



Code	Subject Title	Cr. Hrs	Semester
BOT-317	Palynology (Advance course)	3	VI
Year	Discipline		
3	Botany		

Syllabus Outline: Palynology; its Scope and Importance, Neopalynology and Palaeopalynology, Structure, Morphology, Ornamentation Pattern of Spores and their Technical Description, Branches of Neopalynology, Chemical Composition of Exine and Organic Thermal Maturity, Maceration Techniques to Isolate Palynomorphs and Field Work.

Course Outline:

Neopalynology:

Production and Dispersal of Spores and Pollen
 Ultra-structure and Stratification of Exine.
 Spore and Pollen Diversity, Morphology and Ornamentational Pattern, Technical Description.
 Environmental Palynology, Occurrence and Significance of Airborne Pollen with respect to Allergies and Asthma, Control Measures.
 Mellitopalynology, Aeropalynology and Archaeopalynology. Palynology in Medicine and Criminology.

Palaeopalynology:

Ultra-structure and Chemical composition of Fossil Exine.
 Palynomorphs as Sedimentary Particles, Preservation in Sediment, Post Depositional Hazards.
 Palynomorphs in Oil and Gas Exploration, Geochronology, Stratigraphic Correlation, Reconstruction of Past Plant communities, Index Palynomorphs, Organic Thermal Maturity.
 Technical Description of Palynomorphs.
 Maceration Techniques and Field Work.

Module Aims: This course is designed to understand the Importance, Scope and Applications of Palynology in other Fields, Techniques used to Isolate Palynomorphs, their Technical Description and Evaluation of Palynological Data.

Learning Strategies:

1. Lectures
2. Group Discussion
3. Laboratory work
4. Seminar/ Workshop

Learning Outcome: After getting through this course students would be able to know about Palynology, its Branches and their Importance, they would be able to Isolate Palynomorphs from Sedimentary Rock samples through different Maceration Techniques. Field Study Tour would enhance their knowledge of theory and better understanding of the subject.

Assessment Strategies:

1. Lecture Based Examination (Objective and Subjective)
2. Assignments



3. Class discussion
4. Quiz
5. Tests

Books Recommended:

1. **Brooks, J. (2010).** *Organic Maturation Studies and Fossil Fuel Exploration*. Academic Press, London.
2. **Agashe, S.N. and Caulton, E. (2009).** *Pollen and Spores: Applications with Special Emphasis on Aerobiology and Allergy*. Science Publishers. 412pp. **ISBN-13: 978-1578085323.**
3. **Scott, A.C. (2009).** *Coal and Coal-bearing strata; recent advances*. Blackwell Scientific Publishers, Oxford.
4. **Erdtman, G. (reprinted 2008).** *An Introduction to Pollen Analysis*. Morison Press. 260pp. **ISBN-13: 978-1443723077.**
5. **Traverse, A. (2007).** *Paleopalynology: Topics in Geobiology*. (2nd Ed.), Springer Link Publishers. 813 pp. **ISBN-13: 978-1402066849.**
6. **Harley, M., Morton, C.M. and Blackmore, S. (2000).** *Pollen and Spores: Morphology and Biology*, Royal Botanic Gardens, Kew. 530pp.
7. **Kapp, R.O., Davis, O.K. and King, J.E.** [Illustrated by Hall, R.C.] (2000). *Ronald O. Kapp's Pollen and Spores*. (2nd ed.), AASP Found. 279 pp. **ISBN 931871-05-0.**
8. **Kurmann, M.H. and Doyle, E. (1994).** *Ultrastructure of Fossil Spores and Pollen*. Royal Botanic Gardens, Kew. 227pp. **ISBN-13: 978-0947643607.**
9. **Collinvaux, P.A., De Oliveira, P.E. and Moreno, E. (1999).** *Amazon: Pollen Manual and Atlas*. Harwood Academic Publishers. 344pp. **ISBN-13: 978-9057025877.**
10. **Traverse, A. (1996).** Nomenclature and Taxonomy: Systematics. In: *Jansonius, J. and McGregor, D.C. Eds., Palynology: Principles and Applications, American Association of Stratigraphic Palynologists Foundations*, 11-28, Publishers Press.
11. **Jones, G.D., (1995).** *Pollen of the Southeastern United States: with Emphasis on Melissopalynology and Entomopalynology*. AASP Foundation Contribution Series No. 30: 76 pp., 104 photographic plates. **ISSN 0160-8843.**
12. **Punt, W., Blackmore, S., Nilsson, S. and Thomas, A.L. (1994).** *Glossary of Pollen and Spore Terminology*. LPP Contributions Series No. 1: 71pp. LPP Foundation, Laboratory of Palaeobotany and Palynology, University of Utrecht, Utrecht, The Netherlands. **ISBN 90-393-0230-8.**