

**ADAMAS UNIVERSITY**  
**SCHOOL OF LIFE SCIENCE AND BIOTECHNOLOGY**  
**B. Tech (Biotechnology) Program**  
**Course Structure**

**FIRST-YEAR**  
**SEMESTER I**

<b>S. No</b>	<b>Type</b>	<b>Course Code</b>	<b>Course Title</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Contact Hrs/wk</b>	<b>Credits</b>
1	Theory (BSC)	MTH11501	Engineering Mathematics-I	3	1	0	4	4
2	Theory (BSC)	PHY13201	Applied Sciences	2	0	1	4	3
3	Theory (ESC)	GEE11001	Electrical and Electronics Technology	2	0	0	2	2
4	Theory (HSSM)	ENG11053	English Communication	1	0	2	3	2
5	Theory (BSC)	BIT11003	Life Sciences	2	0	0	2	2
6	Theory (Mandatory, PC)	DGS11002	Design Thinking & Prototyping	2	0	2	4	3
7	Practical (ESC)	GEE12002	Electrical and Electronics Technology Lab	0	0	4	4	2
8	Practical (ESC)	MEE12001	Engineering Workshop	0	0	4	4	2
<b>Total</b>				<b>12</b>	<b>1</b>	<b>13</b>	<b>27</b>	<b>20</b>

**BSC:** Basic Science Core

**ESC:** Engineerig Science Core

**PC:** Professional Core

**HSSM:** Humanities and Social Sciences including Management courses

SEMESTER II								
S. No	Type	Course Code	Course Title	L	T	P	Contact Hrs/wk	Credits
1.	Theory (BSC)	MTH11502	Engineering Mathematics– II	3	1	0	4	4
2.	Theory (ESC)	MEE11002	Engineering Mechanics	2	1	0	3	3
3.	Theory (BSC)	EVS11112	Environmental Science	2	1	0	3	3
4	Theory (ESC)	CSE11001	Introduction to Programming	2	0	0	2	2
5	Theory	GEE11012	Disruptive Technology Innovations	1	0	2	3	2
6	Theory (Mandatory)	EIC11001	Venture Ideation	2	0	0	2	2
7	Practical (ESC)	CSE12002	Programming Lab	0	0	4	4	2
8	Practical (ESC)	CEE12001	Engineering Drawing and CAD	0	0	4	4	2
<b>Total</b>				<b>12</b>	<b>3</b>	<b>10</b>	<b>25</b>	<b>20</b>

1<sup>st</sup> Year (Total Credit) 40

SEMESTER III								
S. No	Type	Course Code	Course Title	L	T	P	Contact Hrs/wk	Credits
1	Theory (BSC)	MTH1152 7	Probability, Statistics and Numerical Methods	3	1	0	4	4
2	Practical (BSC)	MTH1253 1	Numerical Methods Lab	0	0	4	4	2
3	Theory (PC)	BIT11058	Biochemistry & Bioenergetics	3	1	0	4	4
4	Theory (PC)	BIT11059	Microbiology	3	1	0	4	4
5	Practical (PC)	BIT12060	Biochemistry Lab	0	0	4	4	2
6	Practical (PC)	BIT12061	Microbiology Lab	0	0	4	4	2
7	Practical (Mandatory)	IDP14001	Interdisciplinary Project	0	0	3	3	3
8	Practical (Mandatory)	SOC14100	Community Service <sup>#</sup>	0	0	1	1	1
9	Practical (PC)	BIT14113	Professional Development Training-I	0	0	1	2	1
<b>Total</b>				<b>9</b>	<b>3</b>	<b>17</b>	<b>30</b>	<b>23</b>

SEMESTER IV								
S. No	Type	Course Code	Course Title	L	T	P	Contact Hrs/wk	Credits
1	Theory (PC)	BIT11126	Cell Biology & Genetics	3	1	0	4	4
2	Theory (PC)	BIT11065	Biophysical Techniques & Instrumentation	2	1	0	3	3
3	Theory (PC)	BIT11110	Bioprocess Technology	2	1	0	3	3
4	Practical (PC)	BIT12127	Cell Biology & Genetics Lab	0	0	4	4	2
5	Practical (PC)	BIT12069	Biophysical Techniques & Instrumentation Lab	0	0	4	4	2
6	Practical (PC)	BIT12070	Bioprocess & Fermentation Technology Lab	0	0	4	4	2
7	Theory (HSSM)	ECO11505	HSSM-IV (Economics for Engineers)	3	0	0	3	3
8	Theory (Mandatory)	PSG11021	Human Values and Professional Ethics	2	0	0	2	2
9	Practical (PC)	BIT14114	Professional Development Training-II	0	0	1	2	1
<b>Total</b>				<b>12</b>	<b>3</b>	<b>13</b>	<b>29</b>	<b>22</b>

2<sup>nd</sup> Year (Total Credit) 45

SEMESTER V								
S. No	Type	Course Code	Course Title	L	T	P	Contact Hrs/wk	Credits
1	Theory (PC)	BIT11072	Molecular Biology	3	1	0	4	4
2	Theory (PC)	BIT11074	Bioinformatics	2	1	0	3	3
3	Theory (PE)	BIT11075 BIT11076	Professional Elective-I	2	1	0	3	3
4	Theory (PE)	BIT11079 BIT11080	Professional Elective-II	2	1	0	3	3
5	Theory (PC)	BIT11107	Bioethics, Biosafety & IPR	2	1	0	3	3
6	Practical (PC)	BIT12081	Molecular Biology Lab	0	0	4	4	2
7	Practical (PC)	BIT12083	Bioinformatics Lab	0	0	4	4	2
8	Practical (PE)	BIT12077/ BIT12078	Professional Elective I Lab	0	0	4	4	2
9	Practical (PC)	BIT14115	Professional Development Training-III	0	0	1	2	1
<b>Total</b>				<b>11</b>	<b>5</b>	<b>13</b>	<b>30</b>	<b>23</b>

**PC:** Professional Core

**PE:** Professional Elective

**PE 1:** Genomics, Proteomics & Metabolomics (BIT11075)/ Recombinant DNA Technology (BIT11076)

**PE 1 Lab:** Genomics, Proteomics & Metabolomics Lab (BIT12077)/ Recombinant DNA Technology Lab (BIT12078)

**PE 2:** Nanobiotechnology (BIT11079)/ Bioenergy for Sustainable Development (BIT11111)

SEMESTER VI								
S. No	Type	Course Code	Course Title	L	T	P	Contact Hrs/wk	Credits
1	Theory (PC)	BIT11085	Immunotechnology	2	1	0	3	3
2	Theory (PC)	BIT11128	Plant & Agricultural Biotechnology	2	1	0	3	3
3	Theory (PC)	BIT11087	Animal Biotechnology	2	1	0	3	3
4	Theory (PE)	BIT11091/ BIT11101	Professional Elective-III	2	1	0	3	3
5	Theory (OE)	BIT11093/ BIT11102	Open Elective-I	2	1	0	3	3
6	Practical (PC)	BIT12088	Immunotechnology Lab	0	0	4	4	2
7	Practical (PC)	BIT12129	Plant & Animal Biotechnology Lab	0	0	4	4	2
8	Practical (PC)	BIT15095	Technical Seminar	0	0	2	2	2
9	Practical (PC)	BIT14116	Professional Development Training-IV	0	0	1	2	1
<b>Total</b>				<b>10</b>	<b>5</b>	<b>11</b>	<b>27</b>	<b>22</b>

3<sup>rd</sup> Year (Total Credit) 45

**PC:** Professional Core

**PE:** Professional Elective

**OE:** Open Elective

**PE 3:** Medical Biotechnology (BIT11091)/ Advances in Crop Biotechnology (BIT11101)

**OE 1:** Advances in Microbial Biotechnology (BIT11093)/ Protein Engineering (BIT11102)

SEMESTER VII								
S. No	Type	Course Code	Course Title	L	T	P	Contact Hrs/wk	Credits
1	Theory (HSSM)	MGT11402	HSSM-V (Industrial Management)	2	1	0	3	3
2	Theory (PC)	BIT11109	Industrial Biotechnology	2	0	0	2	2
3	Theory (PE)	BIT11096/ BIT11097	Professional Elective-IV	2	1	0	3	3
4	Theory (PE)	BIT11092/ BIT 11094	Professional Elective-V	2	1	0	3	3
5	Theory (OE)	BIT11100/ BIT11103	Open Elective-II	2	1	0	3	3
6	Theory (OE)	BIT11104/ BIT11106/ BIT11108	Open Elective-III	2	1	0	3	3
7	Practical (PE)	BIT12098/ BIT12099	Professional Elective-IV Lab	0	0	4	4	2
8	Practical (PC)	BIT14109	Minor Project	0	0	8	8	4
9	Practical (PC)	BIT14110	Industrial Training <sup>#</sup>	-	-	-	-	2
10	Practical (PC)	BIT14117	Professional Development Training-V	0	0	1	2	1
<b>Total</b>				<b>12</b>	<b>6</b>	<b>13</b>	<b>32</b>	<b>26</b>

HSSM: Humanities, Social Science & Management

**PC:** Professional Core **PE:** Professional Elective **OE:** Open Elective

**PE 4:** Food Biotechnology (BIT11096)/ Environmental Biotechnology (BIT11097)

**PE 4 Lab:** Food Biotechnology Lab (BIT12098)/ Environmental Biotechnology Lab (BIT12099)

**PE 5:** Molecular modeling and drug design (BIT11094)/ Stem Cell Biotechnology (BIT11092)

**OE 2:** Agricultural Biotechnology (BIT11100)/ Gene Expression (BIT11103)

**OE 3:** Biocatalysis (BIT11104)/ Research Methodology and GLP (BIT11108)/ Systems Biology (BIT11106)

<sup>#</sup> Industrial Training for 4-12 weeks will be taken at the end of the 6th Semester and will be evaluated in the 7th Semester

<b>SEMESTER VIII</b>								
<b>S. No</b>	<b>Type</b>	<b>Course Code</b>	<b>Course Title</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Contact Hrs/wk</b>	<b>Credits</b>
1	Practical (PC)	BIT14111	Major Project	0	0	20	20	10
2	Practical (PC)	BIT15112	Comprehensive Viva- Voce	0	0	0	0	4
<b>Total</b>				<b>0</b>	<b>0</b>	<b>20</b>	<b>20</b>	<b>14</b>

4<sup>th</sup> Year (Total Credit) 40

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### Credit Distribution

<b>Sl. No.</b>	<b>Category</b>	<b>Breakup of Credits</b>	<b>AU Credit Distribution (%)</b>	<b>AICTE Credit Distribution (%)</b>
<b>1</b>	<b>Humanities &amp; Social Sciences Courses</b>	<b>2</b>	<b>5</b>	<b>7</b>
<b>2</b>	<b>Management + Economics + Commerce Courses</b>	<b>6</b>		
<b>3</b>	<b>Basic Science Courses</b>	<b>22</b>	<b>13</b>	<b>16</b>
<b>4</b>	<b>Engineering Science Courses</b>	<b>15</b>	<b>9</b>	<b>15</b>
<b>5</b>	<b>Professional Core Courses</b>	<b>95</b>	<b>57</b>	<b>40</b>
<b>6</b>	<b>Professional Elective Courses</b>	<b>19</b>	<b>11</b>	<b>11</b>
<b>7</b>	<b>Open Elective Courses</b>	<b>9</b>	<b>5</b>	<b>11</b>
<b>Total Credits</b>		<b>168</b>	<b>100</b>	<b>100</b>