonstration of skills to identify the medicinal plants in the college garden.	1		10	
7	7. Out campus visit (Cultivated gardens, Tissue culture lab, Herbaria, Pharmacognosy	1	<ul style="list-style-type: none"> ♦ General instructions regarding combined educational visit 	10	

lab, Quality control lab and Forest plant demonstration)

- ♦ Combined educational visit can be planned wherever feasible as, for Dravyaguna- Cultivated gardens, Tissue culture lab, Herbaria, Pharmacognosy lab, Forest plant demonstration ; for Agadatantra- forensic lab, snake park, pollution control board and snake venom unit; for Swasthvrutta -Yoga and naturopathy center , Milk dairy plant, Water Purification plant, Sewage treatment plant, Leprosy rehabilitation Centre & for Rasashastra- GMP certified Lab , Drug Analysis Lab
- ♦ SOP for Out campus Field Visits
- ♦ Theme-Based Visits: Plan visits based on specific educational themes (Deshemani Ganas, Family wise), selecting locations relevant to the theme and collaborating with local experts.
- ♦ Dress Code: Participants must wear jean paints and T shirts, closed-toe shoes, a hat or cap for sun protection, and weather-appropriate gear such as jackets or raincoats.
- ♦ Essential Materials: Each participant should carry a water bottle, a stick (optional), materials for sample storage (newspaper, blotting paper, secateurs, plastic bags), a cap, goggles, and a packed lunch or snacks in a suitable container.
- ♦ Safety Precautions: Conduct a safety briefing before the visit, outlining emergency procedures, collecting medical information, and emphasizing expected behaviors' during the trip.
- ♦ Itinerary: Develop a detailed itinerary with activities and a timeline, considering the chosen theme and objectives of the visit.
- ♦ Public Address System (PA System): If necessary, provide a portable PA system with a

			<p>microphone, amplifier, and power source for effective communication with larger groups.</p> <ul style="list-style-type: none"> ♦ Test the PA System: Prior to the visit, ensure the PA system is in working order and audible, conducting necessary tests to guarantee functionality. ♦ Responsible Usage: Use the PA system judiciously, speaking clearly and at an appropriate volume, while encouraging participants to utilize the system for questions or clarifications. ♦ Follow-up Activities: Organize post-visit discussions and assignments to reinforce learning, encourage knowledge sharing, and facilitate deeper exploration of the theme. ♦ Review and Revise: Regularly update and adapt this SOP to comply with safety standards, educational objectives, and local regulations. 		
8	8. Dravya prayoga	1	<ul style="list-style-type: none"> ♦ 8.1 (Part I) Demonstration of selecting appropriate Ekala dravya as per clinical conditions. ♦ 8.2 (Part II) Selection of Ekala dravya prayoga in various clinical conditions by providing masked case sheets per srotasa (5 cases in each term) 	12	
9	9. Physico-chemical study	2	<ul style="list-style-type: none"> ♦ Physicochemical study of medicinal plant. (minimum 2 drugs) <ul style="list-style-type: none"> ♦ a. Foreign matter ♦ b. Loss on drying ♦ c. Ash value ♦ d. Extracts ♦ Note: The same plant should be used for all the tests 	8	

10	10. Phytochemical	2		4
			<ul style="list-style-type: none"> ♦ Preliminary phytochemical study of medicinal plant. (minimum 2 drugs) 	
11	11. Thin Layer Chromatography (TLC) technique	2		2
			<ul style="list-style-type: none"> ♦ TLC technique of medicinal plant (any one) 	
12	12. Demonstration of skills to identify the medicinal plants in the college garden	2		10
13	13. Out campus visit (cultivated gardens & In-situ plant demonstration)	2		10
14	14. Ekala dravya prayoga	2		10
			<ul style="list-style-type: none"> ♦ Selection of Ekala dravya prayoga in various clinical conditions by providing masked case sheets. (5 cases in each term) 	
15	15. Different Cultivation technique including methods mentioned in Vrikshayurveda	2		6
16	16. Exercise on Network pharmacology	3		6
			<ul style="list-style-type: none"> ♦ Exercise on Network Pharmacology ♦ 1st activity: Identification (Data mining) active constituents by Pubmed, IMPPAT or PubChem. ♦ 2nd activity: Target identification by BindingDB. ♦ 3rd activity: Identification of disease gene by DisGeNET. 4th activity: GO enrichment analysis by KEGG Pathway, R ratio. ♦ 5th step: Network construction by STRING, PPI network, sytoscope. 	
17	17. Preparations of digital herbarium	3		2
			<ul style="list-style-type: none"> ♦ Preparations of digital herbarium of minimum 10 drugs with all parts of the plant (with geo-tag photos) by compulsory field visit 	

18	18. Demonstration of skills to identify the medicinal plants in the college garden	3		10	
19	19. Out campus visit (cultivated gardens & In-situ plant demonstration)	3		10	
20	20. Ekala dravya prayoga	3	Selection of Ekala dravya prayoga in various clinical conditions by providing masked case sheets.(5 cases in each term)	10	
Total Hr				175	