

# **SCHEME OF EXAMINATION**

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## **SYLLABUS FOR B.Tech**

**(Semester 1 to 8)**

**in**

**Biotechnology**

**2016 ONWARDS\***

**(Ammended upto 2018)**

**UNIVERSITY SCHOOL OF BIOTECHNOLOGY**

**GGG INDRAPRASTHA UNIVERSITY**

**DWARKA, DELHI – 110078**

*\*Approved in the Academic Council sub-committee meeting at USBT on 05-08-2016.*

*W. Singh*  
*Con. Secy*  
*Kaulish*  
*Teenu Kapoor*  
*Saxena*  
*Ram Singh*  
*Monika*  
*Nimish*  
*Raj*

## FIRST SEMESTER EXAMINATION

L	T	P	S	Credits	Hours
13	4	11	0	23	28

Code No.		L	T/P	Credits
<b>THEORY PAPERS</b>				
IT-105	Introduction to Computers	3	0	3
BA-131	Essential of Mathematics – I	3	1	4
BT-133	Foundation course in Biology	3	1	4
BA-135	Foundation course in Physico-Inorganic Chemistry – I	2	1	3
BA-137	Foundation course in Physics-I	2	1	3
<b>PRACTICALS</b>				
IT -155	Computer Lab	0	2	1
IT -157	Engineering Graphics - I Lab	0	2	1
BT-181	Foundation course in Biology - Lab	0	3	2
BA-183	Chemistry - I Lab	0	2	1
BA-185	Physics - I Lab	0	2	1
<b>TOTAL</b>		<b>13</b>	<b>4/11</b>	<b>23</b>

## SECOND SEMESTER EXAMINATION

L	T	P	S	Credits	Hours
16	6	09	0	27	31

Code No.		L	T/P	Credits
<b>THEORY PAPERS</b>				
BT-116	Introduction to Biotechnology	3	1	4
IT -120	Electrical Science	3	1	4
BT-124	Techniques in Biotechnology	3	1	4
BA-132	Essential of Mathematics – II \$	3	1	4
BA-136	Foundation Course in Organic Chemistry-II \$	2	1	3
BA-138	Foundation Course in Physics – II \$	2	1	3
<b>PRACTICALS</b>				
BT-164	Techniques in Biotechnology - Lab	0	3	2
IT -166	Electrical Science – Lab	0	2	1
BA-184	Chemistry – II Lab	0	2	1
BA-186	Physics - II Lab	0	2	1
<b>TOTAL</b>		<b>16</b>	<b>6/09</b>	<b>27</b>

\*Approved in the Academic Council sub-committee meeting on 05-08-2016 at USBT.

\$Amendment in the 44<sup>th</sup> Academic Council agenda item 44.27 held on 03-05-2018.

*Handwritten signatures and initials:*  
V. Rajan  
Co. / Karanishu? Sanyal  
Pur  
Teenu Kapoor  
2  
Ran  
Raj  
e. Monika  
Renu Singh  
Nimish

### THIRD SEMESTER EXAMINATION

L	T	P	S	Credits	Hours
15	5	12	0	28	32

Code No.		L	T/P	Credits
<b>THEORY PAPERS</b>				
BT-201	Microbiology	3	1	4
BA-203	Bioenergetics – I	3	1	4
BT-205	Cell Biology	3	1	4
BT-209	Genetics	3	1	4
CT-211	Introduction to material and energy balance #	3	1	4
<b>PRACTICALS</b>				
BT-251	Genetics-Lab	0	3	2
BA-253	Bioenergetics – I Lab	0	3	2
BT-255	Cell Biology – Lab	0	3	2
BT-257	Microbiology Lab	0	3	2
<b>TOTAL</b>		<b>15</b>	<b>5/12</b>	<b>28</b>

### FOURTH SEMESTER EXAMINATION

L	T	P	S	Credits	Hours
15	5	12	0	28	32

Code No.		L	T/P	Credits
<b>THEORY PAPERS</b>				
BT-202	Immunology	3	1	4
BT-204	Molecular Biology	3	1	4
BT-206	Enzyme Technology	3	1	4
BA-208	Bioenergetics – II	3	1	4
CT-212	Fundamentals of Heat and Mass Transfer #	3	1	4
<b>PRACTICALS</b>				
BT-254	Molecular Biology – Lab	0	3	2
BT-256	Enzyme Technology - Lab	0	3	2
BT-258	Immunology – Lab	0	3	2
BA-258	Bioenergetics - II Lab	0	3	2
<b>TOTAL</b>		<b>15</b>	<b>5/12</b>	<b>28</b>

\*Approved in the Academic Council sub-committee meeting at USBT on 05-08-2016.

#Approved in the 20<sup>th</sup> BOS of USCT on 20-06-2017 & AC sub-committee at USCT on 14-07-2017.

Convey  
Vijay  
Kandam  
Sapna  
3 Theenu Kapron  
Ramesh  
Ramesh  
Ramesh  
Ramesh

## FIFTH SEMESTER EXAMINATION

L	T	P	S	Credits	Hours
15	5	15	0	30	35

Code No.		L	T/P	Credits
<b>THEORY PAPERS</b>				
BT-305	Animal Biotechnology	3	1	4
BT-307	Recombinant DNA Technology	3	1	4
BT-309	Developmental and Stem Cell Biology	3	1	4
BT-311	Plant Biotechnology	3	1	4
BT-313	Unit Operations and Plant Design	3	1	4
<b>PRACTICALS</b>				
BT-355	Animal tissue Culture – Lab	0	3	2
BT-357	Recombinant DNA Technology – Lab	0	3	2
BT-359	Developmental and Stem Cell Biology Lab	0	3	2
BT-361	Plant Biotechnology I – Lab	0	3	2
CT-363 <sup>§</sup>	Chemical Engineering – Lab	0	3	2
<b>TOTAL</b>		<b>15</b>	<b>5/15</b>	<b>30</b>

## SIXTH SEMESTER EXAMINATION

L	T	P	S	Credits	Hours
15	5	09	0	26	29

Code No.		L	T/P	Credits
<b>THEORY PAPERS</b>				
BT-314	Bioinformatics	3	1	4
BT-316	Statistical Methods in Biology and Experimental Design	3	1	4
BT-318	Downstream Processing	3	1	4
BT-320	Medical Biotechnology	3	1	4
BT-322	Bioprocess Engineering	3	1	4
<b>PRACTICALS</b>				
BT-352	Bioinformatics – Lab	0	3	2
BT-356	Plant Biotechnology II - Lab	0	3	2
BT-360	Bioprocess Engineering - Lab	0	3	2
<b>TOTAL</b>		<b>15</b>	<b>5/9</b>	<b>26</b>

\*Approved in the Academic Council sub-committee meeting at USBT on 05-08-2016.

<sup>§</sup>Paper code change by CoE in the Academic Council sub-committee meeting at USBT on 05-08-2016.

Can Roy  
Kamleshwar  
Sapna  
Thenu Kapoor  
Ran Singh  
4  
2-28 e Moirga  
Kishore

## SEVENTH SEMESTER EXAMINATION

L	T	P	S	Credits	Hours
15	5	6	0	26	26

Code No.		L	T/P	Credits
<b>THEORY PAPERS</b>				
BT-403	Environmental Biotechnology	3	1	4
BT-405	Protein Biotechnology	3	1	4
BT-407	Bioentrepreneurship and Management (NUES)	3	1	4
BT-409	Bioprocess Control Engineering	3	1	4
BT-411	Intellectual Property Rights, Biosafety and Bioethics in Biotechnology	3	1	4
<b>PRACTICALS</b>				
BT-451	Protein Biotechnology – Lab	0	3	2
BT-453	Environmental Biotechnology – Lab	0	3	2
BT-457	Industry visits / Case studies (NUES)	0		2
<b>TOTAL</b>		<b>15</b>	<b>5/6</b>	<b>26</b>

## EIGHTH SEMESTER EXAMINATION

L	T	P	S	Credits	Hours
0	0	20	0	20	

Code No.		L	T/P	Credits
<b>PROJECT WORK / VIVA-VOCE:</b>				
BT-450	Project Work	0	18	18
BT-452	Journal Club/Seminar	0	2	2
<b>TOTAL</b>		<b>0</b>	<b>20</b>	<b>20</b>

### **Note:**

**Total no. of credits = 208 credits**

**Credits to be earned by students to qualify B. Tech degree = 200 Credits**

*\*Approved in the Academic Council sub-committee meeting at USBT on 05-08-2016.*