HEMCHAND YADAV VISHWAVIDYALAYA,

DURG (C.G.)

Website - www.durguniversity.ac.in, Email - durguniversity@gmail.com

SCHEME OF EXAMINATION
&
SYLLABUS
of
M.A. (Sociology) Semester Exam

UNDER

FACULTY OF ART'S

Session 2023-24

(Approved by Board of Studies)
Effective from June 2023

12/05/2023 12/5/2023

M.A. EXAMINATION IN SOCIOLOGY

M.A. Examination in Sociology shall be conducted in four semesters, each having 500 hundred marks, totalling to 2000 marks.

The detailed Course Structure Semester wise is mentioned below.

Sl.	Paper No.	Title	Marks			Credit
A. FIRST SEMESTER:						
Sr.	**Paper**	**Subject**	**I**	**T**	**Total**	
1	Paper-I/CC1	Classical Sociological Tradition	20	80	100	04
2	Paper-II/CC2	Philosophical and Conceptual Foundation of Research Methodology	20	80	100	04
3	Paper-III/CC3	Social Change in India	20	80	100	04
4	Paper-IV/CC4	Rural Sociology	20	80	100	04
5	Paper-V/P 1	Practical-I			100	04
B. SECOND SEMESTER						
6.	Paper-VI/CC5	Classical Sociological Thinkers	20	80	100	04
7.	Paper-VII/CC6	Quantitative Research Techniques in Sociology	20	80	100	04
8.	Paper-VIII/CC7	Sociology of Development	20	80	100	04
9.	Paper-IX/CC8	Indian Rural Society	20	80	100	04
10.	Paper-X/P2	Practical-II			100	04
C. THIRD SEMESTER						
11.	Paper-XI/CC9	Classical Sociological Theories	20	80	100	04
12.	Paper-XII/CC10	Social Movements in India	20	80	100	04
13.	Paper-XIII/CC11	Perspectives of Study to Indian Society	20	80	100	04
14.	Paper-XIV/CC12	Industry and Society in India	20	80	100	04
15	Paper-XV/CC13	Criminology	20	80	100	04
D. FOURTH SEMESTER						
16	Paper-XVI/CC14	Modern Sociological Theories	20	80	100	04
17	Paper-XVII/CC15	Comparative Sociology	20	80	100	04
18	Paper-XVIII/CC16	Contemporary Issues in Industry	20	80	100	04
19	Paper-XIX/CC17	Criminology: Correctional administration	20	80	100	04
20	Paper-XX/P3	Project Report	-	-	100	04

12/8/2023

HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)

Website - www.durguniversity.ac.in, Email - durguniversity@gmail.com

SCHEME OF EXAMINATION
&
SYLLABUS
Of
M.A. (Political Science) Semester Exam
UNDER FACULTY OF ARTS
Session 2023-24

(Approved by Board of Studies)

Effective from June 2023

क्र.	दिन	सदस्य	हस्ताक्षर
(1)		डॉ. अमिता बक्षी	
(2)		डॉ. सुचित्रा रवोपरागढ़े	
(3)		डॉ. राजबाला गुरु	
(4)		डॉ. सुनीता मिश्रा	
(5)		डॉ भागमेखला शुक्ला	

M.A. Political Science

Semester-III and Semester-IV

PAPER	SEMESTER - III	MARKS			SEMESTER - IV	MARKS		
		Theory	Internal	Credit		Theory	Internal	Credit
I	अंतर्राष्ट्रीय राजनीति के सिद्धांत (Principal of International Politics)	80	20	05	अंतर्राष्ट्रीय राजनीति के समकालीन मृद्दे (Contemporary issues of International Politics)	80	20	05
II	लोकप्रशासन भाग– 1 (Public Administration Part- 1)	80	20	05	लोकप्रशासन भाग– 2 (Public Administration Part- 2)	80	20	05
III	शोध प्रविधि भाग– 1 (Research Methodology Part- 1)	80	20	05	शोध प्रविधि भाग– 1 (Research Methodology Part- 2)	80	20	05
IV	छत्तीसगढ़ का शासन एवं राजनीति (Government and Politics of Chhattisgarh)	80	20	05	अंतर्राष्ट्रीय कानून (International Law)	80	20	05
					Project Work VIVA-VOCE			
Total = 400				20	Total = 400			20

नियमावली–

1. उपर्युक्त समस्त प्रश्न पत्र अनिवार्य होंगे।
2. प्रत्येक प्रश्न पत्र में (सभी सेमेस्टर में) सैद्धान्तिक परीक्षा में 80 पूर्णांक होगा और 20 अंको का आन्तरिक मूल्यांकन होगा। इस प्रकार सभी प्रश्न पत्र में पूर्णांक 100 होगा।
3. प्रत्येक प्रश्न पत्र में आन्तरिक मूल्यांकन होगा की दो परीक्षाएं होगी जिसके सर्वोच्च अंक विश्वविद्यालय के प्रेषित किए जाएंगे।
4. प्रथम, द्वितीय और तृतीय सेमेस्टर में पूर्णांक 400 होगा। चतुर्थ सेमेस्टर में पूर्णांक 500 होगा।
5. एम.ए. चतुर्थ सेमेस्टर में 100 अंको की मौखिक परीक्षा होगी जिसमें 50 अंक परियोजना कार्य पर होगे और 50 अंको की मौखिक परीक्षा होगी।
6. परियोजना कार्य – कौशल विकास, रोजगार मुखी, ग्रामीण विकास, देश के महापुरूष, प्रमुख राजनीतिज्ञ, राष्ट्रपति, प्रधानमंत्री, छत्तीसगढ़ की राजनीति और शासन व्यवस्था पर आधारित होगा।
7. इस प्रकार एम.ए. राजनीति विज्ञान में कुल पूर्णांक 1700 होगा।
8. प्रत्येक प्रश्न पत्र 4 इकाइयों में विभाजित होगा।

क्र.	दिन	सदस्य	हस्ताक्षर
(1)		डॉ. अमिता बक्षी	
(2)		डॉ. सुचित्रा रवोपागढ़े	
(3)		डॉ. राजबाला गुरु	
(4)		डॉ. सुनीता मिश्रा	
(5)		डॉ भागमेखला शुक्ला	

2024-25

Part A: Introduction				
rogram: **Diploma Course**		Class: **B.A./ B.Sc. II Year**	Year: **2022**	Session: **2023-2024**
1	Course Code	**MATH-2P (II)**		
2	Course Title	II - Project 02 - History of Mathematician		
3	Course Type	**Project**		
4	Pre-requisite (if any)	No		
5	Course Learning Outcomes (CLO)	Studying history of mathematicians help students: • Develop a deeper understanding of the mathematics they hare already studied by seeing how it was developed over time and in various places. • Know the rich intellectual heritage of the country. • Develop an appreciation of mathematics and build positive attitude towards mathematics increasing student's motivation decreasing anxiety related the subject. • To acquire knowledge about development of mathematics in ancient , medieval and modern period of history.		
6	**Credit Value**	**2**		
7	**Total Marks**	**Max. Marks: 50**	**Min Passing Marks : 17**	

Part B: Content of the Course Total Periods: 30	
Project List	**Course Objectives:** An elective course designed to acquire special / advance knowledge, such as supplement study / support study to a project work and a candidate study such a course on his own with an advisory support by a teacher / faculty member. **Project** Contributions and biographies of Indian Mathematicians Aryabhatta , Varahmihir , and Bhaskar I ,Shreedharacharya , Shreepati and Parmeshwar and contribution involved in contents of the paper of Differential Equations and Real Analysis. (Any 10 Mathematicians)

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF BOTANY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Life Sciences *(Certificate / Diploma / Degree/ Honors)*			**Semester - I**	Session: **2024-2025**
1	**Course Code**	**BOSC -01**		
2	**Course Title**	**Lab. Course -01 (Elementary Botany)**		
3	**Course Type**	**Laboratory course**		
4	**Pre-requisite** (if, any)	***As per program***		
5	**Course Learning. Outcomes (CLO)**	At the end of this course, the students will be able to ➢ Understand structure of plant cell, prokaryotic cell and eukaryotic cell. ➢ Identify pteridophytes of college campus. ➢ Learn about the different types of plant tissues. ➢ Learn about Ayurvedic system of medicine.		
6	**Credit Value**	**1 Credits**	***Credit =30 Hours Laboratory or Field learning/Training***	
7	**Total Marks**	**Max. Marks: 50**	**Min Passing Marks: 20**	

PART -B: Content of the Course

Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)

Module	Topics (Course contents)	No. of Period
Lab./Field Training/ Experiment Contents of Course	**1.** Microscopic study of plant cell. **2.** Microscopic study of prokaryotic (Bacteria) and eukaryotic cell (algae and fungi). **3.** Study of thallus structure of *Riccia* and *Marchantia*. **4.** Identification of different plants growing in college campus. **5.** Study of a typical flowering plant and it's parts. **6.** Study of internal structure of root and stem. **7.** Study of parenchyma, collenchyma and sclerenchyma. **8.** Study of medicinal plants of college campus. **9.** Study of plants used to cure cough and cold, jaundice and skin diseases. **10.** Visit to any local ayurvedic hospital / practitioner to understand Ayurveda.	**30**
Keywords	***Prokaryotic, Parenchyma, Jaundice, Ayurveda.***	

Signature of Convener & Members (CBoS) :

PART–C:Learning Resources

Text Books, Reference Books and Others

Text BooksRecommended –

- Mary Jane Schneider (2011) Introduction to Public Health.
- Muthu, V.K. (2014) A Short Book of Public Health.

Reference Books Recommended

- Detels, R. (2017) Oxford Textbook of Public Health (6th edition).
- Gibney, M.J. (2013) Public Health Nutrition.
- Wong, K.V. (2017) Nutrition, Health and Disease.

Online Resources–

- https://www.fda.gov/drugs/investigational-new-drug-ind-application/general-drug-categories
- https://www.nfpa.org/news-blogs-and-articles/blogs/2023/08/01/fire-extinguisher-types
- https://www.redcross.org/take-a-class/cpr/performing-cpr/what-is-cpr#:~:text=What%20Is%20the%20Purpose%20of,healthcare%20workers%20and%20emergency%20responders.
- https://unesdoc.unesco.org/ark:/48223/pf0000226792

Online Resources–

- https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S001827/P001833/M029447/ET/15245666876.21Q1.pdf
- https://www.nhm.gov.in/images/pdf/programmes/mhs/Training_Materials/PDF_English/reading_material.pdf

PART-D:Assessment andEvaluation

Suggested Continuous Evaluation Methods:
MaximumMarks: 50 Marks
ContinuousInternal Assessment(CIA):15 Marks
EndSemesterExam(ESE):35Marks

Continuous InternalAssessment (CIA): (By Course Teacher)	Internal Test / Quiz-(2): **10 &10** Assignment/Seminar +Attendance- **05** Total Marks -**15**	Better marks out of thetwo Test / Quiz+obtained marks in Assignment shall be considered against **15** Marks
End Semester Exam (ESE):	**Two section – A & B** **Section A: Q1.** Objective – 05 x1= 05 Mark; **Q2.** Short answer type- 5x2 =10Marks **Section B:** Descriptive answer type qts.,**1out of 2** from each unit-4x05=20Marks	

Name and Signature of Convener & Members of CBoS:

PART–C:Learning Resources

Text Books, Reference Books and Others

Text BooksRecommended –

- Mary Jane Schneider (2011) Introduction to Public Health.
- Muthu, V.K. (2014) A Short Book of Public Health.

Reference Books Recommended

- Detels, R. (2017) Oxford Textbook of Public Health (6th edition).
- Gibney, M.J. (2013) Public Health Nutrition.
- Wong, K.V. (2017) Nutrition, Health and Disease.

Online Resources–

- https://www.fda.gov/drugs/investigational-new-drug-ind-application/general-drug-categories
- https://www.nfpa.org/news-blogs-and-articles/blogs/2023/08/01/fire-extinguisher-types
- https://www.redcross.org/take-a-class/cpr/performing-cpr/what-is-cpr#:~:text=What%20Is%20the%20Purpose%20of,healthcare%20workers%20and%20emergency%20responders.
- https://unesdoc.unesco.org/ark:/48223/pf0000226792

Online Resources–

- https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S001827/P001833/M029447/ET/15245666876.21Q1.pdf
- https://www.nhm.gov.in/images/pdf/programmes/mhs/Training_Materials/PDF_English/reading_material.pdf

PART-D:Assessment andEvaluation

Suggested Continuous Evaluation Methods:
MaximumMarks: 50 Marks
ContinuousInternal Assessment(CIA):15 Marks
EndSemesterExam(ESE):35Marks

Continuous InternalAssessment (CIA): **(By Course Teacher)**	Internal Test / Quiz-(2): **10 &10** Assignment/Seminar +Attendance- **05** Total Marks -**15**	Better marks out of thetwo Test / Quiz+obtained marks in Assignment shall be considered against **15** Marks
End Semester Exam (ESE):	**Two section – A & B** Section **A**: **Q1**. Objective – **05 x1= 05** Mark; **Q2**. Short answer type- **5x2 =10Marks** Section **B**: Descriptive answer type qts.,**1out of 2** from each unit-**4x05=20Marks**	

Name and Signature of Convener & Members of CBoS:

Session - 2024-25

Part A: Introduction

Program: **Diploma in Plant Identification and plant preservation**		Class: B. Sc. **II Year**	Year: **2023**	Session:2023-2024
1.	Course Code	**BOT-3T**		
2.	Course Title	**Plant Systematics, Economic Botany and Ethnobotany**		
3.	Course Type	**Theory**		
4.	Pre-requisite (if any)	NO		
5.	Course Learning. Outcomes (CLO)	At the end of this course, the students will be able to • Understand the Plant Taxonomy • Learn the characteristics of families included • Learn economic importance of different plants of the concerned families • Understand the traditional knowledge about the plants and possible application of this knowledge		
6.	**Credit Value**	**Theory: 4**		
7.	**Total Marks**	**Max. Marks: 50**	**Min Passing Marks: 17**	

Part B: Content of the Course

Total Periods: 60

Unit	Topics	No. ofPeriod
I	**Taxonomic Resources & Nomenclature:** Components of taxonomy (identification, nomenclature, classification); Taxonomic resources: Herbarium- functions & important herbaria, Botanical gardens, Flora, Keys- single access and multi-access. Principles and rules of Botanical Nomenclature according to ICBN	12
II	**Types of classification & Evidences:** Artificial, natural and phylogenetic. Bentham and Hooker (upto series), Engler and Prantl (upto series) and Hutchinson classification. Introduction to taxonomic evidences from palynology, cytology and phytochemistry	12
III	**Families:** A study of the following families (Following Bentham & Hooker's system) with economic importance: Ranunculaceae, Brassicaceae, Malvaceae, Rutaceae, Fabaceae, Myrtaceae, Cucurbitaceae, Rubiaceae, Asteraceae, Apocynaceae, Acanthaceae, Asclepiadaceae, Solanaceae, Amaranthaceae, Euphorbiaceae, Papaveraceae, Apiaceae, Lamiaceae, Orchidaceae, Liliaceae, Musaceae and Poaceae.	12
IV	**Economically valuable plants:** Centre of origin and domestication of crop plants; Botanical name, family, part used and uses of oil yielding plants, fibre yielding plants, Rubber, Dyes, Timber, Sugar and beverages	12
V	**Ethnobotany:** Concept of Ethnobotany, Documentation, Conservation and application of Traditional Knowledge, Sacred grooves, Role of AYUSH, CIMAP and NMPB **Role of important medicinal plants in Traditional therapeutic practices:** *Aegle marmelos, Asparagus racemosus, Andrographis paniculata, Ocimum sanctum, Aloe vera, Nyctanthes arbor-tristis* etc. Conservation of medicinal plants and ethnomedicinal knowledge. Plants in primary healthcare: *Tinospora cordifolia, Ocimum sanctum, Aloe vera, Azadirachta indica* etc.	12

13.6.22

Keywords: Taxonomy, classification, Families ,ethnobotany

Part C -Learning Resources

Suggested Readings:

1. Plant Systematics. Arun K. Pandey & Shruti Kansana. 2020. Jaya Publishing House.
2. Bole, P. V. and Vaghani, Y. (1986) Field guide to the common trees of India. Oxford University Press; Bombay.
3. Brandis, D. (1906) Indian Trees (London, 5th edition. 1971). International Book Distributors; Dehra Dun.
4. Dallwitz, M. J., Paine, T. A. and Zurcher, E. J. (2003). Principles of interactive keys. http://delta-intkey.com
5. https://www.naace.co.uk/school-improvement/ict-mark/
6. Pandey, B.P. 2007. Botany for Degree Students: Diversity of Seed Plants and their Systematics, Structure, Development and Reproduction in Flowering Plants. S. Chand & Company Ltd,New Delhi.
7. Singh, G. 1999. Plant Systematics: Theory and Practice. Oxford and IBH, New Delhi.
8. Dutta A.C. 2016. Botany for Degree Students. Oxford University Press.
9. Randhawa, G.S. and Mukhopadhyay, A. 1986. Floriculture in India. Allied Publishers
10. Kochhar, S.L. (2011). Economic Botany in the Tropics, MacMillan Publishers India Ltd., New Delhi. 4th edition.
11. Sambamurthy, AVSS & Subrahmanyam, NS (2000). Economic Botany of Crop Plants. Asiatech Publishers. New Delhi.
12. Singh, D.K and K.V. Peter. 2014. Protected cultivation of horticultural crops. New India Publishing Agency, India.
13. Reddy P. Parvatha. 2016. Sustainable crop protection under protected cultivation. Springer, Singapore.
14. Amit Deogirikar. 2019. A Text Book on Protected Cultivation and Secondary Agriculture. Rajlaxmi Prakashan, Aurangabad, India.
15. Singh, B., B. Singh, N. Sabir and M Hasan. 2014. Advances in protected cultivation. New India Publishing Agency, India.
16. Sharma, OP. 1996. Hill's Economic Botany (Late Dr. AF Hill, adopted by OP Sharma). Tata McGraw Hill Co. Ltd., New Delhi.

Suggested equivalent online courses:

1. https://www.easybiologyclass.com/topic-botany/
2. http://egyankosh.ac.in/handle/123456789/53530
3. https://www.delta-intkey.com/www/desc.htm
4. https://milneorchid.weebly.com/plant-id-for-beginners.html
5. https://plants.usda.gov/classification.html
6. https://www.senecahs.org/pages/uploaded_files/Plant%20Classification.pdf
7. https://www.ladykeanecollege.edu.in/files/userfiles/file/Dr_%20S_%20Nongbri%20III%20Sem%20ppt.pdf
8. https://www.brainkart.com/article/Bentham-and-Hooker-s-classification-of-plants---Dicotyledonae,- Gymnospermae-and-Monocotyledonae_1000/
9. https://libguides.rutgers.edu/c.php?g=336690&p=2267037
   https://www.delta-intkey.com/

Part D: Assessment andEvaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 50

Continuous Comprehensive Evaluation (CCE):As per rule

University Exam(UE): 50Marks

for Recorded 13.6.22

Declaration

This is to certify that the syllabus is framed by the Central Board of Studies (Botany) as per the guidelines (TOR) of the Department of Higher Education, Raipur Chhattisgarh.

1. Shri Prabhat Pandey
   Asst. Prof.
   Gramya Bharti Vidyapith, Hardibazar - Chairman
2. Dr. A.N. Bahadur - Member
   Professor
   Govt. E.R.R. P.G. Science College, Bilaspur
3. Dr. Prashant Kumar Singh - Member
   Asst. Prof.
   Govt. V.B. Singh Dev Girls College, Jashpur
4. Dr. Awadhesh Kumar Shrivastava - Member
   Asst. Prof.
   Govt. D.T. P.G. College, Utai, Durg
5. Dr. Ashok Kumar Bharti - Member
   Asst. Prof.
   Kirodimal Govt. Arts & Science College, Raigarh
6. Dr. Smriti Chakravarty - Member
   Professor
   Govt. J.Y. Chhattisgarh College, Raipur
7. Dr. Rupinder Diwan - Member
   Professor
   Govt. Nagarjun P.G. College of Science, Raipur
8. Dr. Usha Chandel - Member
   Asst. Prof.
   Govt. Dr. W.W. Patankar Girls P.G. College, Durg
9. Mr. Kaushal Kishor - Member
   Asst. Prof.
   Govt. Pt. Shyamacharan Shukla College, Dharsiwa, Raipur
10. [illegible] - Member

for [illegible]
13.6.22

Session - 2024-25

Part A: Introduction

Program: **Diploma in Plant Identification and plant preservation**		Class: B.Sc. II Year	Year: 2023	Session:2023-2024
1.	Course Code	**BOT-4 T**		
2.	Course Title	**Plant Anatomy, Embryology and Plant Breeding**		
3.	Course Type	**Theory**		
4.	Pre-requisite (if any)	NO		
5.	Course Learning. Outcomes (CLO)	At the end of this course, the students will be able to 1. Understand the internal structure of root, stem and leaves 2. learn about the anomalous secondary growth of some plants 3. understand the life cycle of angiospermic plants with details of microsporogenesis, megasporogenesis, fertilization and other developmental details up to embryogenesis 4. understand concept of plant breeding and its application		
6.	**Credit Value**	**Theory: 4**		
7.	**Total Marks**	**Max. Marks: 50**	**Min Passing Marks: 17**	

Part B: Content of the Course

Total Period: 60

Unit	Topics	No. ofPeriod
I	**Meristems and related theories:** Meristematic and permanent tissues, Root meristem, Stem meristem and Leaf meristem. Theories of apical organization: Apical Cell Theory, Histogen Theory and Tunica Carpus Theory	12
II	**Anatomy and Secondary growth:** Anatomy of Root, Stem and Leaves of both Dicots and Monocots. Secondary growth in Dicots, Anomalous secondary growth in *Bignonia, Boerhaavia, Dracaena and Nycthanthes*	12
III	**Plant Embryology:** Flower: Structure and types (Complete, Incomplete, Perfect and Imperfect flower), Microsporangium and Microsporogenesis, Ovule: Structure and types, Megasporogenesis, Development of female gametophyte (Embryo sac), Types of Embryo sac, Pollination, Pollen-pistil interaction, Fertilization, Double fertilization, Endosperm and its types, Embryogenesis, Apomixis and Polyembryony	12
IV	**Plant Breeding**: Plant Introduction, Agencies of plant introduction in India, Procedure of introduction- Acclimatization- Achievements, Selection- mass selection, pure line selection and clonal selection. Genetic basis of selection methods	12
V	**Hybridization**: Procedure of hybridization, inter-generic, inter-specific and inter-varietal hybridization. Composite and synthetic varieties, Heterosis, Mutation and Molecular breeding (use of DNA markers in plant breeding). Role of hybrization in agriculture, horticulture and forestry	12

Keywords: Meristems, Anomalous secondary growth. Pure line selection. Hybridization.

for Member 13.6.22

heterosis

Part C -Learning Resources

Text Books. Reference Books, Other Resources

1. M K Raxdan An Introduction to Plant Tissue Culture –; Oxfird& IBH Publishing Co.Pvt. Ltd.,New Delhi
2. Allard RW (1960) Principles of Plant Breeding. John willey and Sons. Inc. New York
3. BD Singh (2003) Plant Breeding. Kalyani Publishers
4. Sharma JR (1994) Principles and Practices of Plant Breeding. Tata McGraw-Hill Pub. Co. New Delhi
5. Pandey BP (2010) College Botany Vol II, S. Chand and Company, New Delhi.
6. Maheshwari P (1971). An Introduction to Embryology of Angiosperms, McGraw Hill Book Co., London
7. Bhojwani SS and Bhatnagar SP (2000). The Embryology of Angiosperms (4th Ed.), Vikas Publishing House
8. Evert RF (2006). Esau's Plant Anatomy: Meristems, Cells and Tissues of the Plant body: Their Structure, Function and Development, John Willey and Sons, Inc
9. Pandey BP .Plant Anatomy, S. Chand Publishers, New Delhi
10. Srivastava HN (2006). Plant Anatomy, Pradeep Publications, Jalandhar

Suggested equivalent online resourses:

1. https://www.pnas.org/content/104/suppl_1/8641
2. https://www.journals.uchicago.edu/doi/pdfplus/10.1086/659998
3. https://bsi.gov.in/page/en/ethnobotany
4. http://www.legalserviceindia.com/article/l98-Intellectual-Property-and-Traditional-knowledge.html
5. https://www.brainkart.com/article/Economic-importance-Plants---Food,-Rice,-Oil,-Fibre,-Timber-yielding-plant_1095/
6. https://www.loc.gov/rr/scitech/tracer-bullets/economic-botanytb.html
7. http://nsdl.niscair.res.in/bitstream/123456789/127/1/Fibre%20crops%2C%20bamboo%2C%20timber%20-%20Final.pdf
8. https://www2.palomar.edu/users/warmstrong/econpls.htm
9. https://www.longdom.org/proceedings/phytochemistry-and-phytoconstituents-of-herbal-drugs-and-formulations-1668.html

Part D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 50

Continuous Comprehensive Evaluation (CCE):As per rule

University Exam(UE): 50Marks

13.6.22

Declaration

This is to certify that the syllabus is framed by the Central Board of Studies (Botany) as per the guidelines (TOR) of the Department of Higher Education, Raipur Chhattisgarh.

1. Shri Prabhat Pandey
   Asst. Prof.
   Gramya Bharti Vidyapith, Hardibazar - Chairman
2. Dr. A.N. Bahadur - Member
   Professor
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3. Dr. Prashant Kumar Singh - Member
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7. Dr. Rupinder Diwan - Member
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   Govt. Nagarjun P.G. College of Science, Raipur
8. Dr. Usha Chandel - Member
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   Govt. Dr. W.W. Patankar Girls P.G. College, Durg
9. Mr. Kaushal Kishor - Member
   Asst. Prof.
   Govt. Pt. Shyamacharan Shukla College, Dharsiwa, Raipur
10. ~~Manisha Gupta~~ - Member

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Session - 24-25

Part A : Introduction

Programme: Certificate	Class B.Sc.-II	Year: 2022	Session: 2022-23

1.	Course Code	**BOT-2P**
2.	Course Title	**Plant Identification and Embryology**
3.	Course Type	**Practical**
4.	Pre-requisite (if any)	No
5.	Course outcomes:	**Course outcomes:** After the completion of the course the students will be able: • To learn how plant specimens are collected, documented, and curated for a permanent record. • To observe, record, and employ plant morphological variation and the accompanying descriptive terminology. • To gain experience with the various tools and means available to identify plants. • To develop observational skills and field experience. • To identify a taxonomically diverse array of native plants. • To recognize common and major plant families. • Comprehend the concepts of plant taxonomy and classification of Angiosperms.
6.	Credit Value	2
7.	Total Marks	Max. Marks: 50 / Min. Passing Marks:17

Part B : Content of the Course

Total No. of Periods - 30

Tentative Practical List	**Topic***
	***(Topic * (Minimum Any three from each unit depending on facilities and syllabus. 20% for spotting, 10% each for viva and sessional and rest 60 % marks equally in each unit.)**
	Herbarium: Plant collection, Preservation and Documentation: Stepwise Practicing Herbarium techniques: 1. FIELD EQUIPMENTS, Collection of any wild 25 plant specimens 2. Learn to handle Herbarium making tools 3. Pressing and Drying of collected plant specimens 4. Special treatments for all varied groups of plants 5. Mount on standard herbarium sheets 6. Label them using Standard methods
	Arrange the prepapared herbarium according to Bentham and Hookers system of classification- 1.herb, shrub and trees 2. annual, biannual and perennial 3. cereals, pulses, vegetables and medicinal 4. ethanobotanical importance

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	Taxonomic Identification of angiospermic plants: Description of plants belonging to following families in semitechnical language and identification up to family level: Brassicaceae, Malvaceae, Fabaceae, Cucurbitaceae, Asteraceae, Apocyanaceae, Ascleapiadaceae, ,Solanaceae, Euphorbiaceae, Papaveraceae, Apiaceae Acanthaceae, Labiatae (Lamiaceae), Rubiaceae. Liliaceae, Musaceae, Poaceae. **Identification during field visits:** Field identification of common wild plants from families included in the theory syllabus.
	a) **Documentation of Ethnobotanical wisdom of area** b) **Study of economically valuable plants:** Medicinal plants, oil yielding plants, cereals, sugarcane, beverages etc.
	1. **Anatomy of:** Dicot root, stem and leaf 2. Monocot root, stem and leaf 3. Plants showing primary anomaly and anomalous secondary growth **a) Study of an angiospermic flower** **b) Dissection of Ladys finger /Tridax/citrus seeds for study of embryo**

Part C - Learning Resource
Text Books, Reference Books, Other Resources

Suggested Readings:

1. Bole, P. V. and Vaghani, Y. (1986) Field guide to the common trees of India. Oxford University Press; Bombay.
2. Womersley, J. S. 1981. Plant collecting and herbarium development: A manual.S.K. Pandey (2012). Quick Concept of Botany. Publisher LAP LAMBERT Academic Publishing GmbH & Co. KG, Germany (ISBN: 978-3-8484-3104-5).
3. Pandey S.K. (2012). Quick Concept of Botany. Publisher LAP LAMBERT Academic Publishing GmbH & Co. KG, Germany (ISBN: 978-3-8484-3104-5).
4. Manilal, K. S. and M. S. Muktesh Kumar (ed.) (1998) A Hand book of Taxonomy Training, DST,N. Delhi
5. Dhopte, A.M. (2003) Principles and Techniques for Plant Scientists. - Agrobios,Jodhpur, India.
6. Jain, S.K. & R.R. Rao. 1977. A handbook of field and herbarium methods. Today & Tomorrow's Printers and Publishers, New Delhi.

E-learning Resources:

1. http://egyankosh.ac.in/bitstream/123456789/13096/1/Unit-5.pdf
2. https://www.for.gov.bc.ca/hfd/pubs/docs/wp/wp18.pdf
3. https://www.researchgate.net/publication/267510854_The_Flowering_Plants_Handbook

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Part D – Assessment and Evaluation		
Suggested Continuous Evaluation Methods: Maximum Marks: 50 Continuous Comprehensive Evaluation (CCE): Not Applicable University Exam(UE): 50 Marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	Not Applicable

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for 13.6.22

Session- 2024-25

B.SC.-III

PAPER- I (BOTANY)

(ANALYTICAL TECHNOLOGY PLANT PATHOLOGY, EXPERIMENTAL EMBRYOLOGY, ELEMENTARY BIOSTATISTICS, ENVIRONMENTAL POLLUTION AND CONSERVATION)

UNIT-I

Structure, Principle and applications of analytical instrumentation.

Chromatography technique, Oven, Incubator, Autoclave, Centrifuge, Spectrophotometere

UNIT-II

Plant Tissue culture techniques, growth media, totipotency, protoplast culture, somatic hybrids and cybrids, micropropagation, somaclonal variations, haploid culture.

Analytical techniques: Microscopy-Light microscope, Electron microscope

UNIT-III

General principles of plant pathology, general symptoms of fungal, bacterial and viral diseases, mode of infection] diseases resistance and control measures, plant quarantine. A study of epidemiology and etiology of following plant diseases.

Rust diseases of wheat, Tikka diseases of groung nut, Red rot of sugar can, Bacterial blight of rice, yellow vein mosaic of b hindi, Little Leaf of brinjal.

UNIT-IV

Introduction to pollution, green house gases, Ozone depletion, Dissolve oxygen, B.O.D., C.O.D.

Bio magnification, Eutrophication, Acid precipitation, Pytoremediation. Plant indicators, Biogeographical Zones of India, Concept of Biodiversity, CBD, MAB, National parks and biodiversity Hot spots, Conservation strategies, Red Data Book, IUCN threat categories, invasive species, endemic species. concept of sustainable development.

UNIT-V

ELEMENTARY BIOSTATISTICS:

Introduction and application of Biostatics, measure of central tendency-Mean, Median, Mode, measures of dispersal-Standard deviation, standard error.

B.SC.-III

PAPER- II (BOTANY)

(GENETICS, MOLECULAR BIOLOGY, BIOTECHNOLOGY AND BIOCHEMISTRY)

UNIT-I

Cell and cell organelles, organization and morphology of chromosomes, giant chromosomes, cell division, Mendel's laws, gene interactions, linkage and crossing over, chromosomal aberration, polyploidy, sex linked inheritance, sex determination, cytolasmic inheritance, gene concept: cistron muton, recon.

UNIT- II

Nucleic acids, Structure and forms of DNA and RNA, DNA/RNA as genetic material, replication of DNA, biochemical and molecular basis of mutation, genetic code and its properties, mechanism of transcription and translation in prokaryotes, regulation of gene expression, Operon model.

UNIT- III

Recombinant DNA, Enzymes in recombinant DNA technology, cloning vectors (Plasmid, Bacteriophages, Cosmids, Phagemids), gene cloning, PCR, Application of Biotechnology; G.M.Plants, Monoclonal antibodies, DNA finger printing

UNIT- IV

Protein: Chemical composition, primary, secondary and tertiary structure of Proteins.

Carbohydrate: general account of monosaccharides, disaccharids and Polsaccharides

Fat: Structure and properties of fats and fatty acids, synthesis and breakdown.

UNIT- V

ENZYMES: Nomenclature and classifaction, components of enzymes, theories of enzyme action, enzyme kinetics (Michaelis-Menten constant), allosteric enzymes, isozymes, Abzymes. Ribozymes, factors affecting enzyme activity.

B.Sc.- III (Botany)

Practical

1. Study of host parasite relationship pf plant diseases listed above.
2. Demonstration of preparation of Czapek's Dox medium and potato dextrose agar medium, sterilization of culture medium and pouring.
3. Inoculation in culture tubes and petriplates.
4. Gram Staining.
5. Microscopic examination of Curd.
6. Study of plant diseases as listed in the theory paper.
7. Biochemical test of carbohydrate and protein.
8. Instrumentation techniques

PRACTICAL SCHEME

TIME: 4 Hrs. **M.M.: 50**

1. Plant Disease/Symptoms	10
2. Instrumentation techniques	05
3. Staining of Microbes	05
4. Tissue Culture techniques	05
5. Spotting	10
6. Project Work/ Field Study	05
7. Viva-Voce	05
8. Sessional	05