



## ATISH DIPANKAR UNIVERSITY OF SCIENCE & TECHNOLOGY

### Department: Agribusiness COURSE OUTLINE

<b>Course Title:</b>	Biotechnology Applications in Agriculture	<b><u>Course Objectives:</u></b>
<b>Course Code:</b>	CPP 302	<b>1.</b> Students will work within a multifunctional business setting where they start up and manage a new venture. <b>2.</b> To give the students idea about the basic concepts of the major functions and areas of Enterprise management. <b>3.</b> To develop basic knowledge on business for making the students able to relate with other courses. <b>4.</b> To develop other necessary skills which will be needed to complete the BBA in Agribusiness degree.
<b>Semester:</b>	Spring 2021	
<b>Credit hours:</b>	03 Credits (Theory)	
<b>Instructor:</b>	Dr. Mirza Hasanuzzaman Advisor Dept. of Agribusiness	
<b>E-mail:</b>	mirza@adust.edu.bd	
<b>Cell phone</b>	01716587711	
<b>Class Time</b>	Friday, 12.00-1.15, Room no: 409	

#### *Tentative Course Schedule: (Subject to change)*

Week	Lecture	Topics to be covered
1	1-3	<ul style="list-style-type: none"><li>▪ <b>Introduction to Plant Biotechnology:</b><ul style="list-style-type: none"><li>❖ Definition of biotechnology</li><li>❖ Types of Biotechnology</li><li>❖ Areas of Biotechnology</li><li>❖ Branches of Biotechnology</li><li>❖ Objectives of Plant Biotechnology</li><li>❖ Achievement of biotechnology.</li></ul></li></ul>
2	4-6	<ul style="list-style-type: none"><li>▪ <b>Explants and Culture type:</b><ul style="list-style-type: none"><li>❖ Definition with example</li><li>❖ Culture type, Types and Choice of explants,</li><li>❖ Brief introduction to different culture type.</li></ul></li></ul>

3	7-9	<ul style="list-style-type: none"> <li>▪ <b>Plant Tissue Culture:</b></li> <li>▪ Definition of Plant Tissue Culture &amp; Totipotency,</li> <li>▪ The Principles of Plant Tissue Culture, and Classification of tissue culture techniques,</li> <li>▪ why the plant tissue culture is better than the traditional methods of propagation?</li> </ul>
4	10-12	<ul style="list-style-type: none"> <li>▪ <b>Roles of Tissue Culture in Crop Production</b></li> <li>▪ Application of Plant Tissue Culture,</li> <li>▪ Steps of plant tissue culture,</li> <li>▪ Objectives of plant tissue culture and Disadvantage of plant tissue culture</li> </ul>
5	13-15	<ul style="list-style-type: none"> <li>▪ <b>Artificial Seed:</b></li> <li>▪ Definition</li> <li>▪ different Parts and Types artificial Seed,</li> <li>▪ Advantages and application of artificial seed</li> </ul>
6	16-18	<ul style="list-style-type: none"> <li>▪ <b>Transgenic/GM crops:</b> Definition, Steps to development of transgenic crops,</li> <li>▪ Application of Transgenic Plants,</li> <li>▪ Herbicide resistant Transgenic Plants,</li> <li>▪ Insect pest Management through Genetic Engineering,</li> </ul>
7	19-21	<b>Mid Term Exam Week (25-02-2021 to 06-03-2021)</b>
8	22-24	<ul style="list-style-type: none"> <li>❖ <b>Bt-Transgenic Crops</b></li> <li>❖ Virus Registrant Transgenic Crops</li> <li>❖ Genetic Engineering for Flower Color</li> <li>❖ Flower Architecture</li> </ul>
9	25-27	<ul style="list-style-type: none"> <li>▪ <b>Plant growth regulators</b></li> <li>▪ Definition,</li> <li>▪ Types and Functions.</li> </ul>

10	28-30	<ul style="list-style-type: none"> <li>▪ <b>Conventional breeding and Genetic Engineering:</b></li> <li>▪ Definition of Conventional breeding and Genetic Engineering,</li> <li>▪ Differences between Conventional breeding and Genetic Engineering,</li> <li>▪ Why the genetic engineering is better than the conventional breeding?</li> </ul>
11	31-33	<ul style="list-style-type: none"> <li>▪ <b>Advance technology:</b></li> <li>▪ Newly developed advance technology</li> <li>▪ Success story related to Biotechnology.</li> </ul>
12	34-36	Review Class
13	37-39	Presentation Presentation

***Course Rules: (Please read carefully)***

***Teaching Approach***

To accomplish the course objectives, the course will be taught using a combination of learning methods such as lectures, class discussion, group case studies for formal presentation and group in-class case studies for class participation.

The course will be highly interactive between students and the instructor as well as among students themselves. The aim is to ensure students having opportunity to both contribute and gain from the interaction in this course.

**Group:** Students are required to make groups of 5/6 members(exact group size depends upon class size) right after the first class as per their choice. The course teacher has final approval authority over the final composition of groups and maintains the right to make modifications.

***Class Attendance & Participation***

Each and every student is required to attend the class on time. It is expected that every student should take his or her seat in the class before the course teacher arrives. Yet if anybody comes late, then he/she will explain the reason to the course teacher, then teacher will decide whether to give attendance or not.

Active class participation is an essential part of the learning experience in this course. Taking an active role in class discussions and cases will provide students with the opportunity to integrate their understanding of course concepts with that of their classmates and course teacher.

***Assignment and Presentation***

Specific topic will be assigned for analyses at the first class of the last week of March 2021 and submission of the assignment and formal presentation will be taken after Midterm examinations. Assignments must be submitted in printed form using a 12-point Times New Roman Font, 1.25

Spaced, with 1 inch at the top, bottom and sides of each page.

**Assignment topic name: Prospect and challenge of Artificial Seed business in Bangladesh.**

***Late submission of work***

No late assignments as well as homework will be accepted without prior explanation to the instructor. Reduced grade will be given on late submission of work if there is no valid reason.

***Missed exams and quizzes***

If anyone misses the midterm and Final examination, he/she will be allowed to take the exam with the permission of the controller of examination by paying required fees within the semester through department. If anyone misses the Midterm/final examination on any reasonable ground (application must be submitted) his/her result would be treated as (I) incomplete. If anyone misses the makeup examination schedule within the semester on any reasonable ground. He/she should retake that particular course in the next semester.

**Grade Calculation:**

**Evaluation Criteria:**

Type	Marks
Class Attendance	10
Assignment & Presentation	10
Mid-term Exam	30
Final Examination	50
Total	100

Total Marks (in % )	Letter Grade	Grade Point
80 -100	A+	4.00
75-79	A	3.75
70-74	A-	3.50
65-69	B+	3.25
60-64	B	3.00
55-59	B-	2.75
50-54	C+	2.50
45-49	C	2.25
40-44	D	2.00
Below 40	F	0.00

**Text Book:**

1. Bhuiyan , M.S.R & Hoque, M.E. *An Introduction to Plant Tissue Cultur*., 2008. Chawla, H. S.
2. *Introduction to Plant Biotechnology*. Science Publishers; 2000.

**Supplementary Reading:**

3. Razdan, M.K. *An Introduction to Plant Tissue Culture*. Science Publishers; 2003. Singh, B.D.
4. *Biotechnology Expanding Horizo*es. Kalyani publishers; 2008.