



Savitribai Phule Pune University, Pune

(Formerly, University of Pune)

Under Graduate Degree Program in Botany

(Faculty of Science & Technology)

Revised Syllabi as per National Education Policy (2020) for

B.Sc. Botany

(For Colleges Affiliated to Savitribai Phule Pune University, Pune)

To be implemented from

Academic Year 2024-2025

Framed by

BOARD OF STUDIES IN BOTANY

**Savitribai Phule Pune University,
Ganeshkhind, Pune -07.**


Dr. M. N. Kharde
Chairman, BoS in Botany

CREDIT FRAMEWORK FOR F.Y.B.Sc. BOTANY, SEMESTER – I (Level 4.5 / 100)

COURSE DETAILS	COURSE CODE	COURSE TITLE	CREDITS
Vertical – 1 (V1)			
Major Core Courses – (1T + 1P) x 2C = 4C	BOT 101 MJ	Applied aspects of Plant Sciences	2 C
	BOT 102 MJP	Practical Based on BOT 101 MJ	2 C
Major Elective Courses - (0C)	-----	-----	0 C
Vertical – 2 (V2)			
Minor Courses	Subject-2	2(T)+2(P)	4 C
	Subject-3	2(T)+2(P)	4 C
Vertical – 3 (V3)			
Generic Elective (GE) / Open Elective (OE) - (1T = 2C) (Any one from basket)	OE 101 BOT	Agro-tourism	2 C
	OE 102 BOT	Plants and Human Welfare	
	OE 103 BOT	Agriculture for Competitive Exams	
Vertical – 4 (V4)			
Vocational Skill Courses (VSC) - (0C)	-----	-----	0 C
Skill Enhancement Courses (SEC) - (1T / 1P = 2C) (Any one from basket)	SECP 101 BOT	Flower Design Techniques	2 C
	SECP 102 BOT	Post-Harvest Technology	
	SECP 103 BOT	Algal Technology	
Vertical – 5 (V5)			
Indian Knowledge Systems (IKS) – (1T = 2C) (Any one from basket)	BOT 101 IKS	Generic	2 C
Ability Enhancement Courses (AEC) – (1T = 2C)	AEC-101-ENG	English	2 C
Value Education Courses (VEC) – (1T = 2C)	VEC-101-ENV	Environmental Awareness	2 C
Vertical – 6 (V6)			
FP / OJT / CEP	-----	-----	0 C
Co-curricular Courses (CC)	----	-----	--
Total Credits (V1+V2+V3+V4+V5+V6)			22 C

CREDIT FRAMEWORK FOR F.Y.B.Sc. BOTANY, SEMESTER – II (Level 4.5 / 100)

COURSE DETAILS	COURSE CODE	COURSE TITLE	CREDITS
Vertical – 1 (V1)			
Major Core Courses – (1T + 1P) x 2C = 4C	BOT 151 MJ	Basics of Plant Sciences	2 C
	BOT 152 MJP	Practical Based on BOT 151 MJ	2C
Major Elective Courses - (0C)	-----	-----	0 C
Vertical – 2 (V2)			
Minor Courses	Subject-2	2(T)+2(P)	4 C
	Subject-3	2(T)+2(P)	4 C
Vertical – 3 (V3)			
Generic Elective (GE) / Open Elective (OE) - (1P = 2C) (Any one from basket)	OE 151 BOT	Fruit Processing and Flower Arrangement	2 C
	OE 152 BOT	Mushroom technology	
	OE 153 BOT	Vertical and Terrace Gardening	
Vertical – 4 (V4)			
Vocational Skill Courses (VSC) – (0C)	-----	-----	0 C
Skill Enhancement Courses (SEC) – (1T / 1P = 2C) (Any one from basket)	SECP 151 BOT	Plant Preservation Techniques	2 C
	SECP 152 BOT	Computer Literacy & Basics of MS Office	
	SECP 153 BOT	Plant Propagation Techniques	
Vertical – 5 (V5)			
Indian Knowledge Systems (IKS) – (0C)	-----	-----	0 C
Ability Enhancement Courses (AEC) – (1T = 2C)	AEC-151-ENG	English	2 C
Value Education Courses (VEC) – (1T = 2C)	VEC-151-ENV	Environmental Awareness	2 C
Vertical – 6 (V6)			
FP / OJT / CEP – (0C)	-----	-----	0 C
Co-curricular Courses (CC) – (1T = 2C)	CC 151 PE, NSS, NCC		2 C
Total Credits (V1+V2+V3+V4+V5+V6)			22 C
Total Credits for FYBSC - Semester I (22 C) + Semester II (22 C)			44 C

Exit Option: Award of UG Certificate (UG Certificate Course in Botany) in Major with 44 Credits and an additional 4 Credits core NSQF course / Internship OR Continue with Major and Minor.

Continue option: Student will select one subject among the subject 1, subject 2 and subject 3 as major and another as minor and third subject will be dropped.

CREDIT FRAMEWORK FOR S.Y.B.Sc. BOTANY, SEMESTER – III (Level 5.0 / 200)

COURSE DETAILS	COURSE CODE	COURSE TITLE	CREDITS
Vertical – 1 (V1)			
Major Core Courses – (2T + 1P) x 2C = 6C	BOT 201 MJ	Taxonomy of Angiosperms	2 C
	BOT 202 MJ	Plant Physiology and Metabolism	2 C
	BOT 203 MJP	Practical Based on BOT 201 MJ & BOT 202 MJ	2 C
Major Elective Courses - (0C)	-----	-----	0 C
Vertical – 2 (V2)			
Minor Courses – (1T + 1P) x2C = 4C (Any one from basket)	BOT 241 MN	Horticulture	2 C
	BOT 242 MN	Tissue Culture Technology	
	BOT 243 MN	Seed Technology	
	BOT 244 MNP	Practical Based on BOT 241 MN	2 C
	BOT 245 MNP	Practical Based on BOT 242 MN	
	BOT 246 MNP	Practical Based on BOT 243 MN	
Vertical – 3 (V3)			
Generic Elective (GE) / Open Elective (OE) - (1T = 2C) (Any one from basket)	OE 201 BOT	Crop Science	2 C
	OE 202 BOT	Medicinal Botany	
Vertical – 4 (V4)			
Vocational Skill Courses (VSC) – (1T /P = 2C) (Any one from basket)	BOT 221 VSC	Phytochemistry	2 C
	BOT 222 VSC	Digital Herbaria	
	BOT 223 VSC	Green Cover and Carbon Crediting	
	BOT 224 VSC	Plant Ecology and Biodiversity	
SEC – (0C)	-----	-----	0 C
Vertical – 5 (V5)			
IKS – (1T=2C)	Subject Specific	Medicinal Plants in Traditional Systems of Medicine	2 C
Ability Enhancement Courses (AEC) – (1T = 2C)	AEC 201 MAR/HIN	Marathi / Hindi	2 C
VEC – (0C)	-----	-----	0 C
Vertical – 6 (V6)			
FP – (2C)	BOT 231 FP	Field Project	2 C
Co-curricular Courses (CC) – (1T = 2C)	CC 201 PE, NSS, NCC		2 C
Total Credits (V1+V2+V3+V4+V5+V6)			22 C

CREDIT FRAMEWORK FOR S.Y.B.Sc. BOTANY, SEMESTER – IV (Level 5.0 / 200)

COURSE DETAILS	COURSE CODE	COURSE TITLE	CREDITS
Vertical – 1 (V1)			
Major Core Courses – (3T + 1P) x 2C = 8C	BOT 251 MJ	Plant Anatomy & Embryology	2 C
	BOT 252 MJ	Plant Biotechnology	2 C
	BOT 253 MJP	Practical Based on BOT 251 MJ & BOT 252 MJ	2 C
Major Elective Courses - (0C)	-----	-----	0 C
Vertical – 2 (V2)			
Minor Courses – (1T + 1P = 4C) (Any one from basket)	BOT 291 MN	Hybrid Seed Production	2 C
	BOT 292 MN	Biological Techniques	
	BOT 293 MN	Herbal Products Technology	
	BOT 294 MNP	Practical based on BOT 291 MN	2 C
	BOT 295 MNP	Practical based on BOT 292 MN	
	BOT 296 MNP	Practical based on BOT 293 MN	
Vertical – 3 (V3)			
Generic Elective (GE) / Open Elective (OE) - (1P = 2C) (Any one from basket)	OE 251 BOT	Floriculture and Pomoculture	2 C
	OE 252 BOT	Nursery Techniques	
Vertical – 4 (V4)			
Vocational Skill Courses (VSC) – (1T / P = 2C) (Any one from basket)	BOT 271 VSC	Mushroom and SCP Production Technology	2 C
	BOT 272 VSC	Fermentation Technology	
	BOT 273 VSC	Ethnobotany	
Skill Enhancement Courses (SEC) – (1T / 1P = 2C) (Any one from basket)	SEC 251 BOT	Applications of Artificial Intelligence in Botany	2 C
	SEC 252 BOT	Value addition to Plant based products	
	SEC 253 BOT	Herbal Cosmetics and Nutraceuticals	
	SEC 254 BOT	Fungal Biotechnology	
Vertical – 5 (V5)			
IKS - (0C)	-----	-----	0 C
Ability Enhancement Courses (AEC) – (1T = 2C)	AEC 251 MAR / HIN	Marathi / Hindi	2 C
VEC – (0C)	-----	-----	0 C
Vertical – 6 (V6)			
CEP – (2C)	BOT 232 CEP	Community Engagement Programme (CEP)	2 C
Co-curricular Courses (CC) – (1T = 2C)	CC 251 PE, NSS, NCC		2 C
Total Credits (V1+V2+V3+V4+V5+V6)			22 C
Total Credits for SYBSC - Semester III (22 C) + Semester IV (22 C)			44 C

Exit Option: Award of UG Diploma (UG Diploma in Botany) in Major and Minor with 88 Credits and an additional 4 Credits core NSQF course / Internship OR Continue with Major and Minor.

CREDIT FRAMEWORK FOR T.Y.B.Sc. BOTANY, SEMESTER – V (Level 5.5 / 300)

COURSE DETAILS	COURSE CODE	COURSE TITLE	CREDITS
Vertical – 1 (V1)			
Major Core Courses – (4T + 2P) x 2C = 12C	BOT 301 MJ	Taxonomy of Cryptogams	2 C
	BOT 302 MJ	Cell and Molecular Biology	2 C
	BOT 303 MJ	Computational Botany	2 C
	BOT 304 MJ	Genetics	2 C
	BOT 305 MJP	Practical Based on BOT 301 MJ & BOT 302 MJ	2 C
	BOT 306 MJP	Practical Based on BOT 303 MJ & BOT 304 MJ	2 C
Major Elective Courses – (1T + 1P) x 2C=4C (Any one from basket)	BOT 310 MJ	Environmental Impact Assessment	2 C
	BOT 311 MJ	Agro-tourism	
	BOT 312 MJ	Plants and Human Welfare	
	BOT 313 MJ	Millets for Sustainable Agricultural Development	
	BOT 314 MJP	Practical Based on BOT 310 MJ	2 C
	BOT 315 MJP	Practical Based on BOT 311 MJ	
	BOT 316 MJP	Practical Based on BOT 312 MJ	
	BOT 317 MJP	Practical Based on BOT 313 MJ	
Vertical – 2 (V2)			
Minor Courses – (1T = 2C) (Any one from basket)	BOT 341 MN	Vegetable Seed Production	2 C
	BOT 342 MN	Nursery Management, Landscape Designing & Gardening	
	BOT 343 MN	Feed & Fodder Production Technology	
	BOT 344 MN	Applications of Pollen Biology in Beekeeping / Botany in Relation to Apiculture and Sericulture	
Vertical – 3 (V3)			
GE / OE - (0C)	-----	-----	0 C
Vertical – 4 (V4)			
Vocational Skill Courses (VSC) – (1T/P= 2C) (Any one from basket)	BOT 321 VSC	Intellectual Property Rights (IPR)	2 C
	BOT 322 VSC	Stress Physiology of Agricultural Crops	
	BOT 323 VSC	Advanced Plant Biotechnology	
SEC – (0C)	-----	-----	0 C
Vertical – 5 (V5)			
IKS - (0C)	-----	-----	0 C
AEC – (0C)	-----	-----	0 C
VEC – (0C)	-----	-----	0 C
Vertical – 6 (V6)			
FP / CEP – (2C)	BOT 331 FP / BOT 331 CEP	Field Project (FP) / Community Engagement Programme (CEP)	2 C
CC – (0C)	-----	-----	0 C
Total Credits (V1+V2+V3+V4+V5+V6)			22 C

CREDIT FRAMEWORK FOR T.Y.B.Sc. BOTANY, SEMESTER – VI (Level 5.5 / 300)

COURSE DETAILS	COURSE CODE	COURSE TITLE	CREDITS
Vertical – 1 (V1)			
Major Core Courses – (4T + 2P) x 2C = 12C	BOT 351 MJ	Taxonomy of Phanerogams	2 C
	BOT 352 MJ	Plant Pathology and Protection	2 C
	BOT 353 MJ	Biochemistry	2 C
	BOT 354 MJ	Plant Physiology	2 C
	BOT 355 MJP	Practical Based on BOT 351 MJ & BOT 352 MJ	2 C
	BOT 356 MJP	Practical Based on BOT 353 MJ and BOT 354 MJ	2 C
Major Elective Courses – (1T + 1P) x 2C = 4C (Any one from basket)	BOT 360 MJ	Phyto-clinical Techniques	2 C
	BOT 361 MJ	Agricultural Business Management	
	BOT 362 MJ	Entrepreneurship and Business Management in Plant Sciences	
	BOT 363 MJ	Applications of Pollen Diversity in Bee Keeping	
	BOT 364 MJP	Practical Based on BOT 360 MJ	2 C
	BOT 365 MJP	Practical Based on BOT 361 MJ	
	BOT 366 MJP	Practical Based on BOT 362 MJ	
	BOT 367 MJP	Practical Based on BOT 363 MJ	
Vertical – 2 (V2)			
Minor Courses – (0C)	-----		0 C
Vertical – 3 (V3)			
GE / OE - (0C)	-----	-----	0 C
Vertical – 4 (V4)			
Vocational Skill Courses (VSC) – (1T/P= 2C) (Any one from basket)	BOT 371 VSC	Seed Farm Management, Processing & Storage	2 C
	BOT 372 VSC	Fermentation Technology	
	BOT 373 VSC	Mushroom and SCP Production Technology	
	BOT 374 VSC	Secondary Metabolites Production	
SEC – (0C)	-----	-----	0 C
Vertical – 5 (V5)			
IKS - (0C)	-----	-----	0 C
AEC – (0C)	-----	-----	0 C
VEC – (0C)	-----	-----	0 C
Vertical – 6 (V6)			
OJT – (4C)	BOT 381 OJT	On Job Training (OJT)	4 C
CC – (0C)	-----	-----	0 C
Total Credits (V1+V2+V3+V4+V5+V6)			22 C
Total Credits for TYBSC - Semester V (22 C) + Semester VI (22 C)			44 C

Exit Option: Award of Three Year UG Degree (B.Sc. Botany) in Major with 132 Credits
OR Continue with Major and Minor.

**CREDIT FRAMEWORK FOR Fourth Year B.Sc. (Honours) BOTANY,
SEMESTER – VII (Level 6.0 / 400)**

COURSE DETAILS	COURSE CODE	COURSE TITLE	CREDITS
Vertical – 1 (V1)			
Major Core Courses – (3T + 2P) x 2C = 10C	BOT 401 MJ	Advanced Plant Physiology	2 C
	BOT 402 MJ	Plant Taxonomy - I (Algae and Fungi)	2 C
	BOT 403 MJ	Plant Taxonomy - II (Bryophytes & Pteridophytes)	2 C
	BOT 404 MJP	Practical Based on BOT 401 MJ	2 C
	BOT 405 MJP	Practical Based on BOT 402 MJ and BOT 403 MJ	2 C
Major Elective Courses – (1T + 1P = 4C) (Any one from basket)	BOT 410 MJ	Landscape and Gardening	2 C
	BOT 411 MJ	Post-Harvest Technology of Commercial Crops	
	BOT 412 MJ	Biodiversity Conservation and Utilization	
	BOT 413 MJ	Integrated Pest Management (IPM)	
	BOT 414 MJ	Seed Science	
	BOT 415 MJP	Practical Based on BOT 410 MJ	2 C
	BOT 416 MJP	Practical Based on BOT 411 MJ	
	BOT 417 MJP	Practical Based on BOT 412 MJ	
	BOT 418 MJP	Practical Based on BOT 413 MJ	
	BOT 419 MJP	Practical Based on BOT 414 MJ	
Vertical – 2 (V2)			
Minor Courses – (1T = 4C)	BOT 441 MN	Research Methodology in Plant Sciences	4 C
Vertical – 3 (V3)			
GE / OE - (0C)	-----	-----	0 C
Vertical – 4 (V4)			
VSC – (0C)	-----	-----	0 C
SEC – (0C)	-----	-----	0 C
Vertical – 5 (V5)			
IKS - (0C)	-----	-----	0 C
AEC – (0C)	-----	-----	0 C
VEC – (0C)	-----	-----	0 C
Vertical – 6 (V6)			
FP / OJT / CEP – (4C)		Research Project	4 C
CC – (0C)	-----	-----	0 C
Total Credits (V1+V2+V3+V4+V5+V6)			22 C

**CREDIT FRAMEWORK FOR Fourth Year B.Sc. (Honours) BOTANY,
SEMESTER – VIII (Level 6.0 / 400)**

COURSE DETAILS	COURSE CODE	COURSE TITLE	CREDITS
Vertical – 1 (V1)			
Major Core Courses – (3T + 2P) x 2C = 10C	BOT 451 MJ	Plant Taxonomy - III (Paleobotany and Gymnosperms)	2 C
	BOT 452 MJ	Cytogenetics and Plant Breeding	2 C
	BOT 453 MJ	Pharmacognosy	2 C
	BOT 454 MJP	Practical Based on BOT 451 MJ	2 C
	BOT 455 MJP	Practical Based on BOT 452 MJ and BOT 453 MJ	2 C
Major Elective Courses – (1T + 1P = 4C) (Any one from basket)	BOT 460 MJ	Hydroponics Technology	2 C
	BOT 461 MJ	Post-Harvest Technology of NTFP (Non-Timber Forest Products)	
	BOT 462 MJ	Plant Resource Management & Geo-Spatial Techniques	
	BOT 463 MJ	Plant-Microbe Interaction	
	BOT 464 MJ	Seed Technology	
	BOT 465 MJP	Practical Based on BOT 460 MJ	2 C
	BOT 466 MJP	Practical Based on BOT 461 MJ	
	BOT 467 MJP	Practical Based on BOT 462 MJ	
	BOT 468 MJP	Practical Based on BOT 463 MJ	
	BOT 469 MJP	Practical Based on BOT 464 MJ	
Vertical – 2 (V2)			
Minor Courses – (0C)	-----	-----	0 C
Vertical – 3 (V3)			
GE / OE - (0C)	-----	-----	0 C
Vertical – 4 (V4)			
VSC –(0C)	-----	-----	0 C
SEC – (0C)	-----	-----	0 C
Vertical – 5 (V5)			
IKS - (0C)	-----	-----	0 C
AEC – (0C)	-----	-----	0 C
VEC – (0C)	-----	-----	0 C
Vertical – 6 (V6)			
FP / OJT / CEP – (8C)	BOT 481 RP	Research Project	8 C
CC – (0C)	-----	-----	0 C
Total Credits (V1+V2+V3+V4+V5+V6)			22 C
Total Credits for Fourth Year BSc - Semester VII (22 C) + Semester VIII (22 C)			44 C

**Award of Four Year UG Honours Degree (B.Sc. Honour with Botany Specialization) in
Major and Minor with 176 Credits.**

OR

CREDIT FRAMEWORK FOR Fourth Year B.Sc. (Honours with Research Degree)

BOTANY,

SEMESTER – VII (Level 6.0 / 400)

COURSE DETAILS	COURSE CODE	COURSE TITLE	CREDITS
Vertical – 1 (V1)			
Major Core Courses – (5T + 2P) x 2C = 14C	BOT 401 MJ	Plant Taxonomy - I (Algae and Fungi)	2 C
	BOT 402 MJ	Plant Taxonomy - II (Bryophytes & Pteridophytes)	2 C
	BOT 403 MJ	Plant Physiology	2 C
	BOT 404 MJ	Plant Biochemistry	2 C
	BOT 405 MJ	Biological Techniques	2 C
	BOT 406 MJP	Practical Based on BOT 401 MJ and BOT 402 MJ	2 C
	BOT 407 MJP	Practical Based on BOT 403 MJ and BOT 404 MJ	2 C
Major Elective Courses – (1T + 1P = 4C) (Any one from basket)	BOT 410 MJ	Landscape and Gardening	2 C
	BOT 411 MJ	Post-Harvest Technology of Commercial Crops	
	BOT 412 MJ	Biodiversity Conservation and Utilization	
	BOT 413 MJ	Integrated Pest Management (IPM)	
	BOT 414 MJ	Seed Science	
	BOT 415 MJP	Practical Based on BOT 410 MJ	2 C
	BOT 416 MJP	Practical Based on BOT 411 MJ	
	BOT 417 MJP	Practical Based on BOT 412 MJ	
	BOT 418 MJP	Practical Based on BOT 413 MJ	
	BOT 419 MJP	Practical Based on BOT 414 MJ	
Vertical – 2 (V2)			
Minor Courses – (1T = 4C)	BOT 441 MN	Research Methodology in Plant Sciences	4 C
Vertical – 3 (V3)			
GE / OE - (0C)	-----	-----	0 C
Vertical – 4 (V4)			
VSC – (0C)	-----	-----	0 C
SEC – (0C)	-----	-----	0 C
Vertical – 5 (V5)			
IKS - (0C)	-----	-----	0 C
AEC – (0C)	-----	-----	0 C
VEC – (0C)	-----	-----	0 C
Vertical – 6 (V6)			
FP / OJT / CEP – (0C)	-----	-----	0 C
CC – (0C)	-----	-----	0 C
Total Credits (V1+V2+V3+V4+V5+V6)			22 C

CREDIT FRAMEWORK FOR Fourth Year B.Sc. (Honours with Research Degree)

BOTANY,

SEMESTER – VIII (Level 6.0 / 400)

COURSE DETAILS	COURSE CODE	COURSE TITLE	CREDITS
Vertical – 1 (V1)			
Major Core Courses – (5T + 2P) x 2C = 14C	BOT 451 MJ	Plant Taxonomy - III (Paleobotany and Gymnosperms)	2 C
	BOT 452 MJ	Taxonomy of Angiosperms	2 C
	BOT 453 MJ	Cytogenetics and Plant Breeding	2 C
	BOT 454 MJ	Molecular Biology	2 C
	BOT 455 MJ	Pharmacognosy	2 C
	BOT 456 MJP	Practical Based on BOT 451 MJ and BOT 452 MJ	2 C
	BOT 457 MJP	Practical Based on BOT 453 MJ and BOT 454 MJ	2 C
Major Elective Courses – (1T + 1P = 4C) (Any one from basket)	BOT 460 MJ	Hydroponics Technology	2 C
	BOT 461 MJ	Post-Harvest Technology of NTFP (Non-Timber Forest Products)	
	BOT 462 MJ	Plant Resource Management & Geo-Spatial Techniques	
	BOT 463 MJ	Plant-Microbe Interaction	
	BOT 464 MJ	Seed Technology	
	BOT 465 MJP	Practical Based on BOT 460 MJ	2 C
	BOT 466 MJP	Practical Based on BOT 461 MJ	
	BOT 467 MJP	Practical Based on BOT 462 MJ	
	BOT 468 MJP	Practical Based on BOT 463 MJ	
	BOT 469 MJP	Practical Based on BOT 464 MJ	
Vertical – 2 (V2)			
Minor Courses – (0C)	-----	-----	0 C
Vertical – 3 (V3)			
GE / OE - (0C)	-----	-----	0 C
Vertical – 4 (V4)			
VSC –(0C)	-----	-----	0 C
SEC – (0C)	-----	-----	0 C
Vertical – 5 (V5)			
IKS - (0C)	-----	-----	0 C
AEC – (0C)	-----	-----	0 C
VEC – (0C)	-----	-----	0 C
Vertical – 6 (V6)			
FP / OJT / CEP – (4C)	BOT 481 OJT	On Job Training	4 C
CC – (0C)	-----	-----	0 C
Total Credits (V1+V2+V3+V4+V5+V6)			22 C
Total Credits for Fourth Year BSc - Semester VII (22 C) + Semester VIII (22 C)			44 C

Award of Four Year UG Honours with Research Degree (B.Sc. Honour with Research in Botany) in Major and Minor with 176 Credits.