Guidebook to Select Disciplines in B. Tech../BBA at MAIT

Overview of the Four-Year B. Tech. Program

At MAIT, we foster interdisciplinary teaching and research to prepare students for success in today's dynamic technological landscape. Our flexible curriculum allows students to explore electives in Computer Science, Electronics and Communications, Artificial Intelligence and Machine Learning, Data Science, and more during their sixth and seventh semesters. Courses in Social Sciences enrich their understanding of societal contexts. Our programs offer a balanced, holistic education, equipping students with the skills needed for thriving careers in IT and engineering. Join us at MAIT and embark on a journey towards long-term success and innovation.

Bachelor of Technology Programme(s) in Core Branches (Major /Primary Disciplines)

- Bachelor of Technology in Computer Science and Engineering (CSE)
- Bachelor of Technology in Computer Science and Technology (CST)
- Bachelor of Technology in Electronics and Communications Engineering (ECE)
- Bachelor of Technology in Electrical and Electronics Engineering (EEE)
- Bachelor of Technology in Information Technology (IT)
- Bachelor of Technology in Mechanical Engineering (ME)

Bachelor of Technology Programme(s) in Emerging Areas Disciplines

- Computer Science and Engineering (Artificial Intelligence) (CSE-AI)
- Computer Science and Engineering (Artificial Intelligence and Machine Learning) (CSE-AIML)
- Computer Science and Engineering (Data Science) (CSE-DS)
- Electronics and Communication (Advanced Communication Technology) (EC-ACT)
- Electronics Engineering (VLSI Design and Technology) (EE-VDT)

Bachelor of Technology Degree Specializations and Honors Criteria

Common First-Year Scheme and Syllabi:

The first-year curriculum is uniform across all B. Tech. programs.

Honors Criteria:

- Honors will be awarded upon acquiring a minimum of 20 credits of massive open online course (MOOCs) through Study Webs of Active-Learning for Young Aspiring Minds (**SWAYAM**) / National Programme on Technology Enhanced Learning (**NPTEL**).for more details refer the portals https://onlinecourses.nptel.ac.in/ https://swayam.gov.in/

- Application for Honors must be submitted before the commencement of the 5th semester.

Emerging Area Elective (EAE) Groups for Minor Specialization offered by the institute (Applicable only for CoreDisciplines):

- Artificial Intelligence and Machine Learning (for CSE / IT /CST /ECE / EEE / ME)
- Machine Learning & Data Analytics (for CSE / IT / CST /ECE / EEE / ME)
- Full Stack Development (for CSE / IT / CST)
- Electrical Vehicles (for EEE / ME)
- Computer Aided Design and Manufacturing (for ME)

Open Area Elective (OAE) Groups for Minor Specialization (Applicable only for Core

Disciplines):For detailed description, refer the GGSIPU scheme and Syllabus.

Students with Core Branches have the opportunity to graduate with a **degree designation that highlights their specialization.**

This designation signifies that the student has not only completed the requirements for their primary degree but has also achieved exceptional academic performance and demonstrated mastery in their chosen specialization area, such as Artificial Intelligence, Data Science, or another relevant field selected as part of their Emerging Area Elective or Open Area Elective courses.

Courses runs at MAIT

Programs	Intake 2025-26
B. Tech. (CSE)	360
B. Tech. (CSE-II)	60
B. Tech. (CST)	180
B. Tech. (CSE (AI)	60
B. Tech. (CSE (AI & ML)	60
B. Tech. (CSE (DS)	60
B. Tech. (ECE)	60
B. Tech. (EC-VLSI)	60
B. Tech. (EC-ACT)	60
B. Tech. (EEE)	60
B. Tech. (IT)	300
B. Tech. (ME)	60
Total	***1380***
Management course	
MBA	180
BBA	120

LE seat Matrix for the Academic year 2025-26

Programs	Intake 2024-25	Seat Intake of LE for the year 2025-26
B. Tech. (CSE)	360	36
B. Tech. (CSE-II)	60	6
B. Tech. (CST)	180	18
B. Tech. CSE (AI)	60	6
B. Tech. CSE (AI & ML)	60	6
B. Tech. CSE (DS)	60	6
B. Tech. (ECE)	60	6
B. Tech. (EEE)	60	6
B. Tech. (EC-VLSI)	60	6
B. Tech. (EC-ACT)	60	6
B. Tech. (IT)	180	18
B. Tech. (ITE)	120	12
B. Tech. (ME)	60	6
Total	1380	138

Academic Modules and Professional Pathways for B. Tech. in Computer Allied Disciplines

Bachelor of Technology Programme(s) in Core Branches (Major /Primary Disciplines)

- Bachelor of Technology in Computer Science and Engineering (CSE)
- Bachelor of Technology in Information Technology (IT)
- Bachelor of Technology in Computer Science and Technology (CST)

Bachelor of Technology Programme(s) in Emerging Areas Disciplines

- Computer Science and Engineering (Artificial Intelligence) (CSE-AI)
- Computer Science and Engineering (Artificial Intelligence and Machine Learning) (CSE-AIML)
- Computer Science and Engineering (Data Science) (CSE-DS)

Bachelor of Technology in Computer Science and Engineering (CSE): It typically involves a blend of theoretical knowledge and practical skills related to computer hardware, software, programming, algorithms, data structures, networking, and various other aspects of computing.

Bachelor of Technology in Information Technology (IT): It emphasizes the application of technology in business contexts and information systems. The focus is on the practical application of computers and telecommunications to handle data storage, retrieval, transmission, and manipulation across various domains.

Bachelor of Technology in Computer Science and Technology (CST): CST programs typically offer a comprehensive mix of theoretical understanding and practical proficiency encompassing computer hardware, software, programming, algorithms, data structures, networking, and other critical facets of computing.

The Bachelor of Technology programs in core branches prepare students for a variety of career paths. Graduates can explore opportunities in software development, system administration, and networking. The curriculum also supports careers in cyber security and research. These programs open doors to numerous fields within the technology industry. Students gain the skills needed for both technical and innovative roles. The comprehensive education ensures readiness for a dynamic job market.

Computer Science and Engineering (Artificial Intelligence) (CSE-AI) – It focuses on the study and practical application of technologies enabling machines to perform tasks. It uses a combination of data science, software development, and algorithm engineering to ensure computers function like the human brain.

The Curriculum includes the following Subjects -

- Artificial Intelligence and its applications
- Intelligent and Expert Systems
- Artificial neural networks
- Fuzzy systems and its application
- Natural language processing
- Expert Systems in detail

AI students learn to develop intelligent systems capable of reasoning, learning, and decision-making in complex and dynamic environments.

Computer Science and Engineering (Artificial Intelligence and Machine Learning) (CSE-AIML)- The program is designed to equip students with the knowledge and skills needed to understand, develop, and apply machine learning algorithms and techniques across various domainsto train the models. The models are then used to automate processes like image classification, speech recognition, and market forecasting.

The Curriculum includes the following Subjects -

- Basics of Artificial Intelligence
- Basics of Machine Learning
- Optimization Techniques
- Supervised and unsupervised learning
- Soft Computing
- Pattern Recognition and Computer Vision
- Reinforcement learning and Deep Learning

AIML students learn to build predictive models, classifiers, or decision-making systems that can make accurate predictions or decisions based on data.

Computer Science and Engineering (Data Science) (CSE-DS)- It focuses on the study of data analysis, machine learning, statistics, and related technologies to extract insights and knowledge from large datasets. It blends concepts from computer science, mathematics, statistics, and domain-specific knowledge to address complex data-driven problems across various industries.

The Curriculum includes the following Subjects -

- Basics of AI and ML (Single paper)
- Process to handle data,
- Programming language R and Python
- Data Science by R
- Data Analytics and Visualization

Data science students learn to analyze data, uncover patterns, trends, and correlations, and communicate actionable insights to inform decision-making in various domains.

Academic Components and Career Trajectories for B.Tech in Electronics and Related Fields

Bachelor of Technology Programme(s) in Core Branches (Major /Primary Disciplines)

- B.Tech in Electronics and Communications Engineering (ECE)

Bachelor of Technology Programme(s) in Emerging Areas Disciplines

- B.Tech in Electronics Engineering (with specialization in VLSI Design and Technology)
- B.Tech in Electronics and Communication (focused on Advanced Communication Technology)

Branch Highlights

Student pursuing **B.Tech in ECE, B.Tech in Electronics Engineering (VLSI Design andTechnology) or B.Tech in Electronics and Communication (Advanced CommunicationTechnology)** will be studying the core Electronics Engineering subjects as Analog electronics,Microprocessors, Analog & Digital Communication, Signal processing, Electronic Magnetic Theory,Transmission Lines, Waveguides and Antenna Design. All these courses are common in the threedisciplines till Fifth semester.

B.Tech in ECE – will provide an opportunity to excel in the core field of Electronics &Communication and have an option to diversify in multiple Minor Specialization like:

Software oriented

- Artificial Intelligence (AI)
- Artificial Intelligence & Machine Learning (AI & ML)
- Machine Learning & Data Analytics (ML & DA)
- Internet of Things (IoT)

Hardware oriented

- VLSI Design
- Embedded Systems
- Advanced Communication
- Image Processing

Their curriculum enable student to study subjects related to any one of the above specialization relatedsubjects in sixth and seventh Semester:

Students of B.Tech in ECE have the options of working in core electronics sector or widentheir horizon in software industry.

B.Tech in Electronics Engineering (VLSI Design and Technology) - EE VDT

The Programfocuses to impart theoretical and practical knowledge on recent technologies of the Semiconductorindustry. Their curriculum enable student to study the following subjects in sixth and seventhSemester:

- Embedded System Architecture and Design
- VHDL Programming
- Semiconductor Devices and Modelling
- CMOS Analog Integrated Circuit Design
- CMOS Digital Circuit Design
- Low Power VLSI Design
- VLSI Testing
- Open area electives (OAE) do enable them to diversify by learning Artificial Intelligence,Machine learning, IOT, Soft Computing etc.

The increasing demand of Semiconductor design engineers for establishing Semiconductor manufacturing units in India is motivating the youngsters to excel in designing VLSI devices.

B.Tech in Electronics and Communication (Advanced Communication Technology)

It isdesigned to prepare the student for the emerging Communication Industries. Their curriculum enablestudent to study theory and practical of following subjects in sixth and seventh Semester:

- RF and Microwave Engineering
- Antenna Design and Radiating Systems
- Optical Networks
- Wireless Communication and Networks
- Radar and Satellite Communications
- Cellular and Mobile Communication
- Open area electives (OAE) diversify them in the field of Artificial Intelligence, Machinelearning, IOT, Soft Computing etc.

Evolution of India as a pioneer in designing and fabricating devices for 5G, 6G and now introducing 7G, 8G of Communication industry, is appealing the students to pursue their graduate degree in the specialized Advanced communication field.

Academic Framework and Professional Pathways. for B.Tech in Mechanical Engineering

B.Tech in Mechanical Engineering (ME) program equips aspiring engineers with knowledge and skills for success in a rapidly evolving technological landscape, featuring a comprehensive curriculum covering core subjects such as

- Strength of Materials
- Fluid Mechanics
- Thermodynamics
- Manufacturing Engineering and Industrial Engineering

Theoretical knowledge is complemented by practical lab sessions, preparing students for employment in PSU/Government sector undertakings. The curriculum offers program core electives for customization, aligning with UNESCO goals and the guidelines of the New Education Policy (NEP). Recognizing technological advancements, the program allows specialization through Minor Specializations in software and hardware-oriented fields such as **Artificial Intelligence (AI), Artificial Intelligence & Machine Learning (AI & ML), Machine Learning & Data Analytics (ML & DA), Data Science, Computer-Aided Design & Manufacturing (CAD & CAM), EVs,**

In the sixth and seventh semesters, students can focus on subjects related to their chosen specialization, providing a deep dive into these cutting-edge areas.

Graduates of the B.Tech in ME are equipped to pursue careers in the core manufacturing sector or leverage their technical skills in the software industry.This versatility ensures our graduates are highly employable and capable of contributing to diverse industries.

Academic Structure and Career Opportunities for a B.Tech in Electrical and Electronics Engineering

With NEP2020, Electrical & Electronics Engineering is now being offered with specialization in the following Emerging Areas:

- Electric Vehicles
- Artificial Intelligence and Machine learning
- Artificial Intelligence
- Machine learning and Data Analytics

Highlights:-

Apart from common subject till 5th Semester, few of the new subjects (Theory and Practical) which are included in curriculums per the specializations are as follows:

1. **Electric vehicles**
    - Electric Vehicles Powertrain & Motor Design
    - Battery Management System
    - EV Charging Infrastructure Technology
    - Economics and Policies of e-Mobility
    - Embedded Systems for Electric Vehicles

2. **Artificial Intelligence and Machine learning.**
    - Arificial Intelligence
    - Statistics, Statistical Modeling & Data Analytics
    - Machine Learning
    - Reinforcement Learning and Deep Learning
    - Pattern Recognition and Computer Vision

3. **Newly Introduced subjects (Common to both specialization)**
    - Electrical Power Generation Systems
    - Research Methodology for Electrical & Electronics Engineering
    - Utilization of Electrical Energy
    - Principles of Entrepreneurship Mindset
    - Renewable Energy and Policies
    - Energy Conservation Schemes

Student can explore both **software** and **hardware** aspects in this specialization:

These specialized subjects prepare students for exciting career opportunities in cutting-edge fields, equipping them with the knowledge and skills needed to contribute to sustainable energy solutions and AI-driven innovations.

Department of Management

Four-year BBA, BBA(Honours) and BBA (Honours with Research) Program with Multiple Entry-Exit

BBA course at MAIT has been designed in align with The New Education Policy 2020 which emphasizes on skill development among students to prepare them to develop academic and industry-oriented skills in order to gain knowledge of business practices and be absorbed in the industry. This Four-Year BBA/BBA Honours/ BBA Honours with Research program will provide the students with flexibility to complete the courses at their own pace with the option of multiple entry and exit at various levels from the Academic Year 2024-25. This will remove the rigid boundaries and provide new avenues to choose and learn. This shall aim to provide opportunities to experience the full range of holistic and multidisciplinary education as per the student's preference. The students shall be able to analyse the world marketplace, create an awareness of business issues and management practices.

Course Name: Bachelor's in Business Administration

Bachelor's in Business Administration (Honours) and

Bachelor's in Business Administration (Honours with Research)

Course Level/Duration/System: Undergraduate /Four years/8 Semesters with multiple entry and exit.

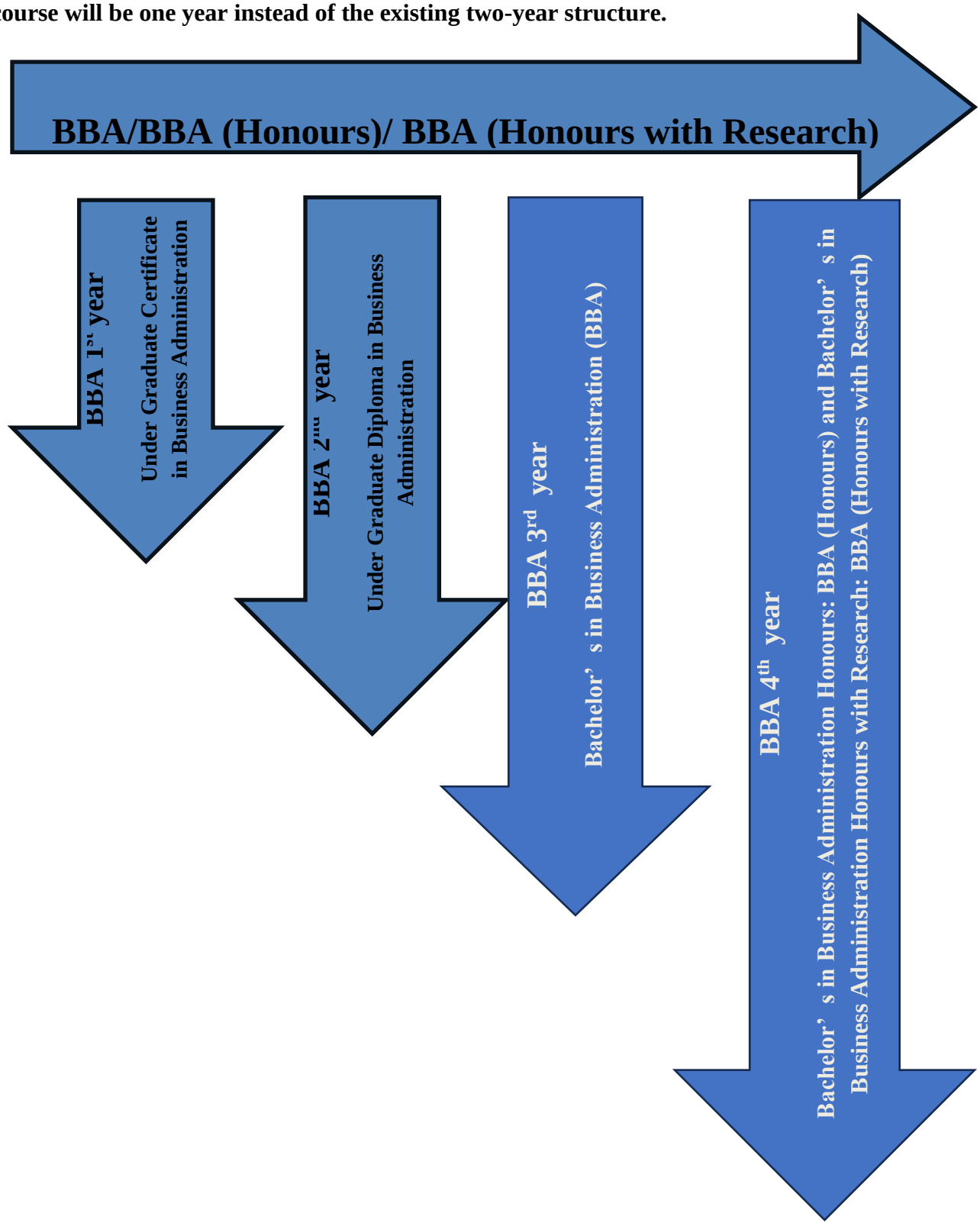
The following option will be made available to the students joining BBA Research Program:

a) **One year: Under Graduate Certificate in Business Administration**
b) **Two years: Under Graduate Diploma in Business Administration**
c) **Three years: Bachelor's in Business Administration (BBA)**
d) **Four years: Bachelor's in Business Administration Honours: BBA (Honours) and Bachelor's in Business Administration Honours with Research: BBA (Honours with Research)**

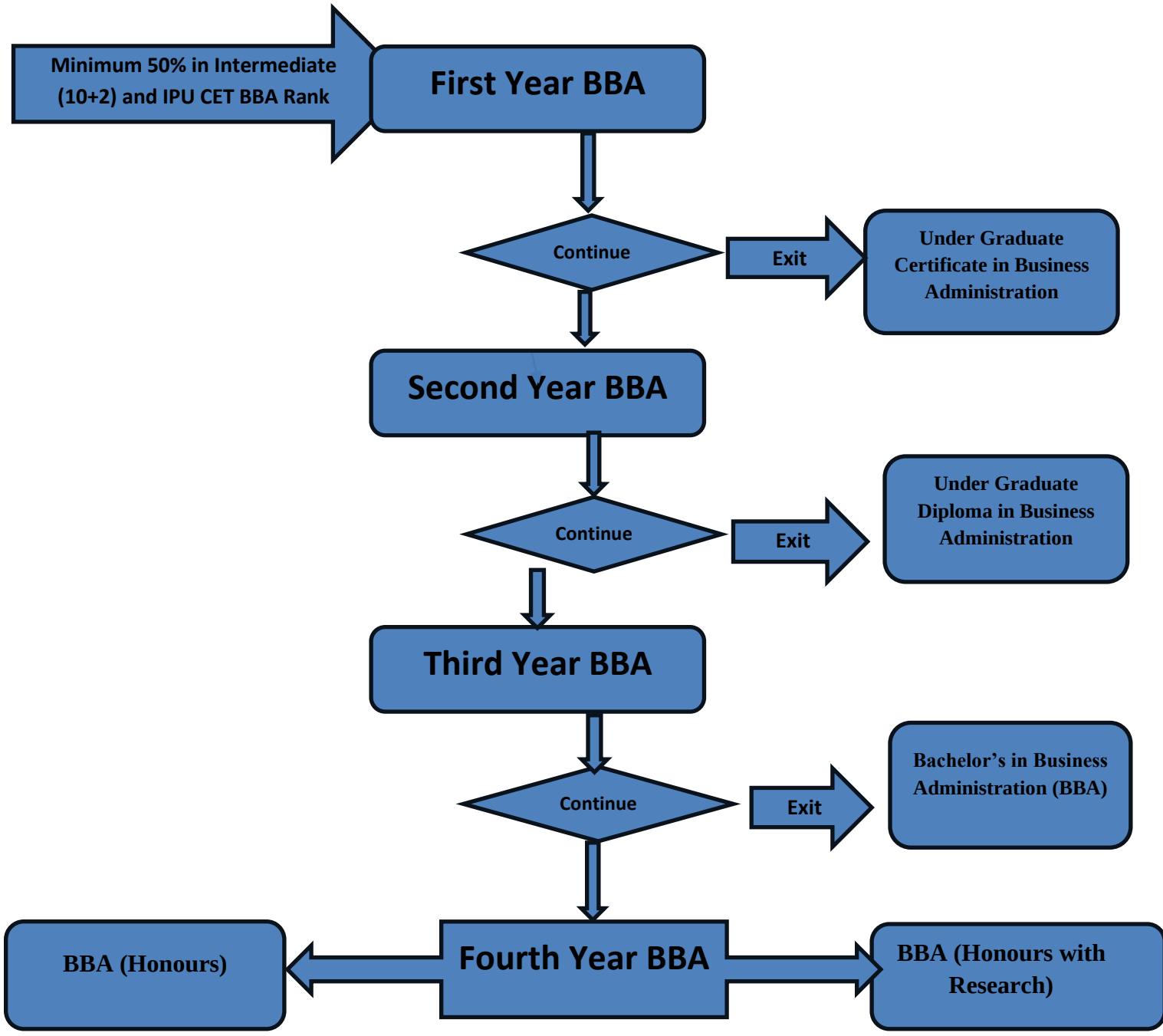
Minimum eligibility criteria for opting the course in the fourth year will be as follows:

BBA (Honours with Research): Minimum 75% marks or equivalent CGPA in BBA Degree up to Sixth Semester.
For BBA (Honours): BBA Degree
The students who are eligible for BBA (Honours with Research) shall have choice to pursue either BBA (Honours) or BBA (Honours with Research).

With the implementation of this four-year BBA program, student's will get a BBA (Honours) degree with research specialisation and the duration of their post graduate (PG) course will be one year instead of the existing two-year structure.



Admission Path to Four Year BBA/BBA(Honours)/BBA (Honours with Research) with Multiple Entry & Exit



Bachelor of Business Administration from Maharaja Agrasen Institute of Technology

Highlights of 4 Year BBA Program

Four-year BBA (Honors) / BBA (Honors with Research) is the most preferred option since it would provide the opportunity to experience full range of holistic and multidisciplinary education in addition to focus on the chosen major and minors as per the interest area of the student.

1. BBA (Honors) / BBA (Honors with Research) is highly research oriented for students. The program offers a unique pathway for students interested in academic and research careers. With a focus on advanced data analysis, research methodology, and a dissertation, this track prepares students for challenges in academia and industry research roles. It will also give students an opportunity to pave their path to higher education in management and technical fields.
2. Students with BBA (Honors) / BBA (Honors with Research) will have the opportunity to specialize in emerging areas through Open Electives and gain practical experience through structured internships and project work in the 4^{th} year of BBA. This practical exposure is designed to enhance employability and entrepreneurial capabilities.
3. The research outcomes of their project work in 4^{th} year may be published in peer-reviewed journals or may be presented in conferences /seminars or may be patented.
4. Students will get equipped with advanced level of research methodology and data analytics courses as a part of the curriculum.