PCTE Group of Institutes

Course Module

Course: Cell Biology Subject Code: BSBT 102

Course Instructor: Rupali Jindal Class: BSc Biotechnology

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Contact no: 9781202389

***Objectives:*** *This is the subject enabling the students to gain basic background of the structure and functions of cell and its organelles and relate their involvement in the cellular organization. This knowledge will be of great help in understanding the biotechnological principles and their applications in different areas of biotechnology.*

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| ***Sr. No.*** | *Topics to be covered* | ***No. of lectures*** | ***Assign.(viva)*** | ***Class Test*** | ***Case Study*** | ***Industrial Trip*** | ***Guest lecture*** |
| *1.* | *Introduction* | *1* |  |  |  |  |  |
| *2.* | *Cell Theory* | *2* |  |  |  |  |  |
| *3.* | *Classification of Cell Types* | *3* |  |  |  |  |  |
| *4.* | *Levels of Organization of cells* | *2* |  |  |  |  |  |
| *5.* | *Cell Cycle* | *1* |  |  |  |  |  |
| *6.* | *Mitosis* | *2* |  |  |  |  |  |
| ***Sr. No.*** | *Topics to be covered* | ***No. of lectures*** | ***Assign.(viva)*** | ***Class Test*** | ***Case Study*** | ***Industrial Trip*** | ***Guest lecture*** |
| *7.* | *Meiosis* | *3* |  |  |  |  |  |
| *8.* | *Cell Interaction* | *2* |  |  |  |  |  |
| *9.* | *Cell locomotion* | *1* |  |  |  |  |  |
| *10.* | *Muscle cells* | *2* |  |  |  |  |  |
| *11.* | *Nerve cells* | *2* |  |  |  |  |  |
| *12.* | *Cell Senescence and Death* | *2* |  |  |  |  |  |
| *13.* | *Cell Differentiation* | *1* |  |  |  |  |  |
|  | *Assignment* |  | *1* |  |  |  |  |
|  | *Class Test* |  |  | *1* |  |  |  |
|  | *Industrial Visit* |  |  |  |  | *Plant Tissue Culture lab,PAU* |  |
| *14.* | *Ultrastructure and function of Cell Membrane* | *2* |  |  |  |  |  |
| *15.* | *Cytosol* | *1* |  |  |  |  |  |
| *16.* | *Golgi Bodies* | *1* |  |  |  |  |  |
| *17.* | *Endoplasmic Reticulum* | *1* |  |  |  |  |  |
| ***Sr. No.*** | *Topics to be covered* | ***No. of lectures*** | ***Assign.(viva)*** | ***Class Test*** | ***Case Study*** | ***Industrial Trip*** | ***Guest lecture*** |
| *18.* | *Ribosomes* | *1* |  |  |  |  |  |
| *19.* | *Cytoskeletal Structure* | *2* |  |  |  |  |  |
| *20.* | *Mitochondria* | *1* |  |  |  |  |  |
| *21.* | *Chloroplasts* | *1* |  |  |  |  |  |
| *22.* | *Lysosomes* | *1* |  |  |  |  |  |
| *23.* | *Peroxysomes* | *1* |  |  |  |  |  |
| *24.* | *Nucleus* | *3* |  |  |  |  |  |
|  | *Guest Lecture* |  |  |  |  |  | *Dr. Aruna Bhatia*  *Punjabi university, patiala* |
|  | *Assignment* |  | *1* |  |  |  |  |
|  | *Class Test* |  |  | *1* |  |  |  |
|  | *Case Study* |  |  |  | *Mlignant Hyperthermia* |  |  |
| *25.* | *Freeze Drying* | *1* |  |  |  |  |  |
| *26.* | *Freeze Substitution* | *1* |  |  |  |  |  |
| ***Sr. No.*** | *Topics to be covered* | ***No. of lectures*** | ***Assign.(viva)*** | ***Class Test*** | ***Case Study*** | ***Industrial Trip*** | ***Guest lecture*** |
| *27.* | *Microtome and Embedding* | *2* |  |  |  |  |  |
| *28.* | *Basis of Staining* | *1* |  |  |  |  |  |
| *29.* | *Cytophotometric methods* | *2* |  |  |  |  |  |
|  | ***Total hours*** | *46* | *2* | *2* |  |  |  |

***NOTE:*** *Mid semester examination will be held as per schedule (To be fixed). Assignments will be submitted on the fixed date and time, otherwise the internal assessment will be affected.*

***Books Recommended:***

* *Cell and molecular Biology: De Roberties*
* *Cell Biology: Bruce Albert’s*
* *Cell Biology: Dowben*

***Topics for Presentations:***

1. *Structure of Prokaryotic Cell*
2. *Structure of Eukaryotic Cell*
3. *Levels of organization of Cells*
4. *Cell Theory*
5. *Mitosis*
6. *Meiosis*
7. *Structure and Functions of Golgi bodies.*
8. *Structure and Functions of Endoplasmic Reticulum*
9. *Structure and Functions of Ribosomes.*
10. *Structure and Functions of Biological Membranes.*
11. *Fluid Mosaic model of Biomembrane.*
12. *Structure and Functions of Mitochondria*
13. *Structure of Oxysomes*
14. *Structure and Functions of Chloroplasts*
15. *Structure and Functions of Lysosomes*
16. *Structure and Functions of Nucleus.*
17. *Structure and Functions of Peroxysomes.*
18. *Cell Senescence and Death*
19. *Cell locomotion*
20. *Cell Interaction*

***NOTE:*** *The topics for presentation to each student will be announced in the class. The students absenting on the day of presentation will be given zero mark.*

***Evaluation Criteria:*** *This subject contains 100 marks.60 marks for external and 40 marks for internal.40 marks further divided in following parameters:*

|  |  |
| --- | --- |
| ***Criteria*** | ***Marks*** |
| *Hourly Test 1* | *5* |
| *Hourly Test 2* | *5* |
| *MSE* | *15* |
| *Presentation* | *5* |
| *Assignments ( viva)* | *5* |
| *Class participation* | *5* |

***Class Room policies:***

1. *Late comers are not allowed in class at time. Strict time schedule will be followed.*
2. *Internal marks criteria will not be changed as fixed on 1st date of class.*
3. *75% attendance is compulsory for all in order to sit for final exam. No extra lectures will be taken in the end and no assignments will be given in lieu of attendance.*
4. *Using mobile phones is strictly prohibited in class. In case you are found doing so you will get your mobile back next day. But if there is any emergency you can always ask me.*
5. *Any copied assignment if found will be marked 0. No chance of improvement will be given in this case.*
6. *No medical leave will be sanctioned in end of semester.Get it approved the day you come to college and get it marked in attendance register.*