# **Certificate Course of Industrial Pharmacy-I**



The exam is conducted by National Testing Agency (NTA) in various exam centres across India. The weightage of marks: 30% For in Course Assessment and 70% of End Term Proctored Exam. All the learners who obtain 40% marks in internal assessment and 40% marks in end-term proctored exam (separately) will be eligible for certificate and credit transfer.

# **Objectives**

The course has been designed with the aim that after completing this course, you should be able

- To identify and practice Dosage forms; and their manufacturing techniques
- To practice all the related and practical aspect of dosage form development
- To formulate and evaluate solid, liquid and semisolid dosage forms
- To correlate the theoretical knowledge with professional and practical need of pharmaceutical industry

#### **The Expert Team Industrial Pharmacy-I**

Dr Ajay Semalty (Course Coordinator & Subject Matter Expert)

Dr Mona Semalty (Co-Course Coordinator & Subject Matter Expert)

Dr Lokesh Adhikari (Subject Matter Expert)

Production: EMRC Roorkee

#### Course syllabus WEEK: 12 MODULES 40 Week 1 Prefe

Preformulation I
Preformulation I: Physical form (crystal & amorphous),
Preformulation I: Polymorphism, particle size, shape
Preformulation I: Solubility profile (pKa, pH)
Preformulation I: Partition coefficient, flow properties

#### Week 2 Preformulation II

Preformulation II: Hydrolysis, oxidation, reduction Preformulation II: Racemisation, Preformulation II: Dissolution, permeability & BCS classification Preformulation II: Polymerization

#### Week 3 Tablets

Tablets: Introduction, classification of tablets. Formulation/preparing of tablets, granulation methods.

Tablets: Compression and processing problems. Equipment and tablet tooling, Tablet defects.

Tablets: Tablet coating: Types, coating materials, formulation of coating composition, methods of coating, equipments employed and defects in coating

Tablets: QC of tablets: apparatus, methods, graphical presentations, official and unofficial tests.

### Week 4 **Liquid Orals** Liquid orals: Formulation and manufacturing of solution, syrups and elixirs, Filling and packaging Liquid orals: Emulsions: I Liquid orals: Emulsion II Liquid orals: Suspensions: Formulation, evaluation Week 5 **Parenterals I** Parenterals I: Introduction, Preformulation of parenterals Parenterals I: Formulation of Parenterals Week 6 **Parenterals I** Parenterals I: Types of Parenteral preparation Parenterals I: Lay out and Production facilities Week 7 **Parenterals II**

Parenterals II: Pyrogens and pyrogenisity Parenterals II: Quality control of parenterals

#### Week 8 Capsules

Capsules: Introduction, Advantages, Disadvantages, Capsule Production, hard Gelatin capsules Capsules: Methods of filling capsules, Soft Gelatin Capsules

Capsules: Formulation Consideration, Production of soft gelatin capsules, Nongelatin soft capsules

Capsules: Evaluation of commercial capsules

chets and opnitianine reparations
Pellets: Introduction, formulation, pelletization process, equipment needed
Dphthalmic Preparations: Introduction, absorption through eye, formulation
Ophthalmic Preparations: formulation of eye drops, lotion, ointments
Depthalmic Preparations: Methods of preparation; labeling, containers

Week 10Pharmaceutical AerosolsPharmaceutical Aerosols: Definitions, Advantages, Limitation, UsesPharmaceutical Aerosols: Components of aerosolsPharmaceutical Aerosols: Components and systems of aerosolsPharmaceutical Aerosols: inhalers and Evaluation of Aerosols

#### Week 11 Cosmetics

Cosmetics: Introduction, absorption through skin, types of cosmetic preparations, Formulation of tooth pastes

Cosmetics: Formulation of lipsticks, shampoos, hair dyes Cosmetics: Formulation of cold cream and vanishing cream, sunscreens

#### Week 12 Packaging Materials Science

Packaging Materials Science: Materials used for packaging of pharmaceutical

products,

Packaging Materials Science: Factors influencing choice of containers Legal and official requirements,

Stability aspects, Packaging Materials Science: Quality control tests of packaging materials

# Sr. No. Course Name Name of students 1. Industrial Pharmacy-I Mr. Jadhav Lavkush Santosh Mr. Mamale Kalpana Babu Ms. Anawade Geeta Anil Ms. More Aishwarya Vinnayakrao Mr. Waghmare R. B. Mr. Manke M. B. Mr. Manke M. B.

# **List of Course Completed Students**

# **Certificates of Course Completed Students**

Massive C	An and the Course	Q			2	- Berth	
	SWAY	AM ONLI	INE COU	JRSE CER	TIFIC	ATION	
	from the evalu This cou	This Jaa for successfully In with a c uation based on examination urse was offered	certificate is a lhav Lavkush completing th dustrial Phar. consolidated s continuous on held in month by Dr. Ajay Sa	warded to Santosh he four credit con macy-I core of 61% line assessments h of March 2021 emalty of HNB	urse and the Pro Garhwal U	octored Iniversity	Roll No. : 4010212593
	Marks in Onlin	e Assignments	Marks in Pr	octored Exam	Tota	I Score	
	Total	Obtained	Total	Obtained	Total	Obtained	-
	30	22	70	39	100	61	
Consortiu Issued On : 03/08/2021	J. B. Nadda National Coordinat m for Educational Com New Delhi	or munication (CEC),	CT-		Pr Cc H.N.B. (	of. Arun Singh Raw ntroller of Examinat Sarhwal University, To validate and check	vat ion Garhwal scores: https://swayam.gov.in

Massive	HINE EDUCATION Vayam Man Hill Jama Her Open Online Course					( Hall	
	SWAY	AM ONLI	INE COU	JRSE CER	RTIFIC.	ATION	
		Ka for successfully In with a c	alpana Balu M completing th dustrial Phar consolidated s	<b>lamale</b> e four credit cou <b>nacy-I</b> core of 78%	urse		
	from the eva This co	luation based on a examination urse was offered	continuous oni 1 held in month by <b>Dr. Ajay So</b>	ine assessments a of March 2021 <b>emalty</b> of <b>HNB</b>	and the Pro Garhwal U	octored niversity	Koli No. : 4010205989
	from the evan This co Marks in Onli	luation based on a examination purse was offered ne Assignments	continuous oni a held in month by <b>Dr. Ajay So</b> Marks in Pro	ine assessments of March 2021 cmalty of HNB	and the Pro	octored niversity Score	Koli No. : 4010205989
	from the evan This co Marks in Onli Total	luation based on a examination purse was offered ne Assignments Obtained	continuous oni a held in month by <b>Dr. Ajay Sa</b> Marks in Pra Total	ine assessments a of March 2021 emalty of HNB poctored Exam Obtained	Garhwal U	octored iniversity Score Obtained	Koli No. : 4010205989
	from the eval This co Marks in Onli Total 30	luation based on a examination nurse was offered ne Assignments Obtained 26	continuous oni a held in month by <b>Dr. Ajay So</b> Marks in Pro Total <b>70</b>	ine assessments of March 2021 emalty of HNB octored Exam Obtained 52	and the Pro Garhwal U Total 100	octored niversity Score Obtained 78	Koli No. : 4010205989

Massive	And approximately and approximately approxim					(U. Mar	and with a rest of
	SWAY	AM ONLI	NE COL	JRSE CER	TIFIC	ATION	
		This for successfully In with a c	certificate is a Geeta Anil And completing the dustrial Phan consolidated s	warded to wade te four credit cou macy-I core of 61%	urse		Roll No. : 4010202440
	from the eval	uation based on o examination urse was offered	continuous on 1 held in month by <b>Dr. Ajay S</b> o	ine assessments a of March 2021 emalty of HNB	and the Pro Garhwal U	octored Iniversity	
	from the eval This con Marks in Onlir	uation based on a examination urse was offered ne Assignments	continuous on a held in month by <b>Dr. Ajay S</b> Marks in Pro	ine assessments a of March 2021 emalty of HNB	and the Pro Garhwal U Total	octored Iniversity Score	7
	from the eval This con Marks in Onlin Total	uation based on a examination urse was offered ne Assignments Obtained	continuous on a held in month by Dr. Ajay So Marks in Pro Total	ine assessments a of March 2021 emalty of HNB octored Exam Obtained	and the Pro Garhwal U Total	Contractored	_
	from the eval This con Marks in Onlin Total 30	uation based on a examination urse was offered he Assignments Obtained 28	continuous on a held in month by Dr. Ajay So Marks in Pro Total 70	ine assessments a of March 2021 emalty of HNB octored Exam Obtained 33	and the Pro Garhwal U Total 100	Score Obtained 61	-

		Z				
SWAY	AM ONL	INE COL	JRSE CER	TIFICA	TION	
	for successfully II	completing the completing the completing the completion of the com	ne four credit cou macy-I	ırse		11
from the eva This co	with a luation based on examination purse was offered	consolidated s continuous on 1 held in monti by Dr. Ajay S	core of 73% line assessments h of March 2021. emalty of HNB	and the Pro Garhwal U	octored niversity	Roll No. : 4010
from the eva This co Marks in Onlin	with a luation based on examination purse was offered ne Assignments	consolidated s continuous on a held in monti by Dr. Ajay S Marks in Pre	core of 73% line assessments h of March 2021. emalty of HNB poctored Exam	and the Pro Garhwal U Total	octored niversity Score	Roll No. : 4010
from the eva This co Marks in Onlin Total	with a luation based on examination purse was offered ne Assignments Obtained	consolidated s continuous on. 1 held in monti by Dr. Ajay S Marks in Pr Total	core of 73% line assessments h of March 2021. emalty of HNB octored Exam Obtained	and the Pro Garhwal U Total Total	octored iniversity Score Obtained	Roll No. : 4010
from the eva This co Marks in Onlin Total 30	with a luation based on examination purse was offered ne Assignments Obtained 25	consolidated s continuous on n held in monti by Dr. Ajay S Marks in Pre Total 70	core of 73% line assessments h of March 2021. emalty of HNB potored Exam Obtained 48	and the Pro Garhwal U Total Total 100	niversity Score Obtained 73	Roll No. : 4010

Maanve	Vayam Open Online Course					(a)	
	SWAY.	AM ONLI	NE COU	JRSE CER	TIFIC	ATION	
	from the evalu This cou	This Rai for successfully In with a c uation based on a examination urse was offered	certificate is a hul Sugriv Wa completing th dustrial Phar consolidated s continuous on held in month by Dr. Ajay S	warded to tghmare te four credit cou macy-I core of 67% line assessments h of March 2021 emalty of HNB	urse and the Pro Garhwal U	octored Iniversity	Foll No. : 4010212658
	Marks in Onlin	e Assignments	Marks in Pr	octored Exam	Tota	I Score	7
	Total	Obtained	Total	Obtained	Total	Obtained	
	30	26	70	41	100	67	
Consortiu Issued On : 03/08/2021	J. B. Nadda National Coordinat im for Educational Com New Delhi	or munication (CEC),	CE	<b>0</b>	Pr Cc H.N.B. C	Ar Rooth rof. Arun Singh Raw Introller of Examinat Sarhwal University, To validate and check	vat ion Garhwal scores: https://wwayam.gov.in

SV	vayam		in the second se				
	SWAY	AM ONL	INE COU	URSE CEI	RTIFIC	CATION	N
	6 de la constante	This Man for successfully In with a c	certificate is a uke Mahesh E completing ti dustrial Phar consolidated s	twarded to Bandappa he four credit co macy-I core of 85%	ourse		Roll No. : 4010206565
	from the eval	uation basea on a examination urse was offered	by Dr. Ajay S	the assessments h of March 2021 emalty of HNB	s and the Pi !. Garhwal U	octored /niversity	
	This co	uation basea on a examination urse was offered ne Assignments	by Dr. Ajay Sonorti Marks in Pro	tine assessments h of March 2021 emalty of HNB	Garhwal L	Intversity	7
	This co	uation based on a examination urse was offered ne Assignments Obtained	by Dr. Ajay St Marks in Pre Total	tine assessments h of March 2021 emalty of HNB poctored Exam Obtained	Garhwal L	I Score	-
	This co Marks in Onlin Total 30	examination examination urse was offered ne Assignments Obtained 30	by Dr. Ajay Si Marks in Pro Total	tine assessments h of March 2021 emalty of HNB octored Exam Obtained 55	Garhwal L Garhwal L Total 100	I Score Obtained	
Consortiu	This co This co Marks in Onlin Total 30 J. B. Nadda National Coordinat im for Educational Com	examination examination urse was offered ne Assignments Obtained 30	t held in month by Dr. Ajay S Marks in Pro Total 70	tine assessments h of March 2021 emalty of HNB octored Exam Obtained 55	Garhwal L Garhwal L Total 100	I Score Obtained 85	wel tion Garhwal