

# **PDM UNIVERSITY**

## **Faculty of Life Sciences**

**Department of Microbiology  
B.Sc. (Hons.) Microbiology**

**THREE YEAR FULL TIME PROGRAMME**



**PDM UNIVERSITY BHADURGARH  
DELHI- NCR**



*Note: Syllabi applicable for students seeking admission in the B.Sc. (Hons.) Microbiology Course from the academic year 2018*

## Details of Course: B.Sc. (Hons.) Microbiology

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### Course Structure Credits (Theory + Practical)

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<b>I Core Courses (14 Papers)</b>	14 x 04 = 56
Core Course Practicals	14 x 02 = 28
Minor projects	01 x 02 = 02
Major Projects	01 x 04 = 04

<b>II Elective Courses (07 Papers)</b>	
a. Discipline Specific Electives DSE (03 Papers)	03 x 04 = 12
Discipline Specific Electives Practicals	03 x 02 = 06
b. Generic Electives / Interdisciplinary (04 Papers)	04 x 04 = 16
Generic Electives / Interdisciplinary Practicals	04 x 02 = 08

<b>III Ability Enhancement Courses (AEC)</b>	
a. English Communications	01 x 02 = 02
b. Environmental Sciences	01 x 02 = 02
c. Foreign Language	02 x 02 = 04
d. Yoga	01 x 01 = 01
e. Aptitude	02 x 02 = 04
f. Professional Communications	02 x 02 = 04
g. Value Education	01 x 02 = 02

<b>IV Skill Enhancement Course</b>	02 x 02 = 04
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**Total Credits = 155**

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**PROGRAMME STRUCTURE**

Sem	Module Code	Module Type	Module Name	Marks			Credits
				Internal	External	Total	
1 <sup>st</sup> Sem	MICR1101	Core I	Introduction to Microbiology and Microbial Diversity	50	100	150	4
	MICR1102	Core I (P)	Introduction to Microbiology and Microbial Diversity Lab	25	50	75	2
	MICR1103	Core II	Bacteriology	50	100	150	4
	MICR1104	Core II (P)	Bacteriology Lab	25	50	75	2
	STAT0301	Generic Elective I	Descriptive Statistics	50	100	150	4
	STAT0302	Generic Elective I (P)	Descriptive Statistics Lab	25	50	75	2
	ENGL0103	AEC	English Communications	25	50	75	2
	LANF0101 LANG0102 LANS0103	AEC	Foreign Language-I French German Spanish	25	50	75	2
			<b>Total</b>	<b>275</b>	<b>550</b>	<b>825</b>	<b>22</b>
2 <sup>nd</sup> Sem	MICR1105	Core III	Biochemistry	50	100	150	4
	MICR1106	Core III (P)	Biochemistry Lab	25	50	75	2
	MICR1107	Core IV	Virology	50	100	150	4
	MICR1108	Core IV (P)	Virology Lab	25	50	75	2
	STAT0303	Generic Elective II	Biostatistics	50	100	150	4
	STAT0304	Generic Elective II (P)	Biostatistics Lab	25	50	75	2
	ENVS0101	AEC	Environmental Science	25	50	75	2
	LANF0104 LANG0105 LANS0106	AEC	Foreign Language-II French German Spanish	25	50	75	2
	VALU0118	AEC	Yoga	25	25	50	1
		<b>Total</b>	<b>300</b>	<b>575</b>	<b>875</b>	<b>23</b>	
3 <sup>rd</sup> Sem	MICR2101	Core V	Microbial Physiology and Metabolism	50	100	150	4
	MICR2102	Core V (P)	Microbial Physiology and Metabolism Lab	25	50	75	2
	MICR2103	Core VI	Cell Biology	50	100	150	4
	MICR2104	Core VI (P)	Cell Biology Lab	25	50	75	2
	MICR2105	Core VII	Molecular Biology	50	100	150	4
	MICR2106	Core VII (P)	Molecular Biology Lab	25	50	75	2
	STAT0305	Generic Elective III	Computational Statistics	50	100	150	4
	STAT0306	Generic Elective III (P)	Computational Statistics Lab	25	50	75	2
	MGMT0103	SEC-I	Entrepreneurship	25	50	75	2
		<b>Total</b>	<b>325</b>	<b>650</b>	<b>975</b>	<b>26</b>	

4 <sup>th</sup> Sem	MICR2107	Core VIII	Microbial Genetics and Genomics	50	100	150	4
	MICR2108	Core VIII (P)	Microbial Genetics and Genomics Lab	25	50	75	2
	MICR2109	Core IX	Environmental Microbiology	50	100	150	4
	MICR2110	Core IX (P)	Environmental Microbiology Lab	25	50	75	2
	MICR2111	Core X	Food and Dairy Microbiology	50	100	150	4
	MICR2112	Core X (P)	Food and Dairy Microbiology Lab	25	50	75	2
	STAT0307	Generic Elective IV	Applied Statistics	50	100	150	4
	STAT0308	Generic Elective IV (P)	Applied Statistics Lab	25	50	75	2
	VALU0109	AEC	Value Education	25	50	75	2
	CSEN0103	SEC-II	Basics of Information Technology	25	50	75	2
			<b>Total</b>	<b>350</b>	<b>700</b>	<b>1050</b>	<b>28</b>
5 <sup>th</sup> Sem	MICR3101	Core XI	Industrial Microbiology	50	100	150	4
	MICR3102	Core XI (P)	Industrial Microbiology Lab	25	50	75	2
	MICR3103	Core XII	Immunology	50	100	150	4
	MICR3104	Core XII (P)	Immunology Lab	25	50	75	2
	MICR3201	DSE-I	Microbial Biotechnology	50	100	150	4
	MICR3202	DSE-I (P)	Microbial Biotechnology Lab	25	50	75	2
	MICR3203	DSE-II	Advances in Microbiology	50	100	150	4
	MICR3204	DSE-II (P)	Advances in Microbiology Lab	25	50	75	2
	VALU0119	AEC	Aptitude-I	25	50	75	2
	VALU0123	AEC	Professional Communications-I	25	50	75	2
	MBMP3101	Core	Minor Group Project	50	50	100	2
			<b>Total</b>	<b>400</b>	<b>750</b>	<b>1150</b>	<b>30</b>
6 <sup>th</sup> Sem	MICR3105	Core XIII	Medical Microbiology	50	100	150	4
	MICR3106	Core XIII (P)	Medical Microbiology Lab	25	50	75	2
	MICR3107	Core XIV	Recombinant DNA Technology	50	100	150	4
	MICR3108	Core XIV (P)	Recombinant DNA Technology Lab	25	50	75	2
	MICR3205	DSE-III	Instrumentation and Biotechniques	50	100	150	4
	MICR3206	DSE-III (P)	Instrumentation and Biotechniques Lab	25	50	75	2
	VALU0136	AEC	Aptitude-II	25	50	75	2
	VALU0140	AEC	Professional Communications-II	25	50	75	2
	MBMP3102	Core	Major Individual Project	100	100	200	4
			<b>Total</b>	<b>375</b>	<b>650</b>	<b>1025</b>	<b>26</b>
		<b>Grand Total after six semesters</b>	<b>2025</b>	<b>3875</b>	<b>5900</b>	<b>155</b>	

**List of Core modules (Each module consists 6 credits, Theory + Lab or Tutorial)**

MICR1101 & MICR1102: INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY & LAB

MICR1103 & MICR 1104: BACTERIOLOGY & LAB

MICR1105 & MICR1106: BIOCHEMISTRY & LAB

MICR1107 & MICR1108: VIROLOGY & LAB

MICR2101 & MICR2102: MICROBIAL PHYSIOLOGY AND METABOLISM & LAB

MICR2103 & MICR2104: CELL BIOLOGY & LAB

MICR2105 & MICR2106: MOLECULAR BIOLOGY & LAB

MICR2107 & MICR2108: MICROBIAL GENETICS AND GENOMICS & LAB

MICR2109 & MICR2110: ENVIRONMENTAL MICROBIOLOGY & LAB

MICR2111 & MICR2112: FOOD AND DAIRY MICROBIOLOGY & LAB

MICR3101 & MICR3102: INDUSTRIAL MICROBIOLOGY & LAB

MICR3103 & MICR3104: IMMUNOLOGY & LAB

MICR3105 & MICR3106: MEDICAL MICROBIOLOGY & LAB

MICR3107 & MICR3108: RECOMBINANT DNA TECHNOLOGY LAB

**List of Generic Elective modules (Each module consists of 6 credits, Theory + Lab)**

**Choose four of the following**

STAT0301 & STAT0302: DESCRIPTIVE STATISTICS & LAB

STAT0303 & STAT0304: BIostatISTICS & LAB

STAT0305 & STAT0306: COMPUTATIONAL STATISTICS & LAB

STAT0307 & STAT0308: APPLIED STATISTICS & LAB

**List of Discipline Specific Elective modules (Each module consists of 6 credits, Theory + Lab)**

**Choose any three of the following (DSE-I to DSE-IX)**

MICR3201 & MICR3202: MICROBIAL BIOTECHNOLOGY & LAB

MICR3203 & MICR3204: ADVANCES IN MICROBIOLOGY & LAB

MICR3205 & MICR3206: INSTRUMENTATION AND BIOTECHNIQUES & LAB

MICR3207 & MICR3208: BIOMATHEMATICS AND BIostatISTICS & LAB

MICR3209 & MICR3210: BIOINFORMATICS & LAB

MICR3211 & MICR3212: PLANT PATHOLOGY & LAB

MICR3213 & MICR3214: INHERITANCE BIOLOGY & LAB

MICR3215 & MICR3216: BIOSAFETY AND INTELLECTUAL PROPERTY RIGHTS & LAB

MICR3217: Project Work