



BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI
INSTRUCTION DIVISION
SECOND SEMESTER 2020-2021
Course Handout (Part - II)

Date: 21ST JAN., 2021

In addition to part-I (General handout for all courses appended to the time table) this portion gives further specific details regarding the course.

This course is offered as an elective for the students of all A,B,C Group and M.Pharm. (with and without specialization), M.P.H. and M.E.(Biotechnology) programmes.

Course No. : BITS F467
Course Title : BIOETHICS AND BIOSAFETY
Instructor-in-Charge : R. MAHESH

1. Scope and Objective of the Course :

This course is designed to create an awareness on the basic concepts of biosafety and bioethics that are essential for various branches of science which has had a great impact on quality of life and regulations governing the experimentations on transgenic organisms and plants, prenatal diagnosis and related social issues, handling and disposal of hazardous materials, environmental pollution concerns and ethics in need based experimentation on animals and plants, would be addressed. Emphasis will also be made on health care related issues.

2. Text Books (TB):

S. Ignachimuthu, S.J., **Bioethics**, Narosa Book Distributors Pvt. Ltd., Delhi, 2009 **or latest edition**
(As text material may not cover latest details, for details on recent developments related to the topic, students are advised to consult the Instructor-In-Charge for guidance to obtain information or obtain through search activities on their own).

3. Reference Books (RB):

- a) M.K. Sateesh, **Bioethics and Biosafety**, I. K. International, Pub. House Pvt.Ltd., New Delhi, 2008
- b) Ben Mephram, **Bioethics**, II Edn., Oxford University Press, Hampshire, Great Britain, 2008





4. Course Plan:

Learning objectives and Topics	Lectures*	Book(s) for Reference
Introduction to the need and issues governing biosafety	1-3	TB:1; RB-2:1
Legal, ethical and social implications including issues related to human reproduction, gene manipulation, genetic testing	4-6	TB:2,3 RB-2:2,5,8
Guidelines for research in transgenic organisms and plants such as cloning, stem cell research, gene therapy, etc.	7-11	TB:2,3; RB-2:3
Ethics in stem cell research	12-14	TB:3
Animal cloning and organ transplants	15-19	TB:3,4; RB-2: 26
Biosafety guidelines, regulations, public participation	20-21	TB.:4.2, 5.1, 5.3; RB-2:12,27
Socio-economic impacts of biotechnological experiments	22-23	RB-2:8
Environmental pollution- hazards and control	24-27	TB:5.3; RB-2:9,10
IPR and CPCSEA guidelines	28-30	TB:4.3, 5.1-5.2; RB-2:13-15
GLP and GMP guidelines	31-34	RB-2:11
Introduction to IPR and Patent processing	35-37	RB-2: 16-17
Buffer lecture session for discussion on select topics	38-40	As required

* Sequence of lectures on above topics could be changed based on student understanding and prior knowledge

* The lectures may be slightly deviate (including sequence of coverage), from aforementioned plan, based on students' background and interest in the topic, which may perhaps include special lectures*** and discussions, that would be planned and schedule notified, accordingly.

Assignment / Practical / Field / Case Studies

The Assignment / Practical will be given conducted in on either some or all of the below mentioned topics. Details will be intimated through a separate notification or in class. NO MAKE-UPS WOULD BE ALLOWED FOR Quizzes, SUBMISSION OF ASSIGNMENTS / PRACTICAL REPORTS, WHICH MIGHT INCLUDE FIELD, Lab. STUDY.





5. Evaluation :

	Evaluative Component	Weightage (in %)	Duration	Date and Time	Comments
1	Test – I/MID.SEM TEST	30	90 min.	As announced by AUGSD/AGSRD	Closed book
2	Continuous assessment - Assignment(s)*, Quiz(zes)#, etc.	30	continuous	As announced in class by I/C	Open Book & or Closed Book
3	Comprehensive Examination	35	120 min.	As announced by AUGSD/AGSRD	Open Book & or Closed Book

- * Case studies, interpretation of data and then analysis, will form a part of all evaluation components. Assignments(s) may include seminar presentation and viva. Assignment(s)/Quizzes may be practical / theory oriented, for which a proper documentation and submission of records and reports in a standard format should be submitted as per deadline(s) that would be announced. It may also include a viva and or seminar presentation(s).
- * Assignment(s) may be filed work / practical / theory oriented, for which one copy of **type-written report** in a **standard format** should be submitted as per deadline(s) that would be announced, therein. It may also include a viva and or a seminar presentation. However all assignments/reports would be completed by **last week of Nov., 2020 (date will be intimated)**. It is necessary that all students **stick to time schedule and DO NOT postpone submission** of assignments/reports. This will prevent extra load during last two weeks of class work. No make-up will be given for time defined assignments, field studies.
- # Quiz(zes) may/will be conducted as a part of evaluation component, at random, during contact hours including lecture, tutorial hours, with/without prior intimation and sometimes outside class contact hours, and hence it is expected that the students come prepared to every class on topics covered in earlier contact hours. Students are also requested to refresh their **knowledge in basic subjects, as relevant**. No make-ups will be possible for the same.

\$ It is strongly advised that all students prepare their own class notes and relevant information from text, reference material, which would only be allowed for consultation during open book/notes assessments. Photocopies of any material, written or printed will not be permitted.





* Slides used during class hours provide key information for which additional supportive information is expected to be collected from sources aforementioned. These slides will not be shared SEPARATELY and hence students are requested/advised to make their own notes during class hour. Recent developments in the area/topic will be discussed in class based on their significance to healthcare delivery and hence some information on therapeutic benefits and toxicity effects, besides others, may differ from the information in text, reference material and hence students are expected to take note of such key discussions during contact hours. Such discussions held in class will be considered as primary source of information in assessments. Also note that all classes will be held (online/in person) as announced by AUGRD/AUGSD, from time to time and students are requested to note the same.

* Attendance is equally important which may be directly / indirectly related to grading.

* All evaluation components are equally important, irrespective of weightage. Hence, students failing to attend or absenting themselves in one or many of the evaluation components or classes, may become ineligible for obtaining a valid grade at the end of the semester. Therefore, students are strongly advised to keep away from absenting themselves from all aforementioned contact sessions. Clearing the course would require adequate performance in written quizzes**, tests**, examinations**, assignments, separately (i.e. procuring low marks in written evaluation components, would not suffice, to clear the course).

- For all evaluation components, information given in class lectures, tutorials, text books and reference books, in the same order will be considered, as correct. All evaluation components are equally important, irrespective of weightage. Hence, students failing to attend or absenting themselves in one or many of the evaluation components may become ineligible for obtaining a valid grade, at the end of the semester. Attendance is equally important and may be taken into consideration, during grading.

Any other adaptive changes in the handout, will be announced in class, if any.

6. Reading Assignments :

Students are advised to read, collect additional information on the above mentioned topics as per given schedule. In addition, awareness w.r.t. latest developments in the area would be an added advantage.

* As this is an elective course, more stress will be laid upon **latest information available from different primary and secondary sources** such as latest edition of books, journals, articles published and research findings, reported in standard literature, independent studies, newsletters, etc. The chapters mentioned in the text-books would give basic information related to topics whereas the class room information would give latest developments and their applications in the field. Hence, only reference to text / reference material would not suffice and students are advised to take a note of the same.





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7. Chamber consultation hours : (3170-S; BITS-Extn No: 207) ; Time: To be announced in class.
8. Notices : Notices concerning the course will be displayed on the Pharmacy Department N.B. only and shared through e-mail as necessary.
9. Mid.-Sem. Grading : Mid.-Sem. Grading will be displayed whenever about 30-40 % of evaluation components are completed.
10. Make-Ups :

Make-Ups are not given as a routine. It is solely dependent upon the GENUINENESS OF THE CIRCUMSTANCES under which a student fails to appear in a scheduled evaluation component. In such circumstances, prior permission should be obtained from the Instructor-in-Charge. IN NO CASE THE MAKE- UP APPLICATION BE SLIPPED INSIDE THE CHAMBER OF THE INSTRUCTOR-IN-CHARGE. The decision of the Instructor-in-Charge in the above matter will be final.

Instructor - in -Charge
BITS F467



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