

**WALJAT COLLEGE OF APPLIED SCIENCES
IN ACADEMIC PARTNERSHIP WITH
BIRLA INSTITUTE OF TECHNOLOGY MESRA, RANCHI**

BACHELOR OF ENGINEERING (BIOTECHNOLOGY)

COURSE STRUCTURE

SEMESTER I

SUBJECT CODE	SUBJECT NAME	UNIT	PERIODS/WEEK
HU1101	Technical English	1.0	3
PH1101	Physics I	1.0	3
CH1301	Engineering Chemistry	1.0	3
MA1101	Mathematics I	1.0	3
ME1101	Engineering Mechanics	1.0	3
ME1102	Engineering Graphics	1.0	3
CS1202	Unix & C Programming	1.0	3
CH1202	Chemistry Lab	0.5	3
PE1102	Work Shop Practice – I	0.5	3
GA1002	Creative Arts	0.5	3

SEMESTER II

SUBJECT CODE	SUBJECT NAME	UNIT	PERIODS/WEEK
BT1101	Fundamentals of Biology	1.0	3
EE2101	Basic Electrical Engineering	1.0	3
CS2201	Data Structure in C++	1.0	3
CH2203	Environmental Science	1.0	3
PH2103	Physics II	1.0	3
CH 2106	Advance Organic Chemistry	1.0	3
PH1102	Physics Lab	0.5	3
ME2104	Engg. Mechanics Lab	0.5	3
CS2102	Data Structure Lab.	0.5	3
PE2102	Workshop Practice II	0.5	3
GA2002	Creative Arts	0.5	3

SEMESTER III

SUBJECT CODE	SUBJECT NAME	UNIT	PERIODS/WEEK
EC3101	Basic Electronics	1.0	3
MA3003	Statistics for Biologists	1.0	3
BT 3001	Chemical Engg. I	1.0	3
BT 3103	Thermodynamic of Chemical & Biological systems	1.0	3
BT 3005	Cell Biology	1.0	3
BT 3007	Biomolecules	1.0	3

EC3102	Basic Electronics Lab.	0.5	3
EE3102	Basic Electrical Engg Lab	0.5	3
CH 3002	Organic Chemistry Lab	0.5	3
BT 3006	Cell Biology lab	0.5	3
GA 3002	Creative Arts	0.5	3

SEMESTER IV

SUBJECT CODE	SUBJECT NAME	UNIT	PERIODS/WEEK
BT 4011	Molecular Biology	1.0	3
BT 4003	Microbiology	1.0	3
BT 4005	Chemical Engg. II	1.0	3
BT 4013	Bioenergetics & Metabolism	1.0	3
BT 4015	Process Measurement & Control	1.0	3
BT 4010	Modern Methods of Analysis	1.0	3
BT 4012	Molecular biology Lab	0.5	3
BT 4004	Microbiology Lab	0.5	3
BT 4006	Chemical Engg. I Lab	0.5	3
BT 4014	Biochemistry Lab	0.5	3
GA4001	Creative Arts	0.5	3

SEMESTER V

SUBJECT CODE	SUBJECT NAME	UNIT	PERIODS/WEEK
BT 5001	Chemical Engg. III	1.0	3
BT 5011	Genetic Engg. & rDNA Technology	1.0	3
BT 5013	Immunology	1.0	3
BT 5007	Bioprocess Engg.	1.0	3
BT 5009	Reaction Engineering	1.0	3
BT 5010	Microbial Interactions	1.0	3
BT 5002	Chemical Engg. II Lab	1.0	3
BT 5012	Genetic Engg. And rDNA Tech. Lab	0.5	3
BT 5014	Immunology Lab	0.5	3
BT 5008	Bioprocess Engineering Lab	0.5	3

SEMESTER VI

SUBJECT CODE	SUBJECT NAME	UNIT	PERIODS/WEEK
BT 6001	Bioseparation Engineering	1.0	3
BT 6011	Enzyme Technology	1.0	3
BT 6013	Introduction to Bioinformatics	1.0	3
BT 6007	Food Science & Technology	1.0	3
BT 6009	Bioreactor & Bioprocess Design	1.0	3

MB 6001	Principles of Management	1.0	3
BT 6002	Bioseparation Engineering Lab	0.5	3
BT 6012	Enzyme Technology Lab	0.5	3
BT 6014	Bioinformatics Lab	0.5	3
BT 6010	Dept. Project	0.5	3

SEMESTER VII

SUBJECT CODE	SUBJECT NAME	UNIT	PERIODS/WEEK
BT 7001	Biological Waste Management	1.0	3
BT 7005	Plant Cell Technology	1.0	3
BT 7007	Process Biotechnology	1.0	3
PE 7124	Engineering Economy	1.0	3
	Elective I	1.0	3
	Elective II	1.0	3
BT 7006	Plant Cell Technology lab	0.5	3
BT 7008	Environmental Biotechnology lab	0.5	3
BT 7020	Bioprocessing lab	0.5	3
BT 7010	Dept. Project II	0.5	3

ELECTIVE I

SUBJECT CODE	SUBJECT NAME	UNIT	PERIODS/WEEK
BT 7012	Agriculture Biotechnology	1.0	3
BT 7013	Bioresources & Biodiversity	1.0	3
MMI 1101	Human Anatomy & Physiology for Biomedical Engineers	1.0	3
MMI 3103	Introduction to Clinical Instrumentation	1.0	3

ELECTIVE II

SUBJECT CODE	SUBJECT NAME	UNIT	PERIODS/WEEK
BT 7015	Biomaterials	1.0	3
BT 7017	Nano Biotechnology	1.0	3
MMI 3101	Biomedical Imaging Devices & Concept	1.0	3

SEMESTER VIII

SUBJECT CODE	SUBJECT NAME	UNIT	PERIODS/WEEK
BT 8005	Protein Engineering	1.0	3
BT 8007	Bioenergy	1.0	3
BT 8008	Functional Genomics	1.0	3
BT 8016	Mineral Biotechnology	1.0	3
	Elective III	1.0	3
	Elective IV	1.0	3

BT 8006	Protein Engineering lab	0.5	3
BT 8009	Colloquim	0.5	3
BT 8010	Project	1.0	3

ELECTIVE III

SUBJECT CODE	SUBJECT NAME	UNIT	PERIODS/WEEK
BT 8011	Marine Biotechnology & Aquaculture	1.0	3
BT 8012	Pharmaceutical Biotechnology	1.0	3
BT 8013	Biotechnology Management	1.0	3
MMI 2107	Fiber Optics & LASER in Medicine	1.0	3

ELECTIVE IV

SUBJECT CODE	SUBJECT NAME	UNIT	PERIODS/WEEK
BT 8015	Legal & Social Issues in Biotechnology	1.0	3
BT 8017	Bioremediation	1.0	3
BT 8018	Animal & Stem Cell Technology	1.0	3