

NALLAMUTHU GOUNDER MAHALINGAM COLLEGE (AUTONOMOUS)-POLLACHI

1.2.1 Percentage of new courses introduced out of the total number of courses across all programmes offered during the last five years

S.No	Name of the programme	Name of the Course	Course Code	Year of introduction (during the last five years)
1	B.A. History	Indian Administration	18UHY2A2	2018
2	B.A. History	History of India from 1526 A.D to 1707 A.D	18UHY203	2018
3	B.A. History	Windows based office automation	18UHY512	2018
4	B.Sc. Botany	Major Paper IV- Anatomy and Embryology	18UBY304	2018
5	B.Sc. Botany	Major Paper V – Cytology, Biochemistry and Biophysics.	18UBY405	2018
6	B.COM IB	Modern Marketing	18UIB102	2018
7	B.COM IB	Cost and Management accounting	18UIB203	2018
8	B.COM IB	Economic Analysis	18UIB204	2018
9	B.COM IB	Statistics for Business	18UIB2A2	2018
10	BCA	Php Programming Lab	18UBC418	2018
11	BCA	NME: DTP Programming Lab	18UBC3N2	2018
12	BCA	Computer Networks/ Grid Computing	18UBC521	2018
13	BCA	Current Trends and Technology	18UBC522	2018
14	BCA	Data Mining and Warehousing / Cloud Computing	18UBC627	2018
15	BCA	Mobile Application Development	18UBC628	2018
16	BCA	Mobile Application Development Lab	18UBC630	2018
17	B.Com	Consumer Affairs	18UCO4N4	2018
18	B.Com PA	Indirect Taxation	18UPA413	2018
19	B.Com PA	Information Technology and Security	18UPA621	2018
20	B.A. Tamil	Ikkala Illakiyam -II	18UTM102	2018
21	B.A. Tamil	Mozhi varalaru	18UTM511	2018

BoS Minutes
Highlighted



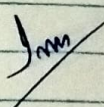
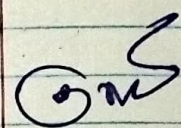
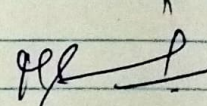
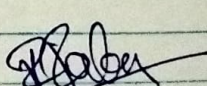
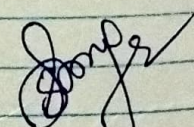
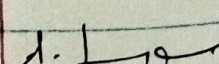
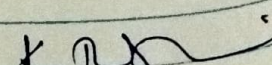
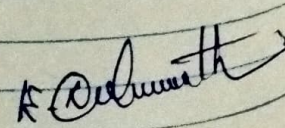
Metric : 1.2.1



New Course Introduced

Dr. R. MUTHUKUMARAN,
M.A.,M.Phil.,B.Ed.,Ph.D.,
PRINCIPAL
N.G.M. College, Pollachi - 642 001
Coimbatore District

Page No: 1

S. No.	Members	Signature
1.	Dr. R. Kannan Associate Professor and Head Department of Botany NGMT College.	
2.	Dr. K. Rajas (Subject expert) Associate Professor & Head PG & Research Department of Botany Kandaswamy Kandar College Velur - Namakkal Dt.	
3.	Dr. M. Rajeswari (Subject expert & Academic auditor) Associate Professor & Head PG & Research Department of Botany Vellalar college for women Thindal, Erode.	
4.	Dr. R. Ramesh Krishnan (Alumini) Post Doctoral Researcher Dept. of Plant Sciences University of California. Davis - 95616 USA	
5.	Mrs. S. Sivapriya (Industrial expert) Thenarasu certified organic farms Aaliyar, Pollachi.	
6.	Dr. A. Logamadevi Asst. Prof. of Botany, NGMTC.	
7.	Dr. K. Rajalakshmi Asst. Prof. of Botany, NGMTC.	
8.	Dr. A. Neelamathi Asst. Prof. of Botany, NGMTC.	

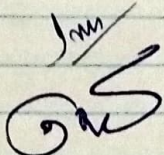
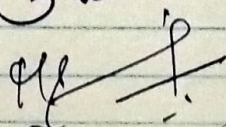
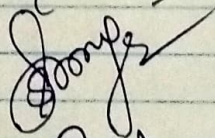
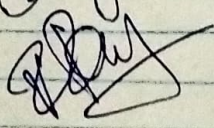
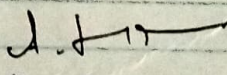
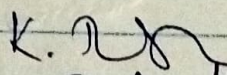
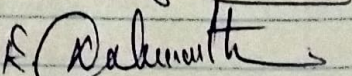
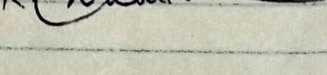
Minutes

The resolutions made in the Board of studies meeting held on 24.02.2018 are as follows:

- The syllabi revised by the Board will be adopted for the B.Sc., Botany and B.Sc., Zoology (Ancillary Botany) degree programme from the academic year 2018-2019.
- The ^{main} corrections and suggestions listed below may be incorporated in the revised syllabi.
 - In plant diversity paper I, Oscillatoria sp. is replaced by Anabaena.
 - Unit V in Ancillary ^{paper} I is to be revised.
 - In plant diversity-II, the specimen may be re-arranged as per the Clarification.
 - The fossil plant Rhynia may ^{also} be introduced in the above paper.
 - The title Plant morphology may be introduced in Ancillary Botany paper II.
 - The title 'mitosis' may be shifted from the paper 'Anatomy and Embryology' to the paper 'Genetics and Evolution'.
 - 'Kitchen garden' ^{& pruning topics} may be replaced by 'terrace garden' in the SBC paper - 'Landscape Designing'. - Hydroponics may also be included.
 - The topic 'facial hair control' in the paper 'Herbal cosmetics' may be replaced by 'Hair colourant'.
 - The topic 'Biophysical phenomena' may be replaced by 'Bio-instrumentation'.
 - In 'Taxonomy' paper 'Artificial classification' may be introduced.
 - The ^{protein synthesis} ^{& lipid metabolism} may be included in 'Genetics' paper.

- In 'Genetic Engineering' paper 'indirect and direct gene transfer' methods may be included.
- In 'Plant Physiology' unit V may be revised to include the titles 'Biological clock' and 'Vernalization'.

1. Dr. R. Kannan
2. Dr. K. Raju
3. Dr. M. Rajeswari
4. Mrs. S. Sivapriya
5. Dr. R. Ramesh Krishnan.
6. Dr. A. Logamadevi
7. Dr. K. Rajalakshmi
8. Dr. E. Neelamathi

NALLAMUTHU GOUNDER MAHALINGAM COLLEGE, POLLACHI.

**DEPARTMENT OF BOTANY
B.Sc., BOTANY
SCHEME OF EXAMINATION (I -VI SEMESTER)**

(FOR CANDIDATES ADMITTED FROM THE ACADEMIC YEAR 2018-2021 BATCH)

(CBCS for under graduate programmes with language for 4 semesters)

Part No	Course Code	Course title	Lecture+ Tutorial/ Practical Hours/ week	Duration of Exam Hrs	Max. Marks			Credit Point
					Internal	End-of-Semester	Total	
	Semester I							
I	18UTL101	Tamil/Hindi Paper – I	6	3	25	75	100	3
II	18UEN101	English Paper – I	5	3	25	75	100	3
III	18UBY101	Major Paper I - Plant Diversity I (Phycology, Mycology and Bryology)	9	3	25	75	100	4
	18UZY1A1	Allied - Paper I Zoology	7	3	25	75	100	3
IV	18UHR101	Human Rights	1	2	-	50	50	2
	18HEC101	Human Excellence - Personal values & SKY yoga practice- I	2	2	25	25	50	1
V		Extension Activities (NSS, NCC, Sports & Games)						
	500							16
	Semester II							
I	18UTL202	Tamil/ Hindi Paper – II	6	3	25	75	100	3
II	18UEN202	English Paper – II	5	3	25	75	100	3
III	18UBY202	Major Paper II Plant Diversity II (Pteridophytes Gymnosperms and Palaeobotany)	6	3	25	75	100	4
	18UBY203	Major Practical I – Paper III (Plant diversity I & II (Phycology, Mycology and Bryology &Pteridophytes Gymnosperms and Palaeobotany)	2	3	40	60	100	4
	18UZY2A2	Allied - Paper II Zoology	7	3	25	75	100	3

	18UZY2A3	Allied - Paper III Practical	2	3	40	60	100	4
IV	18EVS201	Environmental Studies	2	2	-	50	50	2
	18HEC202	Human Excellence - Family values & SKY yoga practice- II	2	2	25	25	50	1
V		Extension Activities (NSS, NCC, Sports & Games)						
	700							24
	Semester III							
I	18UTL303	Tamil/ Hindi Paper – III	5	3	25	75	100	3
II	18UEN303	English Paper – III	6	3	25	75	100	3
III	18UBY304	Major Paper IV- Anatomy and Embryology	9	3	25	75	100	4
	18UCY3A4	Allied Paper IV - Chemistry	8	3	25	75	100	3
IV	18UBY3N1/ 18UBY3N2	Skill based subjects (Non major electives)- Landscape designing/ Herbal cosmetics *Basic Tamil paper I	1	2	-	50	50	2
	18HEC303	Human Excellence - Professional values & SKY yoga practice- III	2	2	25	25	50	1
V		Extension Activities (NSS, NCC, Sports & Games)						
	500							16
	Semester IV							
I	18UTL404	Tamil/ Hindi Paper – IV	5	3	25	75	100	3
II	18UEN404	English Paper – IV	6	3	25	75	100	3
III	18UBY405	Major Paper V – Cell Biology, Biochemistry and Biophysics	6	3	25	75	100	4
	18UBY406	Major Practical II - Paper VI (Anatomy & Embryology, Cytology, Biochemistry and Biophysics)	2	3	40	60	100	4
	18UCY3A5	Allied - Paper V- Chemistry	6	3	25	75	100	3
	18UCY3A6	Allied paper VI – Chemistry Practical	2	3	40	60	100	4

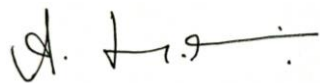
IV	18UBY4N3/ 18UBY4N4	Skill based subjects (Non major electives)- (Remote sensing and natural resource management/ Bioinformatics) *Basic Tamil paper II	1	2	-	50	50	2
	18HEC404	Human Excellence – Social values & SKY yoga practice- IV	2	2	25	25	50	1
V	18UNC401/ 18UNS402/ 18USG403	NCC/ NSS / Sports and Games			50		50	1
	750							25
	Semester V							
III	18UBY507	Major Paper – VII - Taxonomy of Angiosperms	6	3	25	75	100	4
	18UBY508	Major Paper VIII - Genetics and evolution	5	3	25	75	100	4
	18UBY509	Major Paper IX – Microbiology and plant pathology	5	3	25	75	100	4
	18UBY510	Major Paper X – Genetic Engineering	5	3	25	75	100	4
	18UBY511	Elective -I Mathematics for Biologists	5	3	25	75	100	5
IV	18UBY5S1/ 18UBY5S2	Skill based subjects (Major electives)- Microscopic techniques/ Mushroom cultivation	1	2	-	50	50	2
	18GKL501	General Knowledge & General Awareness (SBE)	SS	2	-	50	50	2
	18HEC505	Human Excellence - National values & SKY yoga practice- V	2	2	25	25	50	1
	650							26
	Semester VI							
III	18UBY612	Major Paper XII – Plant Physiology	6	3	25	75	100	4
	18UBY613	Major Paper XIII – Economic & Ethnic Botany	5	3	25	75	100	4
	18UBY614	Major Paper XIV - Plant Biotechnology	5	3	25	75	100	4

	18UBY615	Elective II – Bioinformatics&Cyber security	5	3	25	75	100	5
	18UBY616	Elective – III – Habitat Ecology	5	3	25	75	100	5
	18UBY617	Major Practical III – Paper XV (for V Sem theory papers)	2	3	40	60	100	4
	18UBY618	Major Practical IV (for VI Sem theory papers)	2	3	40	60	100	4
IV	18UBY6S3 18UBY6S4	Skill based subjects (Major electives)- Horticulture & Plant breeding/ Biofarming	1	2	-	50	50	2
	18HEC606	Human Excellence - Global values & SKY yoga practice- VI	2		25	25	50	1
								800 33
	**Grand total							3900 140

* The credits given are applicable only to the students who opt for Basic Tamil paper and the credits for Human Excellence papers cannot be given to them.

**Grand total should be equal/below 3900 (For UG Programmes); 2550 (For PG Programmes)

SS – Self study, SBE – Skill Based Elective, NME–Non Major Elective



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Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	18UBY304	Course Title	2018 -2021
		ANATOMY AND EMBRYOLOGY	Semester 3
Hrs/Week	5		Credits 4

Course Objective

- To acquire knowledge about the entire plant growth and development.
- To know various anatomical features of flowering plants
- To understand the important events in embryo development and fertilization.

Course Outcome

K1	CO1	To revisit the theories on Plant cell, tissues and cell division
K2	CO2	To understand the anatomy of various plant parts
K3	CO3	To analyze the internal structure and embryology of angiosperms
K4	CO4	To compare the growth and developmental pattern of dicots and monocots

Unit	Content	Hrs
Unit I	Anatomy: Plant body – cell types and tissues – meristems - Apical meristem – Shoot and root – theories – Cambium and its functions - permanent tissues - simple and complex – Vascular bundles and its types – differentiation – dedifferentiation – redifferentiation.	13
Unit II	Primary structure of stem and root (monocot and dicot) – normal secondary growth in dicot stem and dicot root – anomalous secondary growth in dicot stem (<i>Boerhaavia</i>) and monocot stem (<i>Dracaena</i>) - dicot root (<i>Achyranthes</i>) - wood structure (sap wood & heartwood).	13
Unit III	Leaf – epidermal tissues – trichomes – stomatal types – internal structure of monocot (Grass) and dicot (<i>Tridax</i>) leaves. Anatomy of hydrophytic leaf (<i>Hydrilla</i>) and xerophytic leaf (<i>Casuarina</i>). Structural modifications in stems, root and leaves.	13
Unit IV	Embryology: Flower – Anther structure - microsporangium - microsporogenesis – structure & development of male gametophyte – ovule – types – megasporangium - megasporogenesis (<i>Polygonum</i> type) – structure and development of female gametophyte – types of embryo sac.	13
Unit V	Pollination – double fertilization and triple fusion – endosperm – types – embryo – structure and development - dicot (<i>Capsella</i>) and monocot (<i>Najas</i>) – polyembryony – formation of seed – fruit – parthenocarpy.	13

**Self study topics*

Text Books:

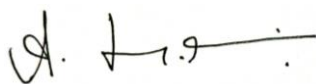
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2. Esau K. 1977. Anatomy of seed plants. 2nd edition. John Wiley & Sons, New York.
3. Vashista P.C., 1997. Plant Anatomy, S. Chand & Co., New Delhi.

Reference Books:

4. Fahn A., 1974. Plant Anatomy, 2nd edition. Pergamon Press, Oxford.
5. Pandey B.P., 1985. Plant Anatomy, S and Chand & Co., New Delhi.
6. Maheswari P., 1971. An introduction to embryology of angiosperms. Tata McGraw Hill Publishing Co., New Delhi.
7. Swamy B.G.L. and Krishnamurthy, K.V., 1980. From flower to fruit: Embryology of Angiosperms, Tata McGraw Hill Publishing Co., New Delhi.

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	S	H	M	M
CO2	H	S	H	M	L
CO3	M	H	M	H	M
CO4	H	H	H	M	L

S-Strong; H-High; M-Medium; L-Low



Head of the Department

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Programme Code	B.Sc.,	Programme Title	Bachelor of Science (BOTANY)
Course code	18UBY405	Course Title	2018-2021
		CELL BIOLOGY, BIOCHEMISTRY AND BIOPHYSICS	Semester 4
Hrs/Week	5		Credits 4

Course Objective

- To know the structure of plant cell, cell organelles and biochemical molecules of life
- To understand the biophysical laws governing universe

Course Outcome

K1	CO1	To recollect the details about Plant cell, organelles, and their functions
K2	CO2	To revisit the structure and functions of biomolecules
K3	CO4	To understand the biophysical forces and laws of thermodynamics
K4	CO5	To know-how the quantification of biomolecules using selected optical techniques and to analyze the biomolecules using simple separation techniques

Unit	Content	Hrs
Unit I	Cell biology: *Ultra structure of Plant cell. Structure and functions of cell wall – plasma membrane – chloroplast - mitochondria – endoplasmic reticulum. Structure and functions of ribosomes - dictyosomes - nucleus - nucleolus – chromosomes: giant chromosomes: polytene and lamp brush - mitosis	13
Unit II	Biochemistry: Biomolecules – structure and functions of carbohydrates (*monosaccharides and polysaccharides), structure, function and synthesis of proteins and lipids.	13
Unit III	Structure and function of nucleic acids (DNA and RNA) – DNA Replication - enzymes - nomenclature and properties – classification – mechanism of enzyme action (DNA Polymerase) and functions of enzymes.	13
Unit IV	Biophysics: Chemical bonds (covalent, noncovalent and ionic) van der waal's forces - laws of thermodynamics - redox potential - redox couple - energy states of atom - spin property of electrons – Pauli's exclusion principle - absorption spectrum in molecules.	13
Unit V	Bioinstrumentation: pH meter - principle and measurement– centrifuge - principle and types – chromatography: principle, types (paper, column, thin layer, gas, ion-exchange and affinity) and uses- Electrophoresis: AGE & PAGE. Optical techniques: Colorimetry: principle and laws (Lambert's and Beer's) – colorimeter and spectrophotometer	13

**Self study topics*

Text Books:

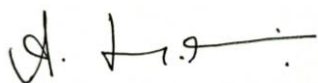
1. Verma P.S. and Agarwal, 2001. Cell biology. S. Chand & Company, New Delhi, India.
2. Jain J.L., 1999. Fundamentals of Biochemistry, S. Chand & Company, New Delhi, India.
3. Subramanian P., 2005. Biophysics: Principles and techniques, MJP Publishers, Chennai.

Reference Books:

4. De Robertis E.D.P., and De Robertis, E.M.F., 1995. Cell and molecular biology, 8thedn. BI. Waverly Pvt. Ltd., New Delhi.
5. Alberts B., Bray, D., Lewis, J. Raff, M. Roberts, K. and Watson, J.D., 1998. Molecular biology the cell. 2nd edn., Garland Pub. Inc., New Delhi.
6. Conn E.E., Stumps, G., Bruening and Doi, R.G., 1987. Outlines of biochemistry, John Wiley & Co., New York.
7. Jayaraman J., 1988. Laboratory Manual in Biochemistry. Wiley Eastern Ltd., New Delhi.
8. Lee P.J. and Leegood, R.C., 1999. Plant biochemistry and molecular biology. John Wiley & Sons, Chichester, England.
9. Voet and Voet, 1995. Principles of biochemistry, WCB Publishers, London

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	H	M	H
CO2	M	S	M	L	H
CO3	M	S	H	H	H
CO4	M	H	S	M	H

S-Strong; H-High; M-Medium; L-Low



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