



MAHATMA GANDHI MISSION

# COLLEGE OF AGRICULTURAL BIOTECHNOLOGY

GANDHELI, AURANGABAD, 431007

Affiliated to Vasant Rao Naik Marathwada Krishi Vidyapeeth, Parbhani

'A' Grade Awarded by VNMKV, Parbhani; Established: 2004

College code: 19186; ISO 9001:2008 and ISO 14001:2015 Certified

Email: [agribiotech@themgmgroup.com](mailto:agribiotech@themgmgroup.com); Website: [www.mgmcabt.com](http://www.mgmcabt.com)

## B.Tech. (Biotech.)

## About MGM and CABT

Mahatma Gandhi Mission (MGM) Trust has been established in 1982 at Nanded (Maharashtra). During its establishment for more than three decades it is very growing and expanding with its centers at Nanded, Aurangabad, Navi Mumbai and Parbhani in Maharashtra State and at Noida in Uttar Pradesh (Delhi NCR). The aims and objectives of the trust are to contribute towards fulfillment of the task initiated by Mahatma Gandhi and based on his principle that, "Literacy is of no value if it is not able to build up sound character".

MGM is charitable trust, registered under the Society's Registration Act, 1860 on 20th December 1982 and also registered under Bombay Public Trusts Act, 1950 on 30th April 1983. MGM has long been a leader and innovator in professional education. Since inception, it has developed into an excellent academic society that is totally committed to human resource development and social welfare through 50 different institutes spread over 5 different cities.

MGM has achieved unprecedented growth and carved for itself a niche in the society for quality education and discipline in the institute. Here, at MGM we provide a wealth of learning experience through the eminent faculty and well equipped laboratories. MGM believes in imparting the best education which is evident through the students' achievements, as they are employed in the best of the organizations all over the world.



## CABT

MGM College of Agricultural Biotechnology strives to give the updated knowledge to the students by appointing trained faculties providing well equipped laboratories, quality teaching facilities and inviting well known personalities in the related work area of Agricultural Biotechnology. Biotechnology provides an opportunity to convert bio-resources into economic wealth. This has to be done in a manner that there is no adverse impact either on the environment or on human and animal health. The bottom line of our national agricultural biotechnology policy should be the economic well being of farm families, food security of the nation, health security for the consumer, protection of the environment and the security of our national and international trade in farm commodities. Infusion of new technology is necessary to maintain our agricultural enterprises' competitive and remunerative aspect. Modern science of biotechnology is relevant to various areas of agriculture including crops, animals, fisheries, agro-forestry and agro-processing. The MGM College of Agricultural Biotechnology was established on 07.08.2004 which is affiliated to Vasant Naik Marathwada Krishi Vidyapeeth, Parbhani. The college has a beautiful campus with well furnished buildings with well equipped laboratories, classrooms, Library with 3508 books, Computer laboratory, seminar hall, conference hall, students' hostel and canteen etc.

## What is Biotechnology?

The wide concept of "biotech" or "biotechnology" encompasses a wide range of procedures for modifying living organisms according to human purposes, going back to domestication of animals, cultivation of the plants, and "improvements" to these through breeding programs that employ artificial selection and hybridization. Modern usage also includes genetic engineering as well as cell and tissue culture technologies. The American Chemical Society defines biotechnology as the application of biological organisms, systems, or processes by various industries to learning about the science of life and the improvement of the value of materials and organisms such as pharmaceuticals, crops, and livestock. As per European Federation of Biotechnology, biotechnology is the integration of natural science and organisms, cells, parts thereof, and molecular analogues for products and services. Biotechnology also writes on the pure biological sciences (animal cell culture, biochemistry, cell biology, embryology, genetics, microbiology, and molecular biology).

## Application of Biotechnology in Agriculture:

**There are myriad applications of biotechnology in agriculture such as:**

- Generation of transgenic crops, animals, agro-forestry plants, microbes with improved traits.
- DNA-based diagnostics to monitor, control, manage; eradicate pests and pathogens of crops, farm animals and fish.
- Biotech-derived drugs, antibiotics and vaccines for animal husbandry and fisheries.
- Monitoring and Assessment of bio-resource diversity.
- Plant tissue culture for large-scale multiplication of elite/disease-free planting material.
- Embryo culture, transfer and cloning technology for animal breeding.
- Functional Genomics, Proteomics and Bioinformatics.
- Post harvest and food processing.

## Job opportunities

Agricultural Biotechnologists can get the jobs in the following sectors.

- Central government Research and educational institutes
- Agricultural Universities
- States department of agriculture
- Zillah parishad
- Private Sector Seed, pesticide Fungicide, Bio-fertilizer, Pharmaceutical companies etc.
- Banking Sector: Cooperative and Nationalized banks as agricultural officer
- Government and private Agricultural and Agri-Biotechnology Colleges
- Job opportunities in Abroad
- Plant Tissue culture laboratories
- Post harvest and food processing industries.

## Infrastructure and Course

MGM, College of Agricultural Biotechnology is having excellent infrastructural facilities like Office, Three Classroom, Library, Laboratories with sophisticated Equipments, Furniture, Computers with Internet facility. In addition to this we also equipped with Hostel (Boys and girls), Play Ground, Gymnasium, Medical, Banking, Mess, Canteen, staff quarter etc. The transportation facility provided to the students and staff from MGM Aurangabad Campus to MGM Gandheli Campus.

## Digital Class Rooms

The College is having well furnished and equipped audio visual supported classrooms. The classrooms are commodious enough to accommodate 80 students in each classroom.

## Library

The College library is well stacked having sufficient Text & Reference books. In addition to these 13 Scientific Journals and 11 magazines, 10 Daily News Papers and 24 Computers with internet facilities are made available to the students. we have book bank facilities as 2 books for hole semester and we have also distinct book bank facility for sc and st student

## Computer, Internet Browsing and Wi-Fi campus

The internet facility is provided to the staff and students. Facility of separate computer (200 computers) is provided to the students for practicals of bioinformatics and computer application in biotechnology.

## College Instructional Farm

The college instructional farm is located in Padegaon, Mitmita and Gandheli for students practical and extension activity. Demonstration plots like Area for Fruit Crops, Irrigation system (Farm Pound, sprinkler, fertigation unit), Vermi-compost Unit, NADEP Compost Pit. Dairy unit (Milk processing, Homogenization & Pasteurization unit, Cooling unit, Automatic milking machines), Biogas plant, Nursery, Poly house green house, Kitchen gardening, Rainout shelter etc.

## Departments

**Dept. of Plant Biotechnology:** In the department of plant biotechnology theory and practical classes of plant Biochemistry Enzymology, Molecular Biology Biochemical and molecular plant Virology etc. are conducted. Students practical on estimation of carbohydrates Isolation and purification of enzymes Advance techniques like ELISA ( Enzyme Linked Immunosorbant Assay), Restriction digestion of Nucleic Acid isolation of genomics DNA and organelle DNA, PCR amplification purification of plant viruses Chromatography techniques, plant physiology Cell Biology Tissue Culture, Plant Biotechnology, Biodiversity Conservation etc. are conducted to impart practical knowledge of the students.

**Dept. of Animal Biotechnology:** In this department theory and practical classes of different courses i.e. Animal Cell Culture, Animal Genetic Engineering, etc. are conducted. The Practical on media preparation Techniques of establishment of cell culture isolation of plasmid and genomic DNA and restriction digestion identification of rumen microbes manufacture and evaluation of pro-biotic cheese and fermented milk preparation of In vitro culture of embryo etc. are also conducted.

**Dept. of Microbial and Environmental Biotechnology:** In this department theory and practical classes

on different courses i.e. industrial microbiology Human Nutrition Enzyme Biotechnology, fermentation Technology etc. are conducted.

**Dept. of Bioinformatics:** In this department theory and practical classes of different courses in the interdisciplinary areas of Structural Bioinformatics, Computational Genomics and Proteomics to create an intellectual environment for interdisciplinary education. Our department comprises of well experienced faculty members and expertise in Small and Macro Molecule X-ray Crystallography, Structural Biology, Molecular Modelling, Computer Aided Drug Design, Pharmacoinformatics, Chemoinformatics, Molecular Cell Biology, Genetic Engineering, Genomics, Proteomics, Bio-computing, Quantum Chemistry, Database and Software development.

## Syllabus: Biotechnology

### B.Tech (Biotechnology) Degree Course Layout

#### Deficiency/Remedial Courses

Total Credit hours= 6

Course No.	Course Title	Credit
BOT-111	Basic Botany	2+1
ZOO-121	Basic Zoology	2+1
MATH-111	Basic Mathematics – I	3+0
MATH-122	Basic Mathematics - II	3+0
BOT-111 + ZOO-121 or MATH-111 + MATH-122		

#### General Courses

Total credits =18

Course No.	Course Title	Credit
CSPD-111	Communication Skills and Personality Development	1+1
EDBM -241	Entrepreneurship Development and Business Management	1+1
ECON-231	Economics and Marketing	2+1
ENV-111	Environmental Studies and Disaster Management	2+1
FT-111	Food Science and Processing	1+1
HD-111	Human Ethics	1+0
ICT-231	Information and Communication Technology	1+1
ICT-352	Agricultural Informatics	2+1

#### Biotechnology Core Courses (23)

Total Credit =64

Course No.	Course Title	Credit
BT-111	Cell Biology	2+0
BT-112	Basic Genetics	2+1
BT-113	Introduction to Biotechnology	2+1
BT-124	Plant Tissue Culture	2+1
BT-125	Molecular Biology	2+1
BT-236	Recombinant DNA Technology	2+1
BT-247	Introductory Bioinformatics	2+1
BT-248	Plant Genetic Transformation	2+1
BT/ECE-241	Fundamentals of Electronics and Instrumentation in Biotech.	1+1
BT-249	Classical and Molecular Cytogenetics	2+1
BT-3510	Immunology	2+1
BT-3511	Molecular Genetics	2+0
BT-3512	Nanobiotechnology	2+0

BT-3513	Animal Biotechnology	3+1
BT-3514	Molecular Marker Technology	2+0
BT-3515	Genomics and Proteomics	3+0
BT-3516	IPR, Biosafety and Bioethics	2+0
BT-3617	Computational Biology	2+1
BIOCHEM- 241	General Biochemistry	3+1
BIOCHEM- 352	Enzymology and Enzyme Technologies	2+1
BOT /ZOO-121	Biodiversity and its Conservation	2+0
MICRO-121	Microbiology	2+1
MICRO-242	Microbial Genetics	2+1

### Admission Process and eligibility

**Duration and Intake capacity:** 4 Years (8 Sem.); 80 Students

#### Eligibility Criteria for Admission:

B.Tech. (Biotechnology)	Higher Secondary/10+2/Intermediate Subjects: PCM/PCMB/PCB/Inter with at least 50% marks in aggregate (P, C, M and B are Physics, Chemistry, Mathematics and Biology, respectively); MHCET compulsory or JEE / NEET / AIEEA-UG (All India Entrance Examination Test for Admission- conducted by Indian Council of Agricultural Research, New Delhi) examinations will also be considered instead of MHT-CET.
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Note: B.Tech. is equivalent to B.Sc. 4 year programme; \*Deficiency courses to be cleared

### MHCET Examination

MHCET EXAMINATION FOR UNDERGRADUATE COURSES IN STATE AGRICULTURAL UNIVERSITIES 2018-19 (For Detail information Please log-on [www.mcaer.org](http://www.mcaer.org) or [www.dtemaharashtra.gov.in/mhtcet](http://www.dtemaharashtra.gov.in/mhtcet) 2018) State Common Entrance Test has been done mandatory for admission to the Undergraduate Courses (Agriculture, Horticulture, Forestry, Fisheries, Agricultural Engineering, Food Technology, **Biotechnology**, Community Science, Animal Husbandry, Agricultural Business Management) in MPKV, Rahuri, PDKV, Akola, VNMKV, Parbhani and BSKV, Dapoli in Maharashtra State from academic year 2018-19. However, JEE / NEET / AIEEA-UG (All India Entrance Examination Test for Admission- conducted by Indian Council of Agricultural Research, New Delhi) examinations will also be considered instead of MHT-CET. Information regarding faculty wise CET details are available on [www.mcaer.org](http://www.mcaer.org) Admission to all undergraduate degree programmes under State Agriculture Universities shall be on the basis of 70% marks obtained in CET conducted by competent authority [MHT-CET / JEE / NEET / AIEEA-UG] and 30% marks of total percentage at qualifying examination / (XII std. Science) and the other weightages will be as per the existing provisions / rules of MCAER, Pune. Online process of the MHT-CET examination started form 18<sup>th</sup> January 2018. Details of this examination are available on [www.dtemaharashtra.gov.in/mhtcet2018](http://www.dtemaharashtra.gov.in/mhtcet2018) website.

### Intake Capacity

Sr. No	Admission Quota	Available Seats
1	Maharashtra 'M'	19
2	University 'U'	45
3	Management 'Mgt'	16
	Total Seats	80

### Reservation and Scholarship

Reservation is available to for candidates belonging to student of category SC, ST, NT, SBC and OBC. The detail information is available on the MCAER website [www.mcaer.org](http://www.mcaer.org), Scholarship for SC, ST, NT, SBC and OBC students and EBC for open category student as per government rules.

## Orientation

Important information to newly admitted students in the college of Agricultural Biotechnology is given before registration regarding courses, classes, advisory system, registration, academic rules and regulations, examination, code of conduct etc. in orientation.

## Student Counseling (Advisory System)

There is student counseling at our college for helping the students in their academic as well as co-curricular activities, so as to build up personality. The counselor is constantly in touch with the progress of his/her student. A counselor / Advisor is allotted 25 to 30 students and his responsibility is to solve the problems of the students during the tenure of B.Tech (Biotech.) programme. He is also acting as local guardian of the students.

## Competitive Forum

A Competitive Forum for our college students was started during the academic year 2007-08 with the following objectives.

- To make the students well aware of the various courses of post graduation after completion of the B.Tech. (Biotech.) Degree.
- To provide guidance to college students for various competitive examinations of national and state level admission to different post graduation programmes through ICAR, JNU, CAT, GATE, Civil services IELTS, MHCET etc.

Guidance regarding competitive examination to the students is provided by arranging guest lectures by inviting experts from other institutes in addition to extra lectures by our college faculty members

**Gold medal:** College student Ms. Sonone Manjiri Vijay got Gold Medal of Vasant Naik Marathwada Krishi Vidyapeeth Parbhani for first rank in Agricultural Biotechnology for the year 2015.

### Competitive PG Entrance exam

Sr. No.	Name of the student	Year	Name of Competitive PG Entrance exam.		
			MCAER, Pune	ICAR, New Delhi	JNU, New Delhi
1.	Mr. Vishal Patil	2014-15	I Rank	Qualified	Qualified
2.	Miss. Pooja Chavan	2014-15	II Rank	Qualified	Qualified
3.	Miss. Abuj Bhagyashri	2014-15	IV Rank	Qualified	Qualified
4.	Mr. Haridas Kankhar	2014-15	-	Qualified	-
5.	Mr. Dnyaneshwar Mane	2014-15	-	Qualified	-
6.	Mr. Pramod Dhabe	2014-15	-	Qualified	-
7.	Mr. Shahabaaj Pathan	2014-15	-	-	Qualified

### Students qualified for all India Competitive Exam for admission to P.G.

Year	ICAR	JNU	State CET	Private Institute CET	M.B.A.
2008-2016	54	64	47	80	30

## Faculty member and Students Research

A great way for undergraduates to gain knowledge beyond the textbook is to engage in original research.

To get awareness how to select the research problem, preparation of ORW, conduct of research, statistical analysis of data, writing of the dissertation / thesis, a special research program is being implemented from the academic year 2008-09. Final year students under the research guide (Faculty Member) are conducting the research and submitting the dissertation/thesis. Special classes are also conducted on the research techniques, principles of experimentations, conduct of research as well as scientific report writing. Students are also encouraged for publishing their research in scientific journals. This program is most helpful to our students for the competitive exam. As well as research program and thesis writing at the time of completion of M.Tech. (Biotech.) and Ph.D. degree.

## Sports and Cultural Achievements

Every year our colleges students are participating different sports meet organized by Marathwada Krishi Vidyapeeth, Parbhani. The details of the students represented university team & played for National level sports meet

Sr	Activity	Year	Gold	Silver	Bronze
1	Various Sports	2012-17	5	7	1
2	Various Cultural Activity	2014-17	9	5	1

## Special Feature of the college

- Well equipped laboratories with sophisticated equipments
- Biometric attendance for students
- Beautiful campus and College instructional farm
- Green atmosphere and clean campus
- Spacious and well furnished college building
- Highly qualified and experienced teaching staff
- Library is well stocked with books, journals etc and book bank system
- Photocopying facilities are available for students and staff
- Full load generated backup for the college.
- Seminar hall
- Exposure to various technical events
- Central computing Laboratory with new generation facilities for the student and staff and high speed leased line internet (up to 2 MBPS)
- Dairy and milk processing unit and Fruit Processing Unit
- Demonstration units like Vermi-compost, sericulture, crop cafeteria, poly house, green house, shade net, fruit park etc.
- Sports and cultural facility
- Earn and learn scheme
- Canteen and Hostel facility (Boys/Girls)
- Transpiration facility for students



## College Grade and Code : "A" since 2011 and 19186

### Contact - Us

**Dr. S. N. Harke,**

Principal

MGM College of Agricultural Biotechnology,  
Gandheli, Aurangabad 431007,  
Maharashtra., India

**email:** [agribiotech@themgmgroup.com](mailto:agribiotech@themgmgroup.com)

**Phone:** 9423881437, 7410080927

**Web:** [www.mgmcabt.com](http://www.mgmcabt.com)

### Admission I/C

**Dr. Ashwinikumar B. Kshirsagar,**

Associate Professor

Phone – 9423881437, 7410080927

## Location

**MGM Main Campus N6, Cidco, Aurangabad → Gajanan Maharaj Mandir → Sutgirni Chowk → Shivajinagar → Deolai Chowk (Beed bypass) → Deolai Goan → Sai Tekadi → Beganaik Tanada → MGM CABT, Gandheli Campus**

# Location Map

