1. **Briefing Document: B.A. LL.B. (Hons.) Programme - Manav Rachna University**

This briefing document provides a comprehensive overview of the B.A. LL.B. (Hons.) programme offered by the Department of Law at Manav Rachna University, drawing insights from the provided source document.

1. Programme Overview

The B.A. LL.B. (Hons.) is a **five-year (10 semesters) undergraduate degree programme** that integrates **Liberal Arts with Law**. It is designed to provide students with a strong foundation in a diverse range of subjects, both legal and non-legal, fostering a holistic understanding of the legal landscape. The programme holds a **rating of ⭐4.3 based on 18 reviews**, indicating generally positive student feedback.

**Key Highlights:**

* **Interdisciplinary Approach:** The programme is uniquely designed with a "balanced combination of classroom learning as well as mock court drills, case studies, research work, and law internships, etc."
* **Skill Development:** Emphasis is placed on equipping students with "essential skills such as legal research, advocacy, and drafting" alongside "critical thinking, communication, and problem solving abilities."
* **Global Legal Context:** The curriculum encourages students to explore "different types of Laws in the context of the different legal systems in the world."
* **Accreditation:** The programme is "Approved by the Bar Council of India (BCI) and University Grants Commission (UGC)."

2. Specialisations and Curriculum Structure

The programme offers specialisations in **Corporate Law** and **Criminal Law**.

The curriculum is structured across 10 semesters, with a blend of compulsory Law and Non-Law subjects, along with elective options and honours electives in later semesters.

**Examples of Compulsory Subjects across Semesters:**

* **Early Semesters (I-II):** Law of Torts, Law of Contract-I & II, Political Science I & II, Sociology I & II, Economics I & II, Legal English I & II.
* **Mid-Programme (III-VI):** Constitutional Law I & II, Family Law I & II, Law of Crimes I & II, Property Law, Administrative Law, Company Law, Laws of Criminal Procedure, Law of Evidence, Environmental Law, Civil Procedure Code and Limitation Act, Labour Laws, Jurisprudence.
* **Later Semesters (VII-X):** Land Laws, Intellectual Property Rights Law I & II, Drafting, Pleading and Conveyancing, Public International Law & Human Rights, Information Technology & Telecommunications Law, Professional Ethics and Professional Accounting System, Moot Court Exercise and Internship.

**Elective and Honours Elective Examples (from Semester VI onwards):**

* **Elective I:** Cyber Law
* **Elective II:** Private International Law
* **Honours Electives (varied by semester):** Law on Mergers and Acquisitions/Competition Law, Juvenile Justice/Criminology, Victimology & Penology, Insolvency and Bankruptcy Law/Law on Infrastructure Development, Socio-Economic Offences/Forensic Science and Criminal Law, Banking & Insurance Law/Gender Justice, Commercial Arbitration – Theory & Doctrines/International Humanitarian and Refugee Law, Securities Law and Market/International Investment Law Regulations, Cyber Crimes and Law /International Criminal Law.

**Unique Curriculum Elements:**

* **Integration of STEM:** "Integration of STEM in the foundation years, provides adequate footing in understanding law and legal principles."
* **Experiential Learning:** Strong emphasis on "experiential, participative and problem-based learning methodologies" including mock court drills, case studies, research work, and internships.
* **Foreign Languages:** Compulsory foreign language courses (Spanish, German, French) are offered across multiple semesters.

3. Admission Requirements and Fees

**Eligibility:**

* Pass in 10+2 examination with at least 50% or more marks in aggregate in 5 subjects.
* Should have qualified English as a subject.

**Admission Criteria:**

* Merit preparation/shortlisting of candidates based on scores in **SAT/ CLAT/ MRNAT 2024 / Pearson/ 10+2 Qualifying Examination.**

**Nationality:** Indian/NRI/PIO/Foreign

**Course Fee (Annual):**

* INR 2,44,000
* US $ 4,000

**Scholarships:**

* Available based on "marks secured in qualifying examination or MRNAT, sports etc."
* Up to **100% Scholarships** can be availed based on "MRNAT, CLAT Scores and 12th marks."
* Haryana Govt. scholarship is also offered to Haryana domicile students whose parental income is less than INR 2.8 lacs per Annum.

**Application Process (How to Apply):**

1. Visit the Official Website (www.manavrachna.edu.in) and navigate to the Admissions section.
2. Fill out the Online Application Form.
3. Upload Required Documents (Class 10 & 12 mark sheets, Aadhaar card, passport-size photographs).
4. Pay the Application Fee online.
5. Appear for MRNAT or Submit CLAT/SAT Score.

**Modes of Fee Payment:** Online payment, Bank Transfer (NEFT/RTGS), Demand Draft (DD), Cash Payment (at Accounts Office), and Education Loan (through tie-ups with PNB, SBI, HDFC, ICICI).

4. Career Pathways and Industry Exposure

The programme prepares students for a "strong foundation for a lucrative career" with "multiple career options." The diverse career opportunities are highlighted as "unmatched by any other professional degree."

**Potential Career Pathways:**

* **Litigation:** Practicing in District Courts, High Courts, and the Supreme Court of India.
* **Civil Services:** UPSC, Judicial Services, Armed Forces (Judge Advocate General).
* **Legal Firms:** Working for various law firms.
* **Corporate Sector:** In-house counsels, compliance officers, legal departments in MNCs, Legal officers for Banks and Insurance Companies.
* **Alternative Legal Careers:** NGOs, Legal Editor, Legal Journalist, LPOs, KPOs.
* **Academia:** As industry experts.
* **Evolving Fields:** Technology law, artificial intelligence, environment and sustainable development, entertainment laws.

5. Unique Selling Propositions (USPs)

The School of Law emphasises a practical and comprehensive approach to legal education.

**Key Educational Benefits:**

* **Professional Degree:** Providing foundational knowledge for a "lucrative career" and "multiple career options."
* **Comprehensive Knowledge:** Equipping students with "comprehensive knowledge of Law and your Rights."
* **Critical Thinking:** Fostering the ability to "Master Critical Thinking and Reasoning Abilities."
* **Prestige and Respect:** Highlighting the inherent value and standing of a legal profession.

**Specific USPs mentioned:**

* "Faculty from top-notch institutions such as NLUs, JNU and foreign Universities."
* "Experiential Learning, ‘Learning by Doing’."
* Advisory Council headed by "Hon’ble Former Chief Justice Uday Umesh Lalit, the Supreme Court of India, with former High Court Judges, Senior Advocates and Bureaucrats as members."
* Various **Centres of Excellence and Research Groups** (e.g., Corporate Law and ADR, Legislative Studies and Research, Environmental Laws and Climate Change, Artificial Intelligence and Technology Laws).
* "Strong linkages with industry, corporates, law firms, Senior Advocates... and regulatory bodies which helps to facilitate internships and placements."
* "State-of-art infrastructure."
* "Emphasis on Clinical Legal Education."
* "100% internship and placement assistance through dedicated Department of Training and Placements."
* "Strong emphasis on professional training and holistic personality development."
* **Student participation** in national and international moot court competitions, client counselling, mediation competitions, and conferences.

6. Internships and Placements

The university provides **100% internship and placement assistance**. While specific placement statistics are not detailed, a list of **"Top Recruiters"** is provided, which also appears under "Internship & Placement Opportunities":

* Amazon
* Nokia
* Infosys
* Pinkerton
* Apple
* Boeing
* Capital One
* Cisco
* Federal Reserve Bank of New York
* General Motors
* Intel
* Lockheed Martin
* Northrop Grumman
* Patient First

Students engage in **Summer Internships** of a minimum of 4 weeks after Semesters IV, VI, and VIII, with corresponding Internship Viva sessions (I, II, III, IV, V).

7. Student Life and Facilities

**Residential Services:**

* On-campus and off-campus hostel accommodation for boys and girls.
* Variety of room categories (AC/Non-AC, single/double/triple/five-seater) with attached/common bathrooms.
* Hostel fees include medical facilities, medical insurance, library access, and laundry.
* Mess plan is included in the hostel fees.

**Sports Facilities:**

* "World class sports facilities for outdoor and indoor games" including basketball, volleyball, cricket, shooting (25m and 10m indoor range), table tennis, squash, billiards, soccer, chess, carom.
* Indoor badminton and table tennis stadia with synthetic courts.
* Sports Fitness Centre (psychological, physiotherapy, health).
* Soccer Academy and Semi Olympic-sized swimming pool.

**Transport:**

* Well-organized transport facility with GPS-enabled buses for students commuting from Delhi and Gurugram, prioritising "punctuality, safety, and convenience."

**Cultural Societies:** A wide array of student societies cater to diverse interests, including:

* **Performing Arts:** Khalbali (Dramatics), Moksh (Music), Rudra (Dance).
* **Creative & Media:** Noora (Fashion), Drishti (Media), Felicia (Art).
* **Literary & Personal Development:** Rehnuma (Literary), Karisma & TechSoul (Personality Development).
* **Recreational:** GAMENIX (Gaming).

8. Global Exposure and Innovation

**International Tie-ups:**

* Collaborations enable "a global perspective on legal education, promote cross-cultural understanding, and facilitate international research and exchange programs."
* Specific collaboration with **The University of Waikato, New Zealand**, allows MRU UG Law students to progress to PG study options (LLM, MLS, MJur) at Waikato.

**Innovation & Startups:**

* **Manav Rachna Business Incubator** nurtures "innovative instinct of the students, alumni and faculty."
* Provides "design, fabrication, manufacturing facilities to facilitate the growth and success of startup and early stage companies."
* Offers "a good path to capital from angel investors, state governments, economic-development coalitions and other investors."
* Includes "mentorship, expertise and networking" and "integrated, customized Innovation-Based Incubation support services."

9. Student Testimonials and Best Practices

Student testimonials highlight positive experiences regarding faculty, opportunities, and overall development. Tejaswi Dudeja describes her experience as "a perfect blend of joy and learning," praising the faculty. Yash Batra emphasizes the "wonderful experience of learning with prolific exposure to the outside" and the helpfulness of the Commercial Arbitration course for his practice.

**Best Practices:**

* **Legal Aid Camps/Activities:** Annual participation in legal awareness programmes with District Legal Service Authority (DLSA) and Haryana Legal service authority (HLSA).
* **MR Radio Session Legal Awareness Program:** Utilises radio broadcasts to disseminate legal information in neighbourhood villages, overcoming literacy and infrastructure barriers, and addressing community concerns directly.

10. Programme Outcomes (POs) and Program Specific Outcomes (PSOs)

The programme aims to develop a range of competencies in students:

**Program Specific Outcomes (PSOs):**

* PSO1: Ability to "Examine and assess the role of people and societal institutions in shaping the laws and its effect on life of people, society and nation."
* PSO2: Capacity to "Critically analyze the socio-legal gaps and propose measures to fill in the inequities, protecting the ethos of the rule of Law."

**Program Outcomes (POs) - Broader Competencies:**

* **Knowledge of Law (PO1):** Fundamental principles, basic legislations, leading cases.
* **Communication Skills (PO2):** Effective written and oral communication, active listening, analytical reading and writing, concise presentation.
* **Critical Thinking (PO3):** Analysing and evaluating evidence, arguments, identifying assumptions, formulating coherent arguments, evaluating practices/policies/theories.
* **Problem Solving (PO4):** Applying competencies to solve legal problems in real-life situations.
* **Analytical Reasoning (PO5):** Evaluating reliability of evidence, identifying logical flaws, analysing/synthesising data, drawing valid conclusions.
* **Research-related Skills (PO6):** Inquiry, questioning, synthesising, articulating, identifying cause-and-effect, planning/executing/reporting investigations.
* **Moral and Ethical Awareness/Reasoning (PO7):** Embracing ethical values, formulating arguments on ethical issues, avoiding unethical behaviour (e.g., plagiarism), appreciating environmental issues, objectivity.
* **Professional Advocacy and Consultancy (PO8):** Carrying out professional advocacy and consultancy, representing clients in courts/forums professionally.
* **Digital Literacy (PO9):** Using ICT for learning, accessing/evaluating information, using software for data analysis.
* **Self-directed Learning (PO10):** Working independently, identifying resources, managing projects to completion.

This briefing highlights the key aspects of the B.A. LL.B. (Hons.) programme, showcasing its academic rigour, practical orientation, and comprehensive student support system at Manav Rachna University.

**2.Briefing Document: B.Tech Computer Science and Engineering (Hons.) with specialisation in Artificial Intelligence & Machine Learning in association with Xebia**

1. Programme Overview and Key Differentiators

This document details the Bachelor of Technology (B.Tech) Computer Science and Engineering (Hons.) with a specialisation in Artificial Intelligence & Machine Learning (AIML), offered in association with Xebia. This undergraduate programme is designed to equip students with core computer science principles and advanced AI studies to tackle real-world challenges.

**Key Educational Benefits and Unique Selling Propositions (USPs):**

* **Strong Industry Collaboration with Xebia:** The programme is "Co-Designed, Co-Delivered and Co-Certified" by Xebia. This association ensures the curriculum and e-course material are prepared by Xebia experts, who also provide "Direct learning by Xebia experts during the semester to give the industry perspective." Students also benefit from "Xebia Industrial Visit during the semester" and "Remote/Onsite Internship opportunities with Xebia or their clients."
* **Association with Industry Giants:** Beyond Xebia, the programme boasts partnerships with "industry giants like Google Cloud, MongoDB, UI Path etc. for ensuring industry readiness of our students through curriculum designing, delivery, trainings, internships/Placements etc." (USPs TAB).
* **Hands-on and Experiential Learning:** The curriculum emphasizes "Project and experiential-based learning" and offers "09 fully equipped state-of-the-art laboratories."
* **Curriculum Design:** The curriculum is "Curriculum co-designed, co-certified, co-delivered by industry experts and reputed academicians" and follows the "AICTE model curriculum and industry-oriented choice-based courses."
* **Focus on Research and Innovation:** The programme includes an "Introduction to Research" sequence from the 3rd to 5th semester, emphasizing "originality, feasibility for start-ups, and documentation of outcomes (research paper, patent, product, start-up, copyright)." There are "200+ research papers in international and refereed journals" and "Opportunity of patents, copyrights, funded projects, consultancy, and student start-ups."
* **Employability Skills:** Training is provided for "enhancing employability skills through MOUs" and "student grooming for placement readiness through Career Development Cell (CDC) experts." "Super 40 batches for placement support" are also highlighted.
* **Global Exposure:** The programme offers "Expert Lectures," "Webinars," and "World Renowned expert trainers for giving hands on session in the field of AIML." Student exchange programmes are "under process" with universities in the UK, US, and Australia.
* **Accreditation and Recognition:** The School of Engineering has "secured Platinum Badge in QS I-GAUGE Engineering subject knowledge," and the programme has "NBA Accreditation: 2023" and "NAAC A."

2. Admission Requirements and Fees

* **Eligibility:** Pass in 10+2 examination with at least 60% marks in aggregate in 5 subjects. The subjects considered are English, Physics, Mathematics, one subject from Chemistry/Computer Science/Biology/Biotechnology, and one subject with the highest score from the remaining.
* **Admission Criteria/Selection Criteria:** Merit preparation/shortlisting of candidates is based on scores in "JEE Mains/ SAT / Pearson / CUET. MRNAT/XII Qualifying Examination."
* **Course Fee (Annual):** INR 3,14,000 / US $ (specific dollar amount not provided).
* **Scholarships:** Provision of "up to 100% scholarship" through MRNAT: Utkarsh and Uttam along with JEE Scores.

3. Curriculum Structure (Highlights)

The programme is a 4-year (8 semesters) undergraduate degree. The curriculum spans a broad range of computer science, mathematics, and specialised AIML topics.

**Early Semesters (1 & 2): Foundation Building**

* **Semester 1:** Focuses on foundational subjects such as "QUANTUM MECHANICS FOR ENGINEERS" (both theory and lab), "CALCULUS & LINEAR ALGEBRA" (theory and lab), "PROGRAMMING FOR PROBLEM SOLVING USING C" (theory and lab), "PROFESSIONAL ENGLISH," "USER INTERFACE-I" (HTML, CSS, JavaScript), "ENVIRONMENTAL SCIENCE," "PROFESSIONAL COMMUNICATION I," "UNIVERSAL HUMAN VALUES-II," and "INDIAN CONSTITUTION." Specialized courses include "UI Specialist – HTML, CSS, JavaScript" and "INTRODUCTION TO INFORMATION SECURITY."
* **Semester 2:** Continues with core subjects like "CHEMISTRY-I," "PROBABILITY AND STATISTICS," "BASICS OF ELECTRONICS & ELECTRICAL ENGINEERING" (theory and lab), "DATA STRUCTURES & ALGORITHMS" (theory and lab), "COMPUTER AIDED DRAFTING," "USER INTERFACE-II" (Typescript, Node.js, AngularJs, MongoDB), "PROFESSIONAL COMMUNICATION-II," and "PROGRAMMING FOR PROBLEM SOLVING USING PYTHON." Specialized courses include "Python programming," "User Interface-Advanced" (ES6, React Native), and "INTRODUCTION TO STANDARDS, FRAMEWORKS AND KEY TECHNOLOGY CONCEPTS."

**Intermediate Semesters (3 & 4): Core CS and Introduction to AI/ML**

* **Semester 3:** Introduces "Object Oriented Programming Using Java" (theory and lab), "Database Management System" (theory and lab), "Software Engineering" (theory and lab), "Discrete Mathematics" (theory and lab). Specialized courses begin to appear, including "Supervised Learning" (theory and lab) and "Modern Web and Mobile frameworks." Other courses include foreign languages (French/German/Spanish), "PROFESSIONAL COMPETANCY ENHANCEMENT-I," "INTRODUCTION TO RESEARCH," and "Indian Constitution."
* **Semester 4:** Deepens into core computer science with "Artificial Intelligence" (theory and lab), "Operating Systems" (theory and lab), "FUNDAMENTALS OF DIGITAL ELECTRONICS," "Computer Networks" (theory and lab). Specialised options continue with "Unsupervised Learning" (theory and lab), "Software Craftsmanship – TDD/SOLID," and "Digital Forensics." Elective options appear, such as "SENSORS & IOT" and "3D Printing."

**Advanced Semesters (5, 6, 7 & 8): Specialisation and Electives**

* **Semester 5:** Covers "Computer Architecture & Organization," "Theory of Automata & Compiler Design," "Mobile Computing with Android," "Neural Networks & Fuzzy Logic," and "Machine Learning." Further specialisation is evident with "Advanced Neural Networks" and "VERSION CONTROL & AUTOMATION." Other courses include "APPLIED PHILOSOPHY," "Applied Psychology," "APPLIED SOCIOLOGY," "ENTREPRENEURSHIP," "Professional Competency Enhancement-III," and "Research & Innovation-II."
* **Semester 6:** Includes "COMPUTER GRAPHICS & MULTIMEDIA," "Analysis and Design of Algorithms," "Advanced Android Development," "Data Warehousing and Data Mining," "Deep Learning," and ".NET." Specialised subjects include "Natural Language Processing," "Modern Architecture Patterns," and "Vulnerability Assessment and Penetration Testing."
* **Semester 7:** Features "Mobile App. Analytics" (theory and lab), "Information Retrieval" (theory and lab), "Image Processing" (theory and lab), "Software Testing," and "Agile Technologies." Electives and advanced topics include "Progressive Web Applications" (theory and lab), "Big Data" (theory and lab), "N/W Security & Cryptography" (theory and lab), "Cloud Computing" (theory and lab), "Software Project Management" (theory and lab), "Introduction To Blockchain Technology" (theory and lab), "Wireless Sensor Network" (theory and lab), and "Operation Research" (theory and lab). Specialised AIML courses include "COMPUTER VISION & DATA VISUALIZATION" (theory and lab) and "MALWARE ANALYSIS AND REVERSE ENGINEERING" (theory and lab).
* **Semester 8:** The curriculum for Semester 8 is not detailed in the provided source but is implied to include project work and advanced studies as part of the 4-year programme.

4. Career Pathways and Placement Opportunities

The B.Tech CSE AIML programme prepares students for a diverse range of roles in the burgeoning AI and Machine Learning fields.

**Career Prospects (Specific to AIML):**

* AI/ML Engineer
* Data Scientist
* Robotics Engineer
* Data Analyst
* AI Researcher
* Software Developer
* Business Intelligence Analyst

**Top Recruiters Mentioned:** Google, HCL, Nokia, KPMG, Accenture, IBM, Coforge, QSS, PlanetSpark, British Telecom, UI Path, Palo Alto, Tech Mahindra, EX Squared, Ericsson, Capgemini, JSW, To the New, Xebia, Cloudsufi, CargoFlash, Commvault, AVIZVA.

**Internship and Placement Support:**

* **Industrial Visits:** Regular visits to help students network and find opportunities.
* **Guest Speakers/Networking Events:** Provides insights and potential internship leads.
* **Online Internship Portals and Alumni Networks.**
* **Hackathons and Competitions:** Promote practical skill development and exposure.
* **On-Campus Recruitment and CRC Department:** Dedicated support for placements.
* **Notable Internships (AY 23-24):**Ashwani Soni, B.Tech, CSE - Summer Internship Google (1.23 Lakhs)
* Kanika Sharma, B.Tech, CSE - Summer Internship JPMORGAN CHASE & Co. (75K)
* Manis Tyagi, B.Tech CSE - Summer Internship, UiPath (50K)
* Reet Kaur, B.Tech, CSE-AIML, Summer Internship British telecom (40K)

**Placement Statistics (AY 23-24 - AIML specific):**

* **MAX Salary:** 34 LPA
* **MIN Salary:** 4 LPA
* **AVG Salary:** 10 LPA

5. Research and Innovation Ecosystem

The university strongly promotes research, innovation, and entrepreneurship among its students and faculty.

* **Introduction to Research Course:** Included in the early curriculum to "enhance the research capabilities of students."
* **Research Groups and Clusters:** Students can connect with faculty-led research groups in areas such as "Data Analytics And Big Data Architecture," "Artificial Intelligence," "Emerging Web Technologies And Applications," "Data Mining," and "Network Securities."
* **MRU-Innovation & Incubation Centre:** Established in 2018, it provides a "comprehensive support system" including "workshops and training sessions," "visits to industries and incubation centres," "end-to-end mentorship," assistance with "company registration, fundraising," and "seed funding for promising startup ideas."
* **Student Achievements in Research and Innovation:** Numerous examples of students presenting papers at international conferences, winning hackathons, and receiving awards/fellowships (e.g., IIT Bhilai fellowship, Smart India Hackathon winners).
* **Notable Alumni Success:** Akshita Sachdeva (Alumini of CST, MRU), co-founder of Kibo, presented her innovation on Shark Tank season 3. Yuvraj Bhardwaj & Yashraj Bhardwaj, "18 years old Researcher & Entrepreneur," own "22 Research Projects, and also have 7 patents on their name."

6. Campus Facilities and Student Life

* **Residential Services:** On-campus and off-campus hostel accommodation for boys and girls, with various room categories (AC/Non-AC, single/double/triple/five-seater). Hostel fees include "Medical facilities, medical insurance, library facilities and laundry facilities."
* **Mess Plan:** Included in Hostel Fees.
* **Sports Facilities:** "World class sports facilities for outdoor and indoor games" including a 25m and 10m indoor shooting range, indoor badminton and table tennis stadia, Soccer Academy, and a Semi Olympic-sized swimming pool.
* **Transport:** "Well-organized transport facility ensures a safe, reliable, and hassle-free commute for students traveling from Delhi and Gurugram."
* **Cultural and Technical Societies:** A vibrant student life is supported by various societies like Felicia (Art), Rehnuma (Literary), Moksh (Music), Drishti (Media), Khalbali (Drama), Noora (Fashion), Tech Soul (Tech), Gamenics (Gaming), Rudra (Dance), CSR, and AthElites (Sports). Students are also associated with professional bodies like IEEE, ISTE, and NPTEL.
* **Student Support Services:** Include "State of the art Lab Facilities," Career Development Cell (CDC), Corporate Relations Centre (CRC), Alumni Network, Mentor-Mentee programme, In-house Internships, and various institutional cells (RCC, IIC, IPR Cell).

7. Google Cloud Tie-up Unique Features

The collaboration with Google Cloud offers distinct advantages:

* **ChromeOS & Gemini AI lab:** For hands-on practice, research, and learning.
* **Certified Digital Campus on Google Cloud (DCGC 2.0):** Modernizing teaching and learning with advanced digital tools and Generative AI capabilities.
* **Google Workspace for Education (Plus):** Enterprise-class platforms and applications.
* **Free and Subsidised Certifications:** Free access to Google certification courses and badges, with subsidized prices for various paid certifications (e.g., Google Cloud Gen AI Skill Badge Pathways, Associate Cloud Engineer, Cloud Digital Leader, Cybersecurity, Data Analytics, Computing Foundations, Engineer Certificates).
* **Google Cloud Skill Boost Platform (Google LMS) access.**
* **Placement Fairs by Google** for certified students.
* **Virtual Tutors:** Enhancing personalised guidance.
* **Automated content generation and summarization.**
* **Exclusive 12-hour hackathons** with Google experts.
* **Google Certified Faculty** for curriculum delivery.

8. Best Practices in Pedagogy

The programme employs a range of best practices to enhance student learning and industry readiness:

* **Project Based Learning:** Central to the teaching methodology.
* **Direct Delivery through Industry Experts:** As highlighted with Xebia and other partners.
* **Flexibility of Student Learning:** Through the National Internship & Startup Policy and online courses (NPTEL, Infosys, UIPath, MongoDB, LinkedIn Learning).
* **Earn While Learn:** Via MR IMPACT Internship opportunities.
* **Problem/Inquiry/Research-Based Education.**
* **Well-Planned and Well-Designed Rubrics:** For formative assessment.
* **Virtual Labs from IIT Delhi:** Providing exposure to programming and lab practices.
* **Content Beyond Syllabus:** Value-added courses to meet current industry trends.
* **Major Focus on Preparing Students for Product-Based Companies:** Through "Super- 40 Batch" and "Specialized Technical Training for Placement Perspectives."
* **Coding Culture:** Encouraged through coding competitions.
* **Startups, Innovation, Entrepreneurship:** A clear roadmap for students.

This B.Tech CSE AIML programme, with its strong industry partnerships, comprehensive curriculum, emphasis on practical skills, and robust support system, aims to produce highly employable and innovative professionals in the field of Artificial Intelligence and Machine Learning.

**3.Detailed Briefing Document: B.Tech in Computer Science & Engineering (Hons.) with Specialisation in Artificial Intelligence & Machine Learning**

This briefing document provides a comprehensive overview of the B.Tech in Computer Science & Engineering (Hons.) with specialisation in Artificial Intelligence & Machine Learning program, highlighting its key features, curriculum, opportunities, and unique benefits.

1. Program Overview

The B.Tech in Computer Science and Engineering (CSE) with a specialisation in Artificial Intelligence & Machine Learning (AI/ML) is an undergraduate program designed to equip students with core computer science principles integrated with advanced studies in AI. The program is offered for a **duration of 3 years (6 Semesters)**, although other specialisations are listed as 4-year programs. The **annual course fee is INR 294,000**.

A key distinguishing feature is its **association with Xebia**, an industry leader, which significantly influences the program's design, delivery, and certification. This collaboration aims to foster skills in AI applications across various industries, enabling students to "tackle real-world challenges through innovation".

2. Key Educational Benefits and USPs

The program boasts several unique selling propositions that emphasise industry readiness, practical learning, and global exposure:

* **Industry Collaboration with Xebia:Co-Design, Co-Delivery, and Co-Certification:** Courses are "Co-Designed, Co-Delivered and co-Certified by Xebia," ensuring the curriculum is current and industry-relevant.
* **Expert Instruction:** Students receive "Direct learning by Xebia experts during the semester to give the industry perspective of the course delivered."
* **Practical Experience:** Opportunities include "Xebia Industrial Visit during the semester" and "Remote/Onsite Internship opportunities with Xebia or their clients."
* **Association with Industry Giants:** The program has "Association with industry giants like Google Cloud, MongoDB, UI Path etc. for ensuring industry readiness of our students through curriculum designing, delivery, trainings, internships/Placements etc."
* **Unique Google Cloud Tie-up:** This includes "ChromeOS & Gemini AI lab for hands on practice, research and learning," "Certified Digital Campus on Google Cloud (DCGC 2.0)," and "Free access to Google certification courses and badges and subsidized prices for various paid certifications."
* **Experiential and Project-Based Learning:** The program strongly promotes "Project and experiential-based learning," with "09 fully equipped state-of-the-art laboratories."
* **Employability Focus:**"Skill-based training for enhancing employability skills through MOUs."
* "Student grooming for placement readiness through Career Development Cell (CDC) experts."
* "Super 40 batches for placement support."
* Integration of "Employability questions in the tutorial sheets."
* **Research and Innovation:**"Introduction to Research" sequence courses from 3rd to 5th semester, fostering "originality, feasibility for start-ups, and documentation of outcomes (research paper, patent, product, start-up, copyright)."
* "200+ research papers in international and refereed journals" by faculty and students.
* "Opportunity of patents, copyrights, funded projects, consultancy, and student start-ups."
* The **MRU-Innovation & Incubation Centre** acts as a "vital hub for fostering entrepreneurship and innovation," offering workshops, mentorship, assistance with company registration and fundraising, and "seed funding for promising startup ideas."
* **Accreditation and Quality:** The School of Engineering has "secured Platinum Badge in QS I-GAUGE Engineering subject knowledge" and boasts "NBA Accreditation: 2023" and "NAAC A" accreditation.

3. Admission Requirements and Process

* **Eligibility:** Candidates must have "60% marks in Diploma in Engineering in any branch/discipline of 3-year duration from State Board of Technical Education, Haryana or equivalent examination or B.Sc. Degree from a recognized University as defined by UGC with at least 50% marks and passed XII standard with Mathematics as a subject."
* **Admission Criteria:** Selection is based on "Merit preparation/ short listing of candidates shall be on the basis of score in MRNAT 2025/ Diploma Qualifying Examination."

1. **Application Steps:**Visit the official website (www.manavrachna.edu.in).
2. Fill out the online application form.
3. Upload required documents (Class 10 & 12 mark sheets, Aadhaar card, passport-size photographs).
4. Pay the application fee online.
5. "Appear for MRNAT (Manav Rachna National Aptitude Test) or Submit JEE Score" for merit-based admission.

* **Scholarships:** Provision of "up to 100% scholarship" for meritorious students and sportspersons.

4. Curriculum Structure and Key Modules

The curriculum integrates core computer science with specialised AI/ML topics, alongside interdisciplinary and soft skill development courses.

**Semester 3 Highlights:**

* **Core Programming:** "Object Oriented Programming Using Java"
* **Data Management:** "Database Management System"
* **Software Development:** "Software Engineering"
* **Foundation:** "Discrete Mathematics"
* **Web Technologies:** "USER INTERFACE-II (MONGODB, TYPESCRIPT, ANGULAR JS)"
* **AI/ML Specific:** "Supervised Learning" (Fundamentals and application of algorithms)
* **Modern Development:** "Modern Web and Mobile frameworks"
* **Electives:** Options for foreign languages (French, German, Spanish).
* **Professional Development:** "PROFESSIONAL COMPETANCY ENHANCEMENT-I" and "INTRODUCTION TO RESEARCH."

**Semester 4 Highlights:**

* **Core AI:** "Artificial Intelligence" (Prolog, AI techniques, searching, knowledge representation, reasoning, planning, learning)
* **System Fundamentals:** "Operating Systems," "FUNDAMENTALS OF DIGITAL ELECTRONICS," "Computer Networks."
* **Programming:** "Programming for Problem Solving using Python"
* **Emerging Tech:** "SENSORS & IOT," "3D Printing."
* **AI/ML Specific:** "Unsupervised Learning" (Dimensionality reduction, neural networks, deep learning approaches).
* **Software Best Practices:** "Software Craftsmanship – TDD/SOLID"
* **Cybersecurity:** "Digital Forensics."
* **Professional Development:** "PROFESSIONAL COMPETANCY ENHANCEMENT-II," "RESEARCH & INNOVATION-I."

**Semester 5 Highlights:**

* **Computer Architecture:** "Computer Architecture & Organization"
* **Theoretical CS:** "Theory of Automata & Compiler Design"
* **Mobile Development:** "Mobile Computing with Android"
* **Advanced AI/ML:** "Neural Networks & Fuzzy Logic," "Machine Learning," "Advanced Neural Networks."
* **DevOps/Version Control:** "VERSION CONTROL & AUTOMATION"
* **Cybersecurity:** "Network Security"
* **Interdisciplinary:** "APPLIED PHILOSOPHY," "Applied Psychology," "APPLIED SOCIOLOGY," "ENTREPRENEURSHIP."
* **Professional Development:** "Professional Competency Enhancement-III," "Research & Innovation-II."

**Semester 6 Highlights:**

* **Graphics & Multimedia:** "COMPUTER GRAPHICS & MULTIMEDIA," "Image Editing & Animation."
* **Algorithms:** "Analysis and Design of Algorithms"
* **Advanced Mobile:** "Advanced Android Development," "Progressive Web Applications."
* **Data Science:** "Data Warehousing and Data Mining," "Deep Learning," "DATA VISUALIZATION USING TABLEAU."
* **Programming:** ".NET," "Advanced Java."
* **Specialised AI/ML Subjects:** "Natural Language Processing," "COMPUTER VISION & DATA VISUALIZATION."
* **Cybersecurity:** "Vulnerability Assessment and Penetration Testing," "N/W Security & Cryptography," "MALWARE ANALYSIS AND REVERSE ENGINEERING."
* **Cloud & Blockchain:** "Cloud Computing," "Introduction To Blockchain Technology."
* **Networking:** "Wireless Sensor Network."
* **Management & Ethics:** "Software Project Management," "Law Relating to Intellectual Property Rights," "Essentials of Peace and Sustainability," "Introduction to Finance," "Environmental Ethics & Sustainable Development," "E-Waste Management," "Green Computing," "Operation Research."

**Semester 7 & 8:** The source provides detailed course outcomes for Semester 7 but does not explicitly list courses for Semester 8, only a placeholder. It is implied that project work, internships, and potentially advanced electives would conclude the program. Semester 7 includes "Mobile App. Analytics," "Information Retrieval," "Image Processing," "Software Testing," "Agile Technologies," "Big Data," and various cybersecurity and cloud computing related courses.

5. Career Pathways and Placement Support

The program prepares students for diverse and high-demand roles in the AI/ML and broader tech industry.

* **Career Pathways:** "AI/ML Engineer," "Data Scientist," "Robotics Engineer," "Data Analyst," "AI Researcher," "Software Developer," "Business Intelligence Analyst."
* **Job Prospects:** The FAQ section elaborates on various roles including "Data Engineer," "Business Analyst," "Research Scientist," "DT Consultant," "Cloud Developer," "Full Stack Developer," "Test Automation Engineer," "Cloud Administrator," and "DevOps Engineer."
* **Placement Statistics (AY 23-24):AIML:** MAX: 34 LPA, MIN: 4 LPA, AVG: 10 LPA
* **Placement and Internship Support:Industrial Visits, Guest Speakers/Networking Events, Online Internship Portals, Alumni Networks, Hackathons and Competitions.**
* **On-Campus Recruitment, CRC Department for Placements, Walk-in Interviews.**
* Notable internships include a "Summer Internship Google 1.23 LAKH" and "JPMORGAN CHASE & Co. ,75K."
* The university provides "Student grooming for placement readiness through Career Development Cell (CDC) experts" and "Super 40 batches for placement support."
* **Top Recruiters:** A wide range of companies including Google, HCL, Nokia, KPMG, Accenture, IBM, Coforge, UI Path, Palo Alto, Xebia, and British Telecom.

6. Student Life and Facilities

* **Residential Facilities:** Both on-campus and off-campus hostel accommodations are available for boys and girls, with various room categories (AC/Non-AC, single/double/triple/five-seater). Hostel fees include "Medical facilities, medical insurance, library facilities and laundry facilities."
* **Mess Plan:** "Included in the Hostel Fees."
* **Sports:** "World class sports facilities" for various indoor and outdoor games, including a 25m Shooting Range, indoor badminton and table tennis stadia, a Soccer Academy, and a Semi Olympic-sized swimming pool.
* **Transport:** A "well-organized transport facility ensures a safe, reliable, and hassle-free commute for students traveling from Delhi and Gurugram."
* **Cultural and Technical Societies:** A vibrant student life is supported by numerous societies such as Felicia (Art), Rehnuma (Literary), Moksh (Music), Drishti (Media), Khalbali (Drama), Noora (Fashion), Tech Soul (Tech), Gamenics (Gaming), Rudra (Dance), CSR, and AthElites (Sports).
* **Student Achievements:** Numerous awards and recognitions for students in hackathons, coding challenges, research paper presentations, and international placements (e.g., "Karan Aditya Ghoshal KPMG, Canada 60 LPA," "Sarthak Rastogi, Space and Time Labs, Newport Beach, California, United States, 55 LPA").

7. Unique Program Elements and Best Practices

* **Outcome-Based Education:** The program focuses on clearly defined Program Specific Outcomes (PSOs) and Program Outcomes (POs), ensuring students "Attain the ability to design and develop computer programs and possess acquaintance with emerging technologies... to build effective computer-based systems."
* **Continuous Guidance and Mentorship:** Students receive "Continuous guidance and mentorship from industry leaders" and have access to a "Mentor-Mentee" system.
* **Integration of Latest Technologies:** The curriculum actively incorporates new technologies like "Generative AI" and provides "access to LinkedIn Learning licenses and GitHub accounts."
* **"Earn While Learn" Opportunities:** Through "MR IMPACT Internship opportunities."
* **Diverse Pedagogical Approaches:** "Well-Planned and Well-Designed Rubrics (Formative Assessment)," "NPTEL Lectures," "Virtual Labs from IIT Delhi," "Projects," and "Content Beyond Syllabus."
* **Research Opportunities:** "Introduction to Research" courses, area-specific research groups, and guidance on "how to write research papers, file patents etc."
* **Strong Alumni Network:** "Alumni Connect initiative to leverage the power of networking, experience-sharing, and placement support."

Conclusion

The B.Tech in CSE with specialisation in AI/ML is presented as a highly industry-integrated and forward-thinking program. Its strong association with Xebia and other industry giants, coupled with a comprehensive curriculum, focus on practical skills, and robust placement support, positions it as a competitive option for students aspiring to careers in Artificial Intelligence and Machine Learning. The emphasis on research, innovation, and holistic student development further enhances its appeal.

**4.Detailed Briefing Document: B.Tech in Computer Science & Engineering (Hons.) with Specialisation in Cyber Security & Threat Intelligence (Lateral Entry) at Manav Rachna University**

This briefing document provides a comprehensive overview of the B.Tech in Computer Science & Engineering (Hons.) with a specialisation in Cyber Security & Threat Intelligence (Lateral Entry) programme at Manav Rachna University (MRU), drawing on the provided source material. It highlights the programme's key features, academic structure, industry relevance, career prospects, and unique offerings.

1. Programme Overview and Core Focus

The B.Tech in Computer Science & Engineering (Hons.) with a specialisation in Cyber Security & Threat Intelligence, offered in association with Quick Heal, is a **three-year (six-semester) undergraduate programme** designed for lateral entry students. It aims to provide "a strong foundation in computer science, along with in-depth knowledge of cybersecurity principles, practices, and emerging technologies." The programme specifically focuses on "network security, ethical hacking, cryptography, and threat detection," preparing graduates to "address the growing challenges of cyber threats in the digital world."

2. Key Educational Benefits and USPs

The programme distinguishes itself through several key features:

* **Accreditation and Recognition:** It boasts **NBA and NAAC A accreditation**, signifying a high standard of quality education. The School of Engineering also holds a **Platinum Badge in QS I-GAUGE Engineering**.
* **Strong Industry Associations:** MRU has robust partnerships with industry giants such as **Quick Heal, Google Cloud, MongoDB, and UI Path**. These associations are crucial for "ensuring industry-ready graduates through curriculum design, delivery, training, internships, and placements."
* **State-of-the-Art Facilities:** The programme benefits from "nine fully equipped state-of-the-art laboratories," facilitating hands-on training and real-world applications.
* **Industry-Oriented Curriculum:** The curriculum is based on the **AICTE model** and incorporates "industry-oriented choice-based courses." It emphasises "skill enhancement and employability" through "co-designed, co-delivered and co-certified programs" with industry input.
* **Enhanced Learning Platforms:** Students have access to various e-learning platforms including "MOOC, NPTEL, LinkedIn learning, and Infosys Springboard," broadening their learning opportunities.
* **Placement and Career Support:** The **Career Development Cell (CDC)** provides "specialized grooming for placement readiness." The "Super 40 batches for placement support" indicate a focused approach to securing employment for top-performing students.
* **Innovation and Research Opportunities:** The programme encourages "patents, copyrights, funded projects, consultancy, and student start-ups." It also introduces "Research sequence courses from 3rd to 5th semester, emphasizing originality, feasibility for start-ups, and documentation of outcomes (research paper, patent, product, start-up, copyright)." MRU's Innovation & Incubation Centre, established in 2018, offers "end-to-end mentorship from industry professionals, renowned business leaders, and academicians," and provides "seed funding for promising startup ideas."
* **Global Opportunities:** Students are offered "global opportunities for higher studies and research" and potential "student exchange programs with leading International Universities of UK, US and Australia (under process)."
* **Scholarship Provisions:** There is a "provision of up to 100% scholarship" for meritorious students and sports persons.

3. Admission Requirements

* **Eligibility:** Candidates require "60% marks in Diploma in Engineering in any branch/discipline of 3 year duration from State Board of Technical Education, Haryana or equivalent examination or B.Sc. Degree from a recognized University as defined by UGC with at least 50% marks and passed XII standard with Mathematics as a subject."
* **Admission Criteria:** Selection is based on "Merit preparation/ short listing of candidates shall be on the basis of score in MRNAT 2025/ Diploma Qualifying Examination."
* **Nationality:** Open to "Indian/NRI/PIO/Foreign" applicants.

4. Curriculum Structure and Key Subjects

The programme is a 3-year course (6 semesters for lateral entry students, starting from Semester 3). The curriculum is designed with an "Outcome-Based Education" approach and is "Industry-Centric Co-designed and co-certified." It offers "choice-based elective baskets with a multidisciplinary approach."

**Notable courses across semesters (Semesters 3-8, as provided for a 4-year program, lateral entry would start at Semester 3):**

* **Semester 3:** Object-Oriented Programming (Java), Database Management System, Software Engineering, Discrete Mathematics, User Interface-II (MongoDB, Typescript, Angular JS), Introduction to Research, Linux+, and foreign languages (French/German/Spanish).
* **Semester 4:** Artificial Intelligence, Operating Systems, Fundamentals of Digital Electronics, Programming for Problem Solving (Python), Computer Networks, Digital Forensics, Research & Innovation-I.
* **Semester 5:** Computer Architecture & Organization, Theory of Automata & Compiler Design, Mobile Computing with Android, Neural Networks & Fuzzy Logic, Machine Learning, Network Security, Research & Innovation-II.
* **Semester 6:** Computer Graphics & Multimedia, Analysis and Design of Algorithms, Deep Learning, Data Warehousing and Data Mining, Vulnerability Assessment and Penetration Testing (Specialisation subject), Malware Analysis and Reverse Engineering (Specialised Course).
* **Semester 7:** Mobile App. Analytics, Information Retrieval, Image Processing, Software Testing, Agile Technologies, Big Data, N/W Security & Cryptography, Cloud Computing, Software Project Management, Introduction to Blockchain Technology, Wireless Sensor Network.
* **Semester 8:** Dedicated to a **Project**, serving as a capstone experience to "Identify and analyse the real-world problem by applying acquired knowledge" and "Apply multidisciplinary knowledge on real world problems and design project modules."

The curriculum highlights an emphasis on "hands-on lab workshops, programming tools, and languages," with a focus on "project-based and experiential learning."

5. Career Pathways and Placement Support

The programme aims to prepare students for a diverse range of roles in the IT and cybersecurity sectors, as well as opportunities in entrepreneurship, research, and higher studies.

**Common IT Job Roles:**

* Software Engineer, Frontend/Backend Developer, Mobile App Developer
* Data Analyst, Cloud Engineer, DevOps Engineer, Database Administrator, Data Engineer, Web Developer, UX/UI Designer, IT Consultant, Product Manager

**Specialised Cybersecurity Job Roles:**

* **Cybersecurity Analyst**
* **Ethical Hacker**
* **Security Engineer/Architect**
* **Network Security Engineer**
* **Penetration Tester**
* **Forensic Analyst**
* **Malware Analyst**
* **Vulnerability Assessment Specialist**
* Cyber Security Consultant
* Information Security & Risk Analyst
* Junior Cyber Security Analyst
* Infosec Analyst and Trainer
* Internal Auditor
* Sales – Cyber Product and Services.
* IT Support

**Placement Support & Statistics:**

* The university provides a **Corporate Relations Centre (CRC) Department for placements**.
* Mentioned internships include **Ashwani Soni (Google, 1.23 LAKH stipend), Kanika Sharma (JPMORGAN CHASE & Co., 75K stipend), and Manis Tyagi (UiPath, 50K stipend)**.
* Placement statistics for AY 23-24 for the CSTI specialisation show a **Maximum Package of 8 LPA**.

**Higher Studies Options:**

* M.Tech/MS in CS (including IITs, NITs, Foreign Universities)
* MBA (IIMs, ISB, Abroad)
* Certifications (AWS, Google, Microsoft, CISSP, CEH, PMP)

6. Campus Life and Student Support

MRU offers a holistic student experience:

* **Residential Facilities:** Both on-campus and off-campus hostel accommodation are available, with various room categories and amenities (medical facilities, medical insurance, library access, laundry).
* **Sports Facilities:** World-class facilities for a wide range of outdoor and indoor games, including a 25m shooting range, indoor badminton and table tennis stadia, a Soccer Academy, and a semi-Olympic sized swimming pool.
* **Transport:** A "well-organized transport facility ensures a safe, reliable, and hassle-free commute for students traveling from Delhi and Gurugram."
* **Student Support Services:Career Development Centre (CDC):** Offers grooming and placement readiness.
* **Corporate Relations Centre (CRC).**
* **Alumni Network:** Active "Alumni Connect initiative to leverage the power of networking, experience-sharing, and placement support."
* **Mentor-Mentee System.**
* **In-house Internships.**
* **Research Cluster of Computing (RCC).**
* **Institution's Innovation Council (IIC) and Intellectual Property Rights (IPR Cell).**
* **Technical Clubs and Societies:** Such as IEEE, ISTE, NPTEL.
* **Cultural Societies:** Including Art (Felicia), Literary (Rehnuma), Music (Moksh), Media (Drishti), Drama (Khalbali), Fashion (Noora), Tech (Tech Soul), Gaming (Gamenics), Dance (Rudra), CSR, and Sports (AthElites).
* **Student Achievements:** Numerous accolades in hackathons, coding competitions, research paper presentations, and sports, showcasing the diverse talents and successes of MRU students. Notable international placements in 2023 include **Karan Aditya Ghoshal (KPMG, Canada - 60 LPA)** and **Sarthak Rastogi (Space and Time Labs, USA - 55 LPA)**.

7. Google Cloud Partnership (Unique Features)

MRU highlights its unique partnership with Google Cloud, being "First in Haryana and Second in India to offer B.Tech. Generative-AI and BCA Cloud Computing with Google." While this specific programme is Cyber Security, the general Google Cloud tie-up benefits the entire Department of Computer Science & Technology, including:

* **Dedicated Labs:** "ChromeOS & Gemini AI lab for hands on practice, research and learning."
* **Certified Digital Campus:** "Certified Digital Campus on Google Cloud (DCGC 2.0) with advanced digital tools and Generative AI capabilities modernizing teaching and learning in classroom."
* **Curriculum Collaboration:** "Co-designed and industry ready curriculum with Google."
* **Certification Opportunities:** Free access to "Google Cloud Gen AI Skill Badge Pathways" and subsidised prices for various Google Cloud certifications (e.g., Associate Cloud Engineer, Cyber Security Certificate, Data Analytics Certificate).
* **Placement Fairs:** "Access to Placement Fairs by Google for students with various Google certifications."
* **Google Certified Faculty:** Ensuring high-quality curriculum delivery.

**5.Detailed Briefing: B.Tech in Computer Science & Engineering (Hons.) with specialisation in Cyber Security and Threat Intelligence at Manav Rachna University**

This briefing provides a comprehensive overview of the B.Tech in Computer Science & Engineering (Hons.) with a specialisation in Cyber Security and Threat Intelligence (CSTI) at Manav Rachna University (MRU), highlighting its key features, academic structure, career prospects, and unique offerings.

Programme Overview

The B.Tech CSTI programme is a four-year (eight-semester) undergraduate degree designed to equip students with a strong foundation in computer science and in-depth knowledge of cybersecurity. The curriculum focuses on crucial areas such as "network security, ethical hacking, cryptography, and threat detection," preparing graduates to address the escalating challenges of cyber threats in the digital world. The annual course fee is INR 3,14,000.

Key Strengths and Unique Selling Propositions (USPs)

The programme distinguishes itself through several key features:

* **Accreditation and Recognition:** It boasts both NBA and NAAC 'A' accreditation, signifying high quality education. The School of Engineering holds a prestigious Platinum Badge in QS I-GAUGE Engineering.
* **Strong Industry Associations:** MRU has robust partnerships with industry giants like "Google Cloud, MongoDB, and UI Path," ensuring an industry-ready curriculum, relevant training, internships, and placements. Certification opportunities are available with partners such as Google Cloud, CISCO, and EC-Council (in pipeline).
* **Hands-on Learning and Infrastructure:** The programme emphasises practical application with "nine fully equipped state-of-the-art laboratories." The teaching methodology includes "learning-by-doing," with computer lab components integrated into all courses.
* **Industry-Aligned Curriculum:** The curriculum is "AICTE model curriculum and industry-oriented choice-based courses," which are "Co-designed, Co-Delivered and Co-Certified Programs" with industry experts. This ensures graduates are well-prepared for the demands of the modern cybersecurity landscape.
* **Skill Enhancement and Employability Focus:**Utilisation of "e-learning platforms like MOOC, NPTEL, Coursera, Infosys Springboard, LinkedIn Learning, UI Path, MongoDB, Xebia."
* "Student grooming for placement readiness through Career Development Cell (CDC) experts."
* "Super 40 batches for placement support" for focused assistance.
* Emphasis on "Project and experiential-based learning" and "Interdisciplinary projects, electives, and internships."
* **Innovation and Research Opportunities:** Students are encouraged with "opportunity of patents, copyrights, funded projects, consultancy, and student start-ups." The "Introduction to Research sequence courses from 3rd to 5th semester" promote originality and research outcomes. The MRU-Innovation & Incubation Centre, established in 2018, offers comprehensive support including "workshops and training sessions," "end-to-end mentorship," "company registration and fundraising assistance," and "seed funding for promising startup ideas."
* **Global Exposure and Higher Studies:** The programme provides "opportunities for higher studies and research in India and abroad." Student exchange programmes are "under process" with leading international universities in the UK, US, and Australia.
* **Scholarship Provisions:** "Provision of up to 100% scholarship" is available, including "MRNAT: Utkarsh and Uttam along with JEE Scores."

Admission Requirements

* **Eligibility:** Pass in 10+2 examination with at least **60% marks** in aggregate in 5 subjects. Eligibility is determined based on aggregate marks in English, Physics, Mathematics, one subject from Chemistry, Computer Science, Biology or Biotechnology, and one subject with the highest score from the remaining.
* **Admission Criteria:** Merit-based shortlisting based on scores in "JEE Mains/SAT/Pearson/MRNAT/XII Qualifying Examination."
* **Nationality:** Indian/NRI/PIO/Foreign.

Curriculum Structure Highlights

The 4-year programme progresses from foundational computer science concepts to specialised cybersecurity topics.

* **Semester 1:** Covers fundamental subjects like Quantum Mechanics for Engineers, Calculus & Linear Algebra, Programming for Problem Solving Using C, Professional English, User Interface-I, Environmental Science, Professional Communication I, Universal Human Values-II, and Indian Constitution. A specialised course, **Introduction to Information Security**, is introduced, focusing on "basic terminologies of information security and pillars of cybersecurity."
* **Semester 2:** Continues with Chemistry-I, Probability and Statistics, Basics of Electronics & Electrical Engineering, Data Structures & Algorithms, Computer Aided Drafting, User Interface-II (Typescript, Node.js, Angular, MongoDB), Professional Communication-II, Programming for Problem Solving using Python, and Python Programming. Specialised courses include **Introduction to Standards, Frameworks and Key Technology Concepts**, aimed at understanding "concepts and foundations of computer security" and identifying "vulnerabilities of IT systems."
* **Semester 3:** Introduces Object-Oriented Programming Using Java, Database Management System, Software Engineering, Discrete Mathematics, and Linux+. Specialised courses include **Linux+**, which covers "managing ownerships and permissions" and "installation of security techniques to secure them."
* **Semester 4:** Includes Artificial Intelligence, Operating Systems, Fundamentals of Digital Electronics, Programming for Problem Solving using Python, Computer Networks, Sensors & IOT, 3D Printing, and the specialised course **Digital Forensics**, focusing on "basics of Computer Security (CS)" and "digital forensic (DF) techniques."
* **Semester 5:** Features Computer Architecture & Organization, Theory of Automata & Compiler Design, Mobile Computing with Android, Neural Networks & Fuzzy Logic, Machine Learning. The specialisation continues with **Network Security**, covering "fundamental cryptography, encryption and decryption algorithms" and "Hashing, IDEA, AES algorithms and Digital Signature techniques."
* **Semester 6:** Covers Computer Graphics & Multimedia, Analysis and Design of Algorithms, Advanced Android Development, Data Warehousing and Data Mining, Deep Learning, .NET, User Experience, Data Visualisation using Tableau, Advanced Java, Law Relating to Intellectual Property Rights, Essentials of Peace and Sustainability, and Introduction to Finance. A key specialisation subject is **Vulnerability Assessment and Penetration Testing**, which provides understanding of "basic VAPT Process, vulnerability assessment tools, information gathering and buffer overflows," "client-side, web application attacks, password & hashing," and "network penetration testing by using Nmap." It also introduces tools like "sqlmap, shodan and Aircrack-ng suite."
* **Semester 7:** Includes Mobile App. Analytics, Information Retrieval, Image Processing, Software Testing, Agile Technologies, Image Editing & Animation, Progressive Web Applications, Big Data. Specialised courses include **N/W Security & Cryptography** (further building on network security concepts) and **Malware Analysis and Reverse Engineering**, which delves into "reverse engineering perspective for finding the working of windows core and Assembly Language" and performing "independent analysis of modern malware samples using behavioral, code analysis and memory forensic techniques." Cloud Computing and Software Project Management are also offered as elective specialisations.
* **Semester 8:** Culminates in a comprehensive **Project**, where students "Identify and analyse the real-world problem by applying acquired knowledge" and "Apply multidisciplinary knowledge on real world problems and design project modules."

Career Pathways and Job Prospects

Graduates of the B.Tech CSTI programme are prepared for diverse and high-demand roles in the IT and cybersecurity sectors. Potential career paths include:

* **IT Jobs:** Software Engineer, Frontend/Backend Developer, Mobile App Developer, Data Analyst, Cloud Engineer, DevOps Engineer, Database Administrator, Data Engineer, Web Developer, UX/UI Designer, IT Consultant, Product Manager.
* **Cybersecurity Specific Roles:Cybersecurity Analyst**
* **Ethical Hacker**
* **Security Engineer/Architect**
* **Network Security Engineer**
* **Penetration Tester**
* **Forensic Analyst**
* **Malware Analyst**
* **Vulnerability Assessment Specialist**
* **Cyber Security Consultant**
* **Information Security & Risk Analyst**
* Junior Cyber Security Analyst
* Infosec Analyst and Trainer
* Internal Auditor
* Sales – Cyber Product and Services
* IT Support
* **Startup & Entrepreneurship:** Encouraged and supported by the MRU-Innovation & Incubation Centre.
* **Research:** Opportunities available through the department's research groups and clusters.
* **Higher Studies:** M.Tech/MS in CS (IITs, NITs, Foreign Universities), MBA (IIMs, ISB, Abroad), and professional certifications (AWS, Google, Microsoft, CISSP, CEH, PMP).

Placement and Internship Opportunities

MRU boasts a strong track record in placements and internships:

* **Top Recruiters:** A wide array of companies recruit from MRU, including Google, HCL, Nokia, KPMG, Accenture, IBM, Coforge, QSS, PlanetSpark, British Telecom, UI Path, Palo Alto, Tech Mahindra, EX Squared, Ericsson, Capgemini, JSW, To the New, Xebia, Cloudsufi, CargoFlash, Commvault, and AVIZVA.
* **Internship Support:** Provided through "Industrial Visits," "Guest Speakers/Networking Events," "Online Internship Portals," and "Alumni Networks." Notable internships mentioned include:
* Ashwani Soni, B.Tech, CSE - Summer Internship Google **1.23 LAKH**
* Kanika Sharma, B.Tech, CSE - Summer Internship JPMORGAN CHASE & Co. , **75K**
* Manis Tyagi, B.Tech CSE - Summer Internship, UiPath, **50K**
* **Placement Support:** The "CRC Department for Placements" and "Career Development Cell (CDC) experts" provide grooming and "Super 40 batches for placement support."
* **Placement Statistics (AY 23-24 for CSTI):** Maximum Package: **8LPA**.

Campus Facilities and Student Life

MRU offers comprehensive facilities to enhance the student experience:

* **Residential Facilities:** Both on-campus and off-campus hostel accommodation for boys and girls, with various room categories (AC/Non-AC, single/double/triple/five-seater) and attached/common bathrooms. Hostel fees include medical facilities, medical insurance, library, and laundry.
* **Sports:** World-class facilities for a wide range of indoor and outdoor games, including a 25m Shooting Range and 10m air-conditioned Indoor Shooting Range of Olympics standards, indoor badminton and table tennis stadia, a Sports Fitness Centre, Soccer Academy, and a Semi Olympic-sized swimming pool.
* **Transport:** Well-organised transport facility with GPS-enabled buses for Delhi and Gurugram.
* **Cultural and Technical Societies:** A vibrant student life is supported by numerous societies, including Felicia (Art), Rehnuma (Literary), Moksh (Music), Drishti (Media), Khalbali (Drama), Noora (Fashion), Tech Soul (Tech), Gamenics (Gaming), Rudra (Dance), CSR, and AthElites (Sports). Students are also associated with professional bodies like IEEE, ISTE, and NPTEL.

Unique Features of Google Cloud Tie-up

MRU has a significant partnership with Google Cloud, offering distinct advantages:

* **Pioneer Status:** "First in Haryana and Second in India to offer B.Tech. Generative-AI and BCA Cloud Computing with Google."
* **Specialised Labs:** Access to "ChromeOS & Gemini AI lab for hands on practice, research and learning."
* **Digital Campus:** Certified Digital Campus on Google Cloud (DCGC 2.0) for modernised teaching and learning.
* **Google Workspace for Education (Plus):** Provides enterprise-class platforms and applications.
* **Co-designed Curriculum:** Industry-ready curriculum co-designed with Google.
* **Certification Opportunities:** Free access to Google certification courses and badges, with subsidized prices for paid certifications like "Google Cloud Gen AI Skill Badge Pathways," "Associate Cloud Engineer (ACE) Program," "Cloud Digital Leader (CDL) Program," "Google Cloud Cyber Security Certificate," "Google Cloud Data Analytics Certificate," "Google Cloud Computing Foundations Certificate," and "Google Cloud Engineer Certificate."
* **Skill Boost Platform:** Access to Google Cloud Skill Boost Platform (Google LMS).
* **Placement Fairs:** Access to "Placement Fairs by Google for students with various Google certifications."
* **Virtual Tutors:** Access to virtual tutors for personalised guidance.
* **Automated Content:** Automated content generation and summarization.
* **Hackathons:** Exclusive 12-hour hackathons for MRU students with Google experts and jury members.
* **Google Certified Faculty:** Curriculum delivered by Google Certified Faculty.
* **K-12 Partnership:** Manav Rachna Schools are Google Reference Schools.

Student Achievements and Research

The source highlights numerous student achievements, including:

* **International Placements:** Three international placements in 2023 with packages up to **60 LPA (KPMG, Canada)** and **55 LPA (Space and Time Labs, Newport Beach, California, United States)**.
* **Hackathon Wins:** Numerous students secured top positions in national hackathons like "Code for Good 2024 Hackathon (JPMorgan Chase and Co.)," "Spark 3 Hackathon organized by HackIndia 2024," and "HealthTech Innovations Fest 2024."
* **NPTEL Toppers:** Students among the top 2% and 5% in various NPTEL courses, demonstrating strong academic performance.
* **Fellowships:** 10 students received a fellowship from IBITF (IIT Bhilai) with a stipend of 7500/- per month.
* **Research Paper Presentations:** Students regularly present papers at national and international conferences, covering diverse topics like "Real-Time Cotton Crop Pest Identification and Classification using Transfer Learning," "Nutritional Assessment: An Initiative Towards Sustainable Development Goal Zero Hunger," "An Evaluation of Machine Learning Techniques for Personality Classification using the Myers- Briggs Assessment," "Garbage Classification Using Computer Vision," and "Alzheimer’s disease Detection based on various subjects provided through Comprehensive diagnosis and MRI imaging using Machine Learning Techniques."
* **Innovation and Entrepreneurship:** Alumni and current students are actively involved in startups, with examples like Akshita Sachdeva, co-founder of Kibo, who presented her innovation on Shark Tank season 3. Yuvraj Bhardwaj & Yashraj Bhardwaj are co-founders of Zenith Vipers & Workolab, holding 22 research projects and 7 patents.
* **Sports Achievements:** Students have achieved success in national powerlifting competitions (Arjun Vats, Gold Medal) and cricket matches.

Best Practices

MRU employs several best practices to enhance the learning experience:

* Project Based Learning
* Direct delivery through industry experts
* Flexibility of student learning through National Internship & Startup Policy
* Online Courses (NPTEL, Infosys, UIpath, MongoDB, LinkedIn learning)
* Earn While Learn under MR IMPACT Internship opportunities
* Problem/Inquiry/Research-Based Education
* Well-Planned and Well-Designed Rubrics (Formative Assessment)
* NPTEL Lectures to promote self-learning
* Virtual Lab IIT Delhi for exposure to programming & lab practices
* Content Beyond Syllabus (Value-added courses)
* Major Focus on Preparing Students for Product-Based Companies from Super-40 Batch
* Specialized Technical Training for Placement Perspectives
* Coding Culture: Coding Competitions for CSE Students
* Startups, Innovation, Entrepreneurship
* Roadmap designed for students to be a Successful Developer/Software

In conclusion, the B.Tech in Computer Science & Engineering (Hons.) with a specialisation in Cyber Security & Threat Intelligence at Manav Rachna University offers a comprehensive, industry-aligned, and research-focused programme. Its strong industry collaborations, emphasis on practical skills, and robust support systems for placements, internships, and entrepreneurship position it as a strong choice for aspiring cybersecurity professionals.

**6.Briefing Document: B.Tech Computer Science and Engineering (Hons.) with Specialisation in Full Stack Development**

**Programme Overview:**

The B.Tech Computer Science and Engineering (CSE) (Hons.) with a specialisation in Full Stack Development, offered in association with Xebia, is an innovative four-year (eight-semester) undergraduate programme. It aims to equip students with core computer science principles alongside advanced web development skills, preparing them to "build dynamic, scalable applications and address real-world challenges across various industries."

**Key Themes and Important Information:**

**1. Strong Industry Collaboration (Xebia & Other Giants):**

* **Co-designed, Co-delivered, and Co-certified Curriculum:** A cornerstone of this programme is the deep involvement of Xebia. The curriculum and e-course material are "Co-Designed, Co-Delivered and co-Certified courses by Xebia," with "Course Curriculum and E-Course Material prepared by Xebia Experts." This ensures the programme is highly relevant and aligned with industry needs.
* **Direct Industry Exposure:** Students benefit from "Direct learning by Xebia experts during the semester to give the industry perspective of the course delivered," and "Xebia Industrial Visit during the semester."
* **Internship and Placement Opportunities:** The programme offers "Remote/Onsite Internship opportunities with Xebia or their clients."
* **Broader Industry Associations:** Beyond Xebia, the programme boasts "Association with industry giants like Google Cloud, MongoDB, UI Path etc. for ensuring industry readiness of our students through curriculum designing, delivery, trainings, internships/Placements etc." This is further reinforced by associations with "L& T Edutech, LinkedIn Acadview, and more."
* **Google Cloud Tie-up Unique Features:** The collaboration with Google Cloud offers significant advantages, including:
* "ChromeOS & Gemini AI lab for hands on practice, research and learning."
* "Certified Digital Campus on Google Cloud (DCGC 2.0) with advanced digital tools and Generative AI capabilities."
* "Free access to Google certification courses and badges and subsidized prices for various paid certifications" (e.g., Google Cloud Gen AI Skill Badge Pathways, Associate Cloud Engineer, Cloud Digital Leader, Cybersecurity Certificate, Data Analytics Certificate, Cloud Computing Foundations Certificate, Cloud Engineer Certificate).
* "Access to Google Cloud Skill Boost Platform (Google LMS)."
* "Access to Placement Fairs by Google for students with various Google certifications."
* "Conducting exclusive 12-hour hackathon with expert jury members from Google and certified partners."
* "Google Certified Faculty for Curriculum Delivery."

**2. Comprehensive Curriculum and Learning Pedagogy:**

* **Full Stack Specialisation:** The programme's core focus is on Full Stack Development, encompassing both front-end and back-end skills.
* **Practical and Experiential Learning:** Emphasises "Project and experiential-based learning," with "Hands-on lab workshops, programming tools, and languages covered." The "Computer lab components added to all MRU courses ensure that the student is involved proactively in the learning by doing approach."
* **Core Computer Science Foundation:** Includes foundational courses in "QUANTUM MECHANICS FOR ENGINEERS," "CALCULUS & LINEAR ALGEBRA," "PROGRAMMING FOR PROBLEM SOLVING USING C," "DATA STRUCTURES & ALGORITHMS," "Object Oriented Programming Using Java," "Database Management System," "Software Engineering," "Operating Systems," "Computer Networks," and "Artificial Intelligence."
* **Specialised Full Stack Courses:** Specific courses include "USER INTERFACE-I (HTML, CSS, JavaScript)," "USER INTERFACE-II (Typescript, Node.js, AngularJs, MongoDB)," "User Interface-Advanced (React Native)," "Modern Web and Mobile frameworks (React.js, Vue.js)," and ".NET."
* **Emerging Technologies Integration:** The curriculum incorporates subjects like "Artificial Intelligence," "Machine Learning," "Deep Learning," "Neural Networks & Fuzzy Logic," "Cloud Computing," "Big Data," "Blockchain Technology," "IoT," "Natural Language Processing," "Computer Vision & Data Visualization," and "Malware Analysis and Reverse Engineering."
* **Employability Skills Focus:** Includes "Skill-based training for enhancing employability skills through MOUs" and "Student grooming for placement readiness through Career Development Cell (CDC) experts."
* **Research Integration:** Features an "Introduction to Research" sequence and encourages "Opportunity of patents, copyrights, funded projects, consultancy, and student start-ups." Various student research clusters are formed in areas like Data Analytics, AI, Emerging Web Technologies, and Network Security.
* **Choice-Based Credit System (CBCS):** Students have "the flexibility of choosing courses of his choice and interest," with a "large basket of electives that lead to distinctive specialization."

**3. Career Prospects and Placement Support:**

* **Diverse Career Pathways:** Graduates are prepared for roles such as "Full Stack Developer," "Front-End Developer," "Software Engineer," "Web Developer," "Devops Engineer," "Cloud Developer," "Product Manager," "Technical Architect," and "UI/UX Developer." Other IT-related roles like Data Analyst, Database Administrator, and IT Consultant are also highlighted.
* **Strong Placement Support:** The university offers "On-Campus Recruitment," a "CRC DEPARTMENT FOR PLACEMENTS," "Walk-in Interviews," and "Super 40 batches for placement support."
* **Notable Internships and Placements:** Examples provided include:
* Ashwani Soni, B.Tech, CSE - Summer Internship Google (1.23 LAKH stipend)
* Kanika Sharma, B.Tech, CSE - Summer Internship JPMorgan Chase & Co. (75K stipend)
* Tuhin Tarafder, Commvault (32.9 LPA package)
* International placements: Karan Aditya Ghoshal (KPMG, Canada - 60 LPA), Sarthak Rastogi (Space and Time Labs, USA - 55 LPA), Deepanshu Sharma (équipe Nutrition Canada - 30 LPA), Ananya Kamra (Alto Palo Networks - 51 Lakhs).
* **Higher Studies and Entrepreneurship:** The programme also fosters opportunities for "higher studies and research in India and abroad" and supports "Startup & Entrepreneurship" through the MRU-Innovation & Incubation Centre.

**4. Infrastructure and Student Support:**

* **State-of-the-Art Facilities:** Boasts "09 fully equipped state-of-the-art laboratories."
* **Accreditations:** "NBA Accreditation: 2023" and "NAAC A" accreditation, along with "Platinum Badge in QS I-GAUGE Engineering subject knowledge."
* **Residential and Transport Services:** Offers "on-campus and off-campus hostel accommodation" with various room categories, including medical, laundry, and mess facilities. "Well-organized transport facility" is available for students from Delhi and Gurugram.
* **Extracurricular Activities:** A wide array of cultural societies (Art, Literary, Music, Media, Drama, Fashion, Dance, CSR, Sports) and technical societies (Tech Soul, Gamenics) are available, along with co-curricular activities and research opportunities.
* **Mentorship and Alumni Network:** Includes a "Mentor-Mentee" programme and an "Alumni Connect initiative to leverage the power of networking, experience-sharing, and placement support."

**5. Admissions and Financials:**

* **Eligibility:** Pass in 10+2 examination with at least 60% aggregate marks in 5 subjects, including English, Physics & Mathematics, and one subject from Chemistry, Computer Science, Biology or Biotechnology, plus one other highest-scoring subject.
* **Admission Criteria:** Merit-based on JEE Mains/SAT/Pearson/CUET/MRNAT/XII Qualifying Examination scores.
* **Annual Course Fee:** INR 3,14,000.
* **Scholarships:** Provision of "up to 100% scholarship" based on MRNAT: Utkarsh and Uttam along with JEE Scores.
* **Payment Modes:** Online payment, bank transfer, Demand Draft, cash payment (subject to limits), and education loan options through tie-ups with banks like PNB, SBI, HDFC, and ICICI.

**Conclusion:**

The B.Tech CSE (Hons.) with a specialisation in Full Stack Development, in association with Xebia, presents a robust and industry-aligned undergraduate programme. Its distinguishing features include extensive collaboration with Xebia and other industry leaders (notably Google Cloud), a practical, project-based curriculum integrating cutting-edge technologies, and strong placement and career support services. The programme aims to produce highly competent full stack developers equipped for diverse roles in the rapidly evolving tech landscape, supported by comprehensive student facilities and a vibrant campus environment.

**7.Briefing Document: B.Tech Computer Science and Engineering (Hons.) with specialisation in Full Stack Development in association with Xebia**

This briefing document provides a comprehensive overview of the B.Tech Computer Science and Engineering (Hons.) with specialisation in Full Stack Development, offered in association with Xebia. It highlights the programme's unique selling points, curriculum, career prospects, and supporting facilities.

1. Programme Overview

The B.Tech in Computer Science and Engineering (CSE) with a specialisation in Full Stack Development, offered in association with Xebia, is an "innovative program that blends core computer science principles with advanced web development skills." It aims to equip students with expertise in both front-end and back-end development, enabling them to "build dynamic, scalable applications and address real-world challenges across various industries."

**Key Facts:**

* **Course Name:** B.Tech Computer Science and Engineering (Hons.) with specialization in Full Stack Development in association with Xebia
* **Course Level:** Undergraduate
* **Duration:** 3 Years (6 Semesters) – *Note: While the header states 3 years, "Program Details" and "Curriculum Structure" state "4 years UG" and "4 years program" respectively. This discrepancy needs clarification.*
* **Annual Fee:** INR 2,94,000
* **Brochure:** Available as PDF
* **Specialisations offered in CSE (Hons.):** Full Stack Development (with Xebia), Artificial Intelligence & Machine Learning (with Xebia), Cyber Security & Threat Intelligence, and Generative AI.

2. Unique Selling Propositions (USPs)

The programme heavily leverages its association with Xebia and other industry giants, providing a strong industry-centric learning experience.

**Key Educational Benefits:**

* **Industry Collaboration with Xebia:**"Co-Designed, Co-Delivered and co-Certified courses by Xebia."
* "Course Curriculum and E-Course Material prepared by Xebia Experts."
* "Direct learning by Xebia experts during the semester to give the industry perspective of the course delivered."
* "Xebia Industrial Visit during the semester."
* "Remote/Onsite Internship opportunities with Xebia or their clients."
* **Association with Industry Giants:** "Association with industry giants like Google Cloud, MongoDB, UI Path etc. for ensuring industry readiness of our students through curriculum designing, delivery, trainings, internships/Placements etc." Other associations mentioned include Google, L&T Edutech, LinkedIn Acadview.
* **Experiential Learning:** Emphasises "Project and experiential-based learning," "Hands-on lab workshops, programming tools, and languages covered."
* **Accreditations and Recognitions:**"NBA Accreditation: 2023"
* "NAAC A"
* "School of Engineering has secured Platinum Badge in QS I-GAUGE Engineering subject knowledge."
* **Research & Innovation Focus:**"Introduction to Research" sequence courses from 3rd to 5th semester, emphasising "originality, feasibility for start-ups, and documentation of outcomes (research paper, patent, product, start-up, copyright)."
* "6 Centre of Excellence."
* "200+ research papers in international and refereed journals."
* "Opportunity of patents, copyrights, funded projects, consultancy, and student start-ups."
* Promotes "Design Thinking & Innovation and acts as a Research & Innovation Catalyst."
* **Employability Enhancement:**"Skill-based training for enhancing employability skills through MOUs."
* "Student grooming for placement readiness through Career Development Cell (CDC) experts."
* "Super 40 batches for placement support."
* Access to e-learning platforms: "MOOC, NPTEL, Coursera, Infosys Springboard, LinkedIn Learning, UI Path, MongoDB, Xebia, Google."

3. Admission Requirements

* **Eligibility:** 60% marks in a 3-year Diploma in Engineering (any branch/discipline) from State Board of Technical Education, Haryana or equivalent, OR B.Sc. Degree from a recognised UGC University with at least 50% marks, and passed XII standard with Mathematics as a subject.
* **Admission Criteria:** "Merit preparation/ short listing of candidates shall be on the basis of score in MRNAT 2025/ Diploma Qualifying Examination."
* **Nationality:** Indian/NRI/PIO/Foreign

4. Curriculum Structure and Key Modules

The curriculum is structured across 6 semesters for the lateral entry. It is designed to be industry-centric, outcome-based, and multidisciplinary.

**Key Programme Highlights (beyond USPs):**

* "Outcome-Based Education."
* "Industry-Centric Co-designed, co-delivered and co-certified course Curriculum."
* Offers "choice-based elective baskets with a multidisciplinary approach."
* "Continuous guidance and mentorship from industry leaders."
* "Seamless integration of experienced faculty, regularly trained by industry experts to deliver cutting-edge curriculum."
* "Strong industry associations with Google Cloud, L& T Edutech, Xebia, LinkedIn Acadview, and more."
* "Access to LinkedIn Learning licenses and GitHub accounts to foster innovation and collaboration."
* "Alumni Connect initiative to leverage the power of networking, experience-sharing, and placement support."

**Examples of Core and Specialisation Subjects (from Semesters 3-6):**

* **Semester 3:** Object-Oriented Programming Using Java, Database Management System, Software Engineering, Discrete Mathematics, User Interface-II (MongoDB, Typescript, AngularJS), Introduction to Research, Professional Competency Enhancement-I, Supervised Learning, Modern Web and Mobile Frameworks, Linux+. Also includes foreign language options (French, German, Spanish) and Indian Constitution.
* **Semester 4:** Artificial Intelligence, Operating Systems, Fundamentals of Digital Electronics, Programming for Problem Solving using Python, Computer Networks, Research & Innovation-I, Unsupervised Learning, Software Craftsmanship – TDD/SOLID, Digital Forensics. Electives like Sensors & IoT, 3D Printing, foreign languages (French, German, Spanish II), Professional Competency Enhancement-II, Essence of Indian Traditional Knowledge.
* **Semester 5:** Computer Architecture & Organization, Theory of Automata & Compiler Design, Mobile Computing with Android, Neural Networks & Fuzzy Logic, Machine Learning, Professional Competency Enhancement-III, Research & Innovation-II, Advanced Neural Networks, Version Control & Automation, Network Security. Also includes Applied Philosophy, Applied Psychology, Applied Sociology, and Entrepreneurship.
* **Semester 6:** Computer Graphics & Multimedia, Analysis and Design of Algorithms, Advanced Android Development, Data Warehousing and Data Mining, Deep Learning, .NET, User Experience, Data Visualization Using Tableau, Advanced Java, Law Relating to Intellectual Property Rights, Professional Competency Enhancement-IV. Specialisation subjects include Natural Language Processing, Modern Architecture Patterns, Vulnerability Assessment and Penetration Testing.
* **Specialised Courses (Semester 6):** Computer Vision & Data Visualization, Malware Analysis and Reverse Engineering.

5. Career Pathways and Job Prospects

The programme prepares students for a diverse range of roles in the technology sector, with specific career pathways highlighted.

**General Career Pathways for Full Stack Development Specialisation:**

* Full Stack Developer
* Front-End Developer
* Software Engineer
* Web Developer
* DevOps Engineer
* Cloud Developer
* Product Manager
* Technical Architect
* UI/UX Developer
* DT Consultant
* Data Architect
* Test Automation Engineer
* Cloud Administrator

**Placement Statistics (AY 23-24):**

* AIML: MAX: 34LPA, MIN: 4LPA, AVG: 10LPA
* CDA: MAX: 12LPA
* CSE: MAX: 12.74LPA, AVG: 6LPA
* CSTI: MAX: 8LPA

**Top Recruiters listed:** Google, HCL, Nokia, KPMG, Accenture, IBM, Coforge, QSS, PlanetSpark, British Telecom, UI Path, Palo Alto, Tech Mahindra, EX Squared, Ericsson, Capgemini, JSW, To the New, Xebia, Cloudsufi, CargoFlash, Commvault, AVIZVA.

**Notable Internships (Current Academic Year):**

* Ashwani Soni, B.Tech, CSE - Summer Internship Google (1.23 LAKH stipend)
* Kanika Sharma, B.Tech, CSE - Summer Internship JPMorgan Chase & Co. (75K stipend)
* Manis Tyagi, B.Tech CSE - Summer Internship, UiPath (50K stipend)
* Drishti Uppal, B.Tech CSE - Summer Internship, National Instruments (45K stipend)

**Future Career Prospects identified:** IT Jobs (Software Engineer, Data Analyst, Cloud Engineer, DevOps, UX/UI Designer etc.), Startup & Entrepreneurship, Research, Higher Studies (M.Tech/MS, MBA, Certifications).

6. Student Support and Facilities

The institution provides extensive support services, aiming for a holistic student experience.

* **Placement Support:** "Student grooming for placement readiness through Career Development Cell (CDC) experts," "Super 40 batches for placement support," "Integration of Employability questions in the tutorial sheets."
* **Research & Innovation:** "Introduction to Research has been added to the curriculum," "MRU has subscription to National and International online journals," "guidance on how to write research papers, file patents etc." "Project Based Learning Pedagogies are used," "Agile rooms are available." "MRU-Innovation & Incubation Centre, established in 2018, serves as a vital hub for fostering entrepreneurship and innovation."
* **Global Exposure:** "Expert Lectures," "Webinars," "World Renowned expert trainers," "Student exchange program for Bachelors and Masters degree program with leading International Universities of UK, US and Australia (under process)."
* **Residential Services:** On-campus and off-campus hostel accommodation with various room categories (AC/Non-AC, single/double/triple/five-seater), including medical facilities, medical insurance, library, and laundry. Mess plan is included in hostel fees.
* **Sports:** "World class sports facilities for outdoor and indoor games" including a 25m Shooting Range, 10m air-conditioned Indoor Shooting Range, indoor badminton and table tennis stadia, Soccer Academy, and Semi Olympic-sized swimming pool. Sports Fitness Centre available.
* **Transport:** "Well-organized transport facility ensures a safe, reliable, and hassle-free commute for students traveling from Delhi and Gurugram."
* **Cultural & Technical Societies:** A wide array of societies like Felicia (Art), Rehnuma (Literary), Moksh (Music), Drishti (Media), Khalbali (Drama), Noora (Fashion), Tech Soul (Tech), Gamenics (Gaming), Rudra (Dance), CSR, AthElites (Sports). Students are also associated with IEEE, ISTE, NPTEL branches.
* **Student Achievements:** Numerous awards in hackathons, coding competitions, research paper presentations, national powerlifting, and fellowships from institutions like IIT Bhilai. International placements up to 60 LPA are highlighted (Karan Aditya Ghoshal, KPMG, Canada).

7. Google Cloud Tie-up Unique Features

The collaboration with Google Cloud offers significant advantages:

* "ChromeOS & Gemini AI lab for hands on practice, research and learning."
* "Certified Digital Campus on Google Cloud (DCGC 2.0) with advanced digital tools and Generative AI capabilities."
* "Google Workspace for Education (Plus) that provides enterprise class platforms and applications on Google Cloud."
* **Free and Subsidised Access to Google Certifications:**Google Cloud Gen AI Skill Badge Pathways
* Associate Cloud Engineer (ACE) Program
* Cloud Digital Leader (CDL) Program
* Google Cloud Cyber Security Certificate
* Google Cloud Data Analytics Certificate
* Google Cloud Computing Foundations Certificate
* Google Cloud Engineer Certificate
* "Access to Google Cloud Skill Boost Platform (Google LMS)."
* "Access to Placement Fairs by Google for students with various Google certifications."
* "Access to virtual tutors enhancing personalized guidance and support for students."
* "Automated content generation and summarization."
* "Conducting exclusive 12-hour hackathon with expert jury members from Google and certified partners."
* "Google Certified Faculty for Curriculum Delivery."

8. Best Practices

The programme employs several best practices to enhance learning and career readiness:

* Project Based Learning
* Direct delivery through industry experts
* Flexibility of student Learning through National Internship & Startup Policy
* Online Courses (NPTEL, Infosys, UIpath, MongoDB, LinkedIn learning)
* Earn While Learn under MR IMPACT Internship opportunities
* Problem/Inquiry/Research-Based Education
* Well-Planned and Well-Designed Rubrics (Formative Assessment)
* NPTEL Lectures to promote self-learning
* Virtual Labs from IIT Delhi
* Projects for developing live projects independently
* Content Beyond Syllabus (Value-added courses)
* Course of Actions and Implementation as per Stakeholders Feedback
* Major Focus on Preparing Students for Product-Based Companies from Super- 40 Batch
* Specialized Technical Training for Placement Perspectives
* Coding Culture: Coding Competitions for CSE Students
* Roadmap designed for students to be a Successful Developer/Software

9. Program Outcomes (POs) and Program Specific Outcomes (PSOs)

The programme aims to develop well-rounded engineers with strong technical and professional skills.

**Program Specific Outcomes (PSOs) - Full Stack Development:**

* **PSO1:** "Attain the ability to design and develop computer programs and possess acquaintance with emerging technologies and open-source platforms in the area of mobile app development, artificial intelligence, machine learning, web development, data analytics, cloud computing, networking, cyber security, gaming and animation to build effective computer-based systems."
* **PSO2:** "Acquire technical competency to deliver computer based innovative and effective solutions to tackle business and societal challenges, for pursuing a successful career, entrepreneurship, research and higher studies."

**Program Outcomes (POs) - General Engineering:**

The programme aligns with standard engineering outcomes, covering:

* Engineering Knowledge, Problem Analysis, Design/Development of Solutions, Conduct Investigations of Complex Problems, Engineering Tool Usage, The Engineer and The World (societal & environmental impact), Ethics, Individual and Collaborative Teamwork, Communication, Project Management and Finance, and Life-Long Learning.

Conclusion

This B.Tech CSE (Hons.) with Full Stack Development specialisation, offered in association with Xebia, presents a robust and industry-aligned programme. Its strong emphasis on practical, industry-driven learning, coupled with extensive support services, aims to prepare students for successful careers in the dynamic field of full stack development. The unique tie-up with Google Cloud further enhances the programme's appeal by providing access to cutting-edge tools and certifications. The only notable ambiguity is the stated duration (3 years vs. 4 years), which should be clarified for prospective students.

**8.Briefing Document: B.Tech. Computer Science and Engineering (CSE) at Manav Rachna University**

This briefing document provides a detailed overview of the B.Tech. Computer Science and Engineering (CSE) programme at Manav Rachna University (MRU), highlighting its key features, curriculum, industry associations, and career prospects, drawing directly from the provided source.

1. Programme Overview and Structure

The B.Tech. Computer Science & Engineering programme at Manav Rachna University is a **4-year (8-semester) undergraduate programme** designed to prepare students for the "booming industry needs and challenging technological landscape." It focuses on "technology, management, implementation and design of software and hardware information systems." The annual course fee is **INR 2,88,000**.

**Specialisations (Hons.) Offered:** The programme offers several specialisations in association with industry leaders:

* Artificial Intelligence & Machine Learning (in association with Xebia)
* Full Stack Development (in association with Xebia)
* Cyber Security & Threat Intelligence
* Generative AI (in association with Google Cloud)

2. Key Educational Benefits and Industry Associations

MRU's B.Tech. CSE programme distinguishes itself through strong industry integration and accreditations:

* **Accreditations:** The programme boasts **NBA and NAAC A accreditation**, with the School of Engineering holding a **"prestigious Platinum Badge in QS I-GAUGE Engineering."**
* **Industry Partnerships:** A core strength is its "strong industry associations with giants like Google Cloud, MongoDB, and UI Path, ensuring industry-ready graduates through curriculum design, training, internships, and placements." Other key associations include Xebia, LinkedIn Learning, Infosys, AWS, Quickheal, L&T EduTech, and Altair.
* **Curriculum Design:** The curriculum is "co-designed, co-delivered and co-certified by industry experts and reputed academicians," and follows an **AICTE model curriculum** with industry-oriented choice-based courses. This "aims to bridge the gap between industry and academia" and incorporates "new technology in the curriculum aims to bridge the gap of skilled manpower requirements."
* **Learning Approach:** Emphasis is placed on **"learning-by-doing,"** with "09 fully equipped state-of-the-art laboratories," hands-on lab workshops, and "Project and experiential-based learning." The faculty utilises a **STEP (Simulated Teaching Enabled Programmes) methodology**.
* **Skill Enhancement:** Students benefit from e-learning platforms such as **MOOC, NPTEL, Coursera, Infosys Springboard, LinkedIn Learning, UI Path, MongoDB, Xebia, and Google Cloud.** Skill-based training is provided through MOUs.
* **Research & Innovation:** The programme promotes innovation through "opportunity of patents, copyrights, funded projects, consultancy, and student start-ups." A dedicated **MRU-Innovation & Incubation Centre, established in 2018**, supports startups from "ideation to successful ventures" with workshops, mentorship, seed funding, and assistance with company registration and fundraising. Research is further integrated with "Introduction to Research sequence courses from 3rd to 5th semester, emphasizing originality, feasibility for start-ups, and documentation of outcomes."
* **Global Opportunities:** There are "opportunities for higher studies and research in India and abroad," and "Student exchange program for Bachelors and Masters degree program with leading International Universities of UK, US and Australia (under process)."

3. Admission Requirements

* **Eligibility:** Pass in 10+2 examination with at least **60% marks** in aggregate in 5 subjects, including English, Physics, and Mathematics, plus one subject from Chemistry, Computer Science, Biology, or Biotechnology, and one subject with the highest score from the remaining.
* **Admission Criteria:** Merit-based selection based on scores in **JEE Mains/SAT/Pearson/MRNAT/XII Qualifying Examination.**
* **Scholarships:** Provision for **up to 100% scholarship** through MRNAT (Utkarsh and Uttam) along with JEE Scores.

4. Curriculum Structure (Selected Highlights)

The 8-semester curriculum is comprehensive, covering core computer science subjects alongside specialised and interdisciplinary courses.

**Early Semesters (1-2):** Focus on foundational engineering and computing skills:

* **Semester 1:** Quantum Mechanics for Engineers, Calculus & Linear Algebra, Programming for Problem Solving Using C, Professional English, User Interface-I (HTML, CSS, JavaScript), Environmental Science, Professional Communication I, Universal Human Values-II, Indian Constitution, UI Specialist, Introduction to Information Security.
* **Semester 2:** Chemistry-I, Probability and Statistics, Basics of Electronics & Electrical Engineering, Data Structures & Algorithms, Computer Aided Drafting, User Interface-II, Professional Communication-II, Programming for Problem Solving Using Python, Python programming, User Interface-Advanced, Introduction to Standards, Frameworks and Key Technology Concepts.

**Intermediate Semesters (3-5):** Introduce core CSE concepts and specialisation fundamentals:

* **Semester 3:** Object Oriented Programming Using Java, Database Management System, Software Engineering, Discrete Mathematics, User Interface-II (MongoDB, Typescript, Angular JS), Foreign Languages (French/German/Spanish), Professional Competency Enhancement-I, Introduction to Research, Supervised Learning, Modern Web and Mobile frameworks, Linux+.
* **Semester 4:** Artificial Intelligence, Operating Systems, Fundamentals of Digital Electronics, Computer Networks, Sensors & IoT, 3D Printing, Foreign Languages (French/German/Spanish), Professional Competency Enhancement-II, Research & Innovation-I, Essence of Indian Traditional Knowledge, Unsupervised Learning, Software Craftsmanship – TDD/SOLID, Digital Forensics.
* **Semester 5:** Computer Architecture & Organization, Theory of Automata & Compiler Design, Mobile Computing with Android, Neural Networks & Fuzzy Logic, Machine Learning, Applied Philosophy/Psychology/Sociology/Entrepreneurship, Professional Competency Enhancement-III, Research & Innovation-II, Advanced Neural Networks, Version Control Automation, Network Security.

**Advanced Semesters (6-8):** Deeper dives into advanced topics, specialisations, and culminating project:

* **Semester 6:** Computer Graphics & Multimedia, Analysis and Design of Algorithms, Advanced Android Development, Data Warehousing and Data Mining, Deep Learning, .NET, User Experience, Data Visualization Using Tableau, Advanced Java, Law Relating to Intellectual Property Rights, Essentials of Peace and Sustainability, Introduction to Finance, Professional Competency Enhancement-IV.
* **Specialised Courses (Sem 6):** Natural Language Processing, Modern Architecture Patterns, Vulnerability Assessment and Penetration Testing.
* **Semester 7:** Mobile App. Analytics, Information Retrieval, Image Processing, Software Testing, Agile Technologies, Image Editing & Animation, Progressive Web Applications, Big Data, N/W Security & Cryptography, Cloud Computing, Software Project Management, Introduction To Blockchain Technology, Wireless Sensor Network, Operation Research, Environmental Ethics & Sustainable Development, E-Waste Management, Green Computing.
* **Specialised Courses (Sem 7):** Computer Vision & Data Visualization, Malware Analysis and Reverse Engineering.
* **Semester 8:** **Project** – This culminating experience allows students to "Identify and analyse the real-world problem by applying acquired knowledge," "Apply multidisciplinary knowledge... and design project modules," and "Integrate all the modules through effective team work after efficient testing."

5. Google Cloud Tie-up (Unique Features)

MRU is highlighted as **"First in Haryana and Second in India to offer B.Tech. Generative-AI and BCA Cloud Computing with Google Cloud."** This partnership offers:

* ChromeOS & Gemini AI lab for hands-on practice.
* Certified Digital Campus on Google Cloud (DCGC 2.0).
* Google Workspace for Education (Plus).
* Co-designed and industry-ready curriculum with Google.
* Free access to Google certification courses and badges (e.g., Google Cloud Gen AI Skill Badge Pathways, Associate Cloud Engineer, Cloud Digital Leader, Cybersecurity, Data Analytics, Cloud Computing Foundations, Cloud Engineer Certificates).
* Access to Google Cloud Skill Boost Platform (LMS).
* Access to Placement Fairs by Google.
* Access to virtual tutors and automated content generation.
* Exclusive 12-hour hackathons with Google experts.
* Google Certified Faculty.
* Partnership in K-12 segment for Google Reference Schools.

6. Career Pathways and Placement Support

The B.Tech. CSE programme at MRU offers "excellent career prospects, high salaries, and diverse opportunities in a rapidly growing tech industry."

**Career Pathways:**

1. **IT Jobs:** Software Engineer, Frontend/Backend Developer, Mobile App Developer, Data Analyst, Cloud Engineer, DevOps Engineer, Database Administrator, Data Engineer, Web Developer, UX/UI Designer, IT Consultant, Product Manager.
2. **Startup & Entrepreneurship**
3. **Research**
4. **Higher Studies:** M.Tech./MS in CS (IITs, NITs, Foreign Universities), MBA (IIMs, ISB, Abroad), Certifications (AWS, Google, Microsoft, CISSP, CEH, PMP).

**Specialisation-Specific Job Prospects:**

* **Full Stack Development:** DT Consultant, Data Architect, Cloud Developer, Full Stack Developer, Test Automation Engineer, Cloud Administrator, DevOps Engineer, Frontend Developer.
* **AI and Machine Learning:** AI/ML Engineer, Data Scientist, Data Engineer, Business Analyst, Data Analyst, Business Intelligence Engineer, Research Scientist.
* **Cyber Security and Threat Intelligence:** Information Security & Risk Analyst, Junior Cyber Security Analyst, Infosec Analyst and Trainer, Internal Auditor, Sales – Cyber Product and Services, IT Support.
* **Robotics and AI:** Robotics engineer, RPA Engineers, Computer Scientists, User interface Engineer, Control engineer, Automation Engineers, Design engineer, Industrial and process control Engineer, Aerospace Engineer.
* **Generative AI:** Generative AI Engineer, Machine Learning Engineer, AI Research Scientist, Synthetic Data Specialist, Creative AI Developer, AI Solutions Architect.

**Placement & Internship Support:**

* **Career Development Cell (CDC):** Provides "student grooming for placement readiness."
* **Super 40 batches:** Offer focused placement support.
* **Corporate Relations Centre (CRC):** Active in on-campus recruitment and walk-in interviews.
* **Internship Opportunities:** Industrial visits, guest speakers/networking events, online portals, alumni networks, hackathons and competitions.
* **Notable Internships (AY 23-24):** Ashwani Soni (Google, 1.23 Lakh/month), Kanika Sharma (JPMorgan Chase & Co., 75K/month), Manis Tyagi (UiPath, 50K/month), Drishti Uppal (National Instruments, 45K/month), Reet Kaur (British Telecom, 40K/month), Gaurav Arora (British Telecom, 40K/month), Kanan Arora (British Telecom, 40K/month).
* **Placement Statistics (AY 23-24):**AIML: MAX: 34 LPA, MIN: 4 LPA, AVG: 10 LPA
* CDA: MAX: 12 LPA
* CSE: MAX: 12.74 LPA, AVG: 6 LPA
* CSTI: MAX: 8 LPA
* **International Placements (2023):** Karan Aditya Ghoshal (KPMG, Canada - 60 LPA), Sarthak Rastogi (Space and Time Labs, Newport Beach, California, United States - 55 LPA), Deepanshu Sharma (équipe Nutrition Canada - 30 LPA), Ananya Kamra (Alto Palo Networks - 51 Lakhs).

7. Student Life and Facilities

* **Residential Services:** On-campus and off-campus hostel accommodation with various room categories (AC/Non-AC, single/double/triple/five-seater) and attached/common bathrooms. Hostel fees include medical facilities, medical insurance, library access, and laundry.
* **Sports:** World-class facilities for outdoor and indoor games, including a 25m and 10m indoor shooting range (Olympics standards), indoor badminton and table tennis stadia, a Sports Fitness Centre, Soccer Academy, and a Semi Olympic-sized swimming pool.
* **Transport:** Well-organised GPS-enabled bus transport for students from Delhi and Gurugram.
* **Extra-curricular Activities & Societies:Cultural:** Felicia (Art), Rehnuma (Literary), Moksh (Music), Drishti (Media), Khalbali (Drama), Noora (Fashion), Rudra (Dance).
* **Technical:** Tech Soul, Gamenics (Gaming), IEEE, ISTE, NPTEL student branches.
* **Social:** CSR, Jeevandayni, Rotary Club, Lion’s Club, Red Cross Society.
* **Student Achievements:** Numerous awards and recognitions in hackathons (e.g., Code for Good, Spark 3, HealthTech Innovations Fest, UNO MINDA), coding competitions (ICPC Kanpur Regionals), NPTEL toppers, and research paper presentations in international conferences. Noteworthy individual achievements include Google Summer of Code internship and significant international placements.

8. Best Practices and Future Focus

MRU employs several best practices to ensure student success:

* Project-Based Learning.
* Direct delivery by industry experts.
* Flexibility in student learning through National Internship & Startup Policy.
* Online courses integration (NPTEL, Infosys, UIPath, MongoDB, LinkedIn Learning).
* "Earn While Learn" under MR IMPACT Internship opportunities.
* Problem/Inquiry/Research-Based Education.
* Well-planned rubrics for formative assessment.
* "Major Focus on Preparing Students for Product-Based Companies from Super- 40 Batch."
* Specialized Technical Training for Placement Perspectives.
* Strong coding culture with regular competitions.
* Robust support for startups, innovation, and entrepreneurship.
* A clear "Roadmap designed for students to be a Successful Developer/Software."

This comprehensive approach aims to produce graduates who are not only technically proficient but also adaptable, innovative, and ready for the demands of the global tech industry.

**9.Briefing Document: B.Tech. Computer Science & Engineering (Lateral Entry) at Manav Rachna University**

This document summarises the key themes, ideas, and facts regarding the B.Tech. Computer Science & Engineering (Lateral Entry) programme at Manav Rachna University (MRU), drawing from the provided source material.

1. Programme Overview and Structure

The B.Tech. Computer Science & Engineering (Lateral Entry) is an **undergraduate programme with a duration of 3 years (6 Semesters)**, designed to prepare students for the evolving technological landscape. It offers a "cutting-edge curriculum and experienced faculty [to] prepare budding engineers for the technology, management, implementation and design of software and hardware information systems."

**Key Programme Details:**

* **Course Name:** B.Tech. Computer Science and Engineering (Lateral Entry)
* **Duration:** 3 Years (6 Semesters)
* **Annual Fee:** INR 2,45,700
* **Course Level:** Undergraduate

**Specialisations Offered:** The programme offers several specialisations, many in association with industry partners:

* B.Tech. in Computer Science & Engineering (Hons.) with specialisation in **Artificial Intelligence & Machine Learning** in association with Xebia (Lateral Entry).
* B.Tech. in Computer Science & Engineering (Hons.) with specialisation in **Cloud, DevOPs and Automation** in association with Xebia (Lateral Entry).
* B.Tech. in Computer Science & Engineering (Hons.) with specialisation in **Cyber Security & Threat Intelligence** in association with Quick Heal (Lateral Entry).

2. Admissions and Eligibility

* **Eligibility for General Programme:** 50% in a 3-year Diploma in Engineering (any branch/discipline) from State Board of Technical Education, Haryana or equivalent, OR a B.Sc. Degree from a UGC recognised University with at least 55% marks, and XII standard with Mathematics as a subject.
* **Eligibility for Specialisations:** 60% in a 3-year Diploma in Engineering (any branch/discipline) from State Board of Technical Education, Haryana or equivalent, OR a B.Sc. Degree from a UGC recognised University with at least 50% marks, and XII standard with Mathematics as a subject.
* **Admission Criteria:** Merit preparation/shortlisting based on score in MRNAT 2025/Diploma Qualifying Examination.
* **Nationality:** Indian/NRI/PIO/Foreign.
* **Scholarships:** Provision of up to 100% scholarship for meritorious students and sportspersons.

3. Key Educational Benefits and USPs

MRU's B.Tech. CSE programme highlights several unique selling propositions, emphasising industry readiness, practical learning, and global opportunities:

* **Accreditation:** "NBA and NAAC accredited" (NAAC 'A' Accredited). The School of Engineering holds a "prestigious Platinum Badge in QS I-GAUGE Engineering."
* **Industry Integration:** Strong associations with "industry giants like Google Cloud, MongoDB, and UI Path" ensuring industry-ready graduates through curriculum design, co-delivery, co-certification, training, internships, and placements. The curriculum is "co-designed, co-delivered and co-certified by industry experts and reputed academicians."
* **Practical Learning:** Emphasises "Project and experiential-based learning," with "09 fully equipped state-of-the-art laboratories," hands-on lab workshops, programming tools, and languages covered. "Computer lab components added to all MRU courses ensure that the student is involved proactively in the learning by doing approach."
* **Skill Enhancement:** Provides skill-based training through MOUs and e-learning platforms such as MOOC, NPTEL, Coursera, Infosys Springboard, LinkedIn Learning, UI Path, MongoDB, Xebia, and Google Cloud.
* **Placement Support:** "Student grooming for placement readiness through Career Development Cell (CDC) experts" and "Super 40 batches for placement support." The Corporate Relations Centre (CRC) also supports placements.
* **Innovation & Research:** Opportunities for "patents, copyrights, funded projects, consultancy, and student start-ups." Introduction to Research sequence courses from 3rd to 5th semester, fostering originality and feasibility for start-ups. MRU-Innovation & Incubation Centre supports ideas from ideation to successful ventures, offering workshops, mentorship, assistance with company registration and fundraising, and seed funding.
* **Global Opportunities:** Opportunities for higher studies and research "in India and abroad." Student exchange programmes with leading international universities (under process).
* **Interdisciplinary Approach:** "Choice-based credit structure allowing students to pursue interdisciplinary minors." Offers "choice-based elective baskets with a multidisciplinary approach."

4. Curriculum Highlights and Course Structure

The curriculum is designed to be industry-centric, outcome-based, and continuously updated. It spans 8 semesters, with a detailed breakdown provided for semesters 3-8 (for lateral entry students).

**Key Course Themes across Semesters:**

* **Core Computer Science:** Object-Oriented Programming (Java, Python), Database Management Systems, Software Engineering, Operating Systems, Computer Networks, Computer Architecture & Organization, Analysis and Design of Algorithms, Theory of Automata & Compiler Design.
* **Emerging Technologies:** Artificial Intelligence, Machine Learning (Supervised, Unsupervised), Deep Learning, Neural Networks & Fuzzy Logic, Modern Web and Mobile Frameworks, Advanced Android Development, Digital Forensics, Software Craftsmanship (TDD/SOLID), Modern Architecture Patterns, Big Data, Cloud Computing, Blockchain Technology, Wireless Sensor Networks, Natural Language Processing, Computer Vision & Data Visualisation, Malware Analysis and Reverse Engineering, Network Security & Cryptography, User Experience, Data Warehousing and Data Mining, Progressive Web Applications.
* **Professional and Soft Skills:** Professional Competency Enhancement series (Aptitude, Reasoning, Communication), Introduction to Research, Research & Innovation.
* **Humanities & Electives:** Discrete Mathematics, French/German/Spanish, Indian Constitution, Essence of Indian Traditional Knowledge, Applied Philosophy, Applied Psychology, Applied Sociology, Entrepreneurship, Law Relating to Intellectual Property Rights, Essentials of Peace and Sustainability, Introduction to Finance, Operation Research, Environmental Ethics & Sustainable Development, E-Waste Management, Green Computing, 3D Printing, Sensors & IoT.

**Unique Features of Google Cloud Tie-up (for Generative AI and Cloud Computing specialisations):** MRU is "First in Haryana and Second in India to offer B.Tech. Generative-AI and BCA Cloud Computing with Google Cloud." This includes:

* ChromeOS & Gemini AI lab for hands-on practice.
* Certified Digital Campus on Google Cloud (DCGC 2.0).
* Google Workspace for Education (Plus).
* Co-designed and industry-ready curriculum with Google.
* Free access to Google certification courses and badges (e.g., Google Cloud Gen AI Skill Badge Pathways, Associate Cloud Engineer, Cloud Digital Leader, Cybersecurity, Data Analytics, Cloud Computing Foundations, Cloud Engineer Certificates) and subsidised prices for paid certifications.
* Access to Google Cloud Skill Boost Platform (LMS).
* Access to Placement Fairs by Google.
* Access to virtual tutors and automated content generation.
* Exclusive 12-hour hackathons.
* Google Certified Faculty.
* Manav Rachna Schools as Google Reference Schools in K-12 segment.

5. Career Prospects and Placements

The B.Tech. CSE programme at MRU aims to provide "excellent career prospects, high salaries, and diverse opportunities in a rapidly growing tech industry."

**Career Pathways:**

* **IT Jobs:** Software Engineer, Frontend/Backend Developer, Mobile App Developer, Data Analyst, Cloud Engineer, DevOps Engineer, Database Administrator, Data Engineer, Web Developer, UX/UI Designer, IT Consultant, Product Manager.
* **Startup & Entrepreneurship:** Encouraged and supported through the Innovation & Incubation Centre.
* **Research:** Opportunities for students to engage in research and pursue higher studies.
* **Higher Studies:** M.Tech/MS in CS (IITs, NITs, Foreign Universities), MBA (IIMs, ISB, Abroad), various certifications (AWS, Google, Microsoft, CISSP, CEH, PMP).

**Specialisation-Specific Career Prospects:**

* **Full Stack Development:** DT Consultant, Data Architect, Cloud Developer, Full Stack Developer, Test Automation Engineer, Cloud Administrator, DevOps Engineer, Frontend Developer.
* **AI/ML:** AI/ML Engineer, Data Scientist, Data Engineer, Business Analyst, Data Analyst, Business Intelligence Engineer, Research Scientist.
* **Cyber Security & Threat Intelligence:** Information Security & Risk Analyst, Junior Cyber Security Analyst, Infosec Analyst and Trainer, Internal Auditor, Sales – Cyber Product and Services, IT Support.
* **Robotics & AI:** Robotics Engineer, RPA Engineers, Computer Scientists, User Interface Engineer, Control Engineer, Automation Engineers, Design Engineer, Industrial and Process Control Engineer, Aerospace Engineer.
* **Generative AI:** Generative AI Engineer, Machine Learning Engineer, AI Research Scientist, Synthetic Data Specialist, Creative AI Developer, AI Solutions Architect. Graduates in Generative AI are highly valued, with "Freshers can expect ₹6-12 LPA in India (higher in top-tier companies). Experienced professionals in Generative AI can earn much higher based on expertise."

**Placement Statistics (AY 23-24):**

* **AIML:** MAX: 34LPA, MIN: 4LPA, AVG: 10LPA
* **CDA:** MAX: 12LPA
* **CSE:** MAX: 12.74LPA, AVG: 6LPA
* **CSTI:** MAX: 8LPA

**Notable Internships & Placements:**

* Ashwani Soni, B.Tech, CSE: Summer Internship Google (1.23 LAKH stipend per month).
* Kanika Sharma, B.Tech, CSE: Summer Internship J.P. Morgan Chase & Co. (75K stipend).
* Manis Tyagi, B.Tech CSE: Summer Internship, UiPath (50K stipend).
* Tuhin Tarafder, CSE: Placed in Commvault (32.9 LPA).
* International Placements in 2023: Karan Aditya Ghoshal (KPMG, Canada - 60 LPA), Sarthak Rastogi (Space and Time Labs, US - 55 LPA), Deepanshu Sharma (Équipe Nutrition Canada - 30 LPA), Ananya Kamra (Palo Alto Networks - 51 Lakhs).

6. Student Support and Campus Life

MRU provides a comprehensive support system and vibrant campus environment:

* **Residential Facilities:** On-campus and off-campus hostel accommodation for boys and girls with various room categories (AC, Non-AC, single/double/triple/five-seater) and attached/common bathrooms. Includes medical facilities, medical insurance, library, and laundry services. Mess plan included.
* **Transport:** Well-organised GPS-enabled bus fleet for Delhi and Gurugram commutes.
* **Sports:** World-class facilities for indoor and outdoor games, including a 25m Shooting Range and 10m air-conditioned Indoor Shooting Range of Olympic standards, indoor badminton and table tennis stadia, a Sports Fitness Centre, Soccer Academy, and Semi Olympic-sized swimming pool.
* **Student Support Services:** Career Development Centre (CDC), Corporate Relations Centre (CRC), Alumni Network, Mentor-Mentee programme, In-house Internships, Research Cluster of Computing (RCC), Institution's Innovation Council (IIC), Intellectual Property Rights (IPR) Cell, Technical Clubs and Societies, National Innovation and Startup Policy (NISP), DSW Societies, Common Rooms, Sports Room, Medical Room.
* **Cultural Societies:** Felicia (Art), Rehnuma (Literary), Moksh (Music), Drishti (Media), Khalbali (Drama), Noora (Fashion), Tech Soul (Tech), Gamenics (Gaming), Rudra (Dance), CSR, AthElites (Sports).
* **Co-curricular Activities & Research:** Regular workshops, hackathons, coding challenges, alumni talks, and opportunities for research paper presentations and funded projects (e.g., EPICS in IEEE project for "Detection of Unidentified Garbage Vulnerable Points using Drones and AI - India"). Students are guided on how to write research papers and file patents.
* **Student Achievements:** Numerous awards and recognitions in hackathons, coding competitions, national powerlifting, and research paper presentations. Notable achievements include wins in Code for Good 2024 Hackathon (JPMorgan Chase), Spark 3 Hackathon, HealthTech Innovations Fest 2024, UNO MINDA National Hackathon, ICPC Kanpur Regionals, and NPTEL top performers.

7. Why Pursue at Manav Rachna University?

MRU positions itself as a top choice due to:

* "Strong academic curriculum, industry-aligned specialisations, and excellent placement opportunities."
* "Hands-on learning with cutting-edge technologies like Artificial Intelligence, Cybersecurity, Full Stack Development and Generative AI."
* "State-of-the-art labs, experienced faculty, and collaborations with industry leaders."
* "Focus on innovation, entrepreneurship, and interdisciplinary applications," encouraging real-world projects and hackathons.
* "Global career prospects, flexible learning options, and a strong alumni network."
* "Project-Based Learning," "Direct delivery through industry experts," "Flexibility of student Learning through National Internship & Startup Policy," and "Earn While Learn under MR IMPACT Internship opportunities" are highlighted as best practices.

In conclusion, the B.Tech. CSE Lateral Entry programme at Manav Rachna University offers a robust and industry-aligned education, deeply integrated with practical learning, research opportunities, and comprehensive career support, particularly in emerging technological fields such as AI/ML, Cloud Computing, and Cybersecurity.

**10.Detailed Briefing: B.Tech Electronics and Communication Engineering (Lateral Entry) Programme**

This briefing provides a comprehensive overview of the B.Tech Electronics and Communication Engineering (Lateral Entry) programme, highlighting its key features, curriculum, career prospects, and unique selling points.

**1. Programme Overview**

The B.Tech Electronics and Communication Engineering (ECE) (Lateral Entry) is a 3-year (6 semesters) undergraduate programme offered by the Department of Electronics and Communication Engineering. ECE is described as a "dynamic field that plays a crucial role in today's technology-driven world," encompassing the study of "electronic devices, circuits, and systems," including "semiconductor devices, analog and digital electronics, integrated circuits, microelectronics Communication engineering wireless communication, digital signal processing, and network protocols."

**2. Key Educational Benefits and Unique Selling Propositions (USPs)**

The programme is designed with a strong emphasis on industry relevance, practical training, and innovation.

* **Industry-Relevant Curriculum:** The curriculum is "Updated regularly to match global trends in electronics, communication, and embedded systems."
* **Cutting-Edge Laboratory Infrastructure:** Students benefit from "Well-equipped labs supporting hands-on training in circuits, communication, VLSI, IoT, and signal processing."
* **Focus on Innovation & Research:** Opportunities exist for students to "engage in research projects, present papers, and file patents under expert guidance."
* **Experienced and Supportive Faculty:** Learning is facilitated by "qualified professors and industry-trained mentors committed to academic and professional excellence."
* **Strong Industry Linkages:** The programme offers "Internship & Placement Support" and "Strong industry linkages enable internships, industrial visits, and placement assistance with core and IT companies."
* **Skill Development for Future Careers:** There is "Emphasis on communication skills, coding, design thinking, and interdisciplinary learning to prepare students for higher studies and global careers."

Beyond these core benefits, the programme boasts several unique features:

* **Interdisciplinary Learning Opportunities:** Students can "work across domains like AI, robotics, and data science through elective courses and minor specializations."
* **Strong Focus on Emerging Technologies:** Regular exposure to "cutting-edge areas such as 5G, IoT, Machine Learning, Cyber-Physical Systems, and Chip Design."
* **Entrepreneurship & Start-up Support:** Students have "Access to MRU’s incubation center and innovation labs to convert student ideas into viable startups." Manav Rachna Business Incubator provides "integrated, customized Innovation-Based Incubation support services" including "regulatory, financial and administrative help" and "networking opportunities."
* **Global Exposure & Exchange Programs:** "Collaboration with international universities for student exchange, joint research, and global certifications."
* **Outcome-Based Education (OBE) Framework:** "Learning outcomes are clearly defined and monitored, ensuring competency development across all levels."
* **Value-Added Training & Certifications:** "Specialized programs in tools like MATLAB, LabVIEW, Tanner EDA, Xilinx, and more, to enhance employability."
* **Industry 4.0-aligned curriculum:** Preparing students for the latest industrial advancements.
* **Guidance for GATE, GRE, and higher studies:** Supporting academic progression.

**3. Admission Requirements**

* **Eligibility:** Candidates require "50% marks in Diploma in Engineering in any discipline of 3 year duration from State Board of Technical Education, Haryana or equivalent examination or B.Sc. Degree from a recognized University as defined by UGC with at least 50% marks and passed XII standard with Mathematics as a subject."
* **Admission Criteria:** "Merit preparation/ short listing of candidates shall be on the basis of score in Diploma."
* **Nationality:** Indian/NRI/PIO/Foreign.

**4. Curriculum Structure (3-Year Programme)**

The curriculum spans six semesters, covering a broad range of ECE and related subjects. Key themes and course outcomes across the semesters include:

* **Semester 3:** Focuses on foundational concepts such as Data Structures, Network Theory, Analog and Digital Electronics, Signals and Systems. It also includes an "Introduction to Research" and foreign language options (Spanish, French, German), alongside "Professional Competency Enhancement-I."
* **Semester 4:** Advances to Electromagnetic Field and Waves, Analog & Digital Communication, Microprocessors and Interfacing, VLSI Design. Continuation of foreign languages and "Professional Competency Enhancement-II," with a new emphasis on "Programming for Problem Solving Using Python."
* **Semester 5:** Deep dives into Microcontrollers & Interfacing, CMOS VLSI Design, Information Theory and Coding, Wireless Sensor Networks, and Object-Oriented Programming (OOP) using Java. Elective options introduce "Internet of Things (IoT)," "Prototyping IoT-Based Healthcare Systems," and "Artificial Intelligence." Business fundamentals like "Basics of Economics" and "Fundamentals of Finance" are also included, along with an "ALTAIR Workshop" and "Digital System Design."
* **Semester 6:** Introduces advanced topics like Neural Networks, Wavelets and Multirate Systems, Digital Signal and Image Processing, Control Systems, PLC Programming and Applications. Specialised areas such as "Health Care Systems" and "Biomedical Signal Processing" are offered, along with "Cyber Law" and "Laws Relating to Intellectual Property Rights," and "Professional Competency Enhancement-IV."
* **Semester 7 (Implied, as subsequent semesters are listed after Semester 6):** Covers Wireless and Mobile Communication, Data Communication, Embedded System Design, Microwave and Radar Engineering, VLSI Testing, MEMS, Digital Image Processing and Computer Vision, and Mechatronics. Electives include "Theory of Automata and Compiler Design," "Big Data," "ASIC Design and FPGA," "RF System Design," "Speech Processing and Recognition," "Random Processes for Wireless Communication," "Nanotechnology," "Blockchain Development," "Cloud Computing," and "Basics of Entrepreneurship."
* **Semester 8:** Dedicated to "PROJECT PHASE-II/INDUSTRIAL TRAINING," with the primary outcome being to "Integrate the relevant theory and practices followed in a logical way and draw appropriate conclusions."

**Curriculum Highlights:**

* Core electives are broadly classified into four main categories: **Communication Systems, VLSI & Embedded systems, Computers Applications, and Medical Electronics.**
* The programme emphasises that ECE has "penetrated into other areas like healthcare, instrumentation, automation, remote sensing, signal processing, etc." leading to "a lot of scope in varied industries like Internet of Things, Robotics, Mechatronics, Embedded Systems, Digital Image Processing, Electromagnetics, Remote Sensing and Microwaves, Optics and Photonics, Nanotechnology and Electronic Materials, Sustainable Energy and Power Systems, Telecom Sector, VLSI Design."
* Students are made "versed with all the latest technologies used in the design and development of all new electronics and computer products" and are "capable of getting involved in R&D activities in various areas of specialization."

**5. Career Pathway and Prospects**

The programme prepares students for diverse roles in the ECE sector and beyond, including:

* **Circuit Design**
* **Signal Processing Engineer**
* **Communication Systems Engineer**
* **Microprocessors and Microcontrollers Expert**
* **Embedded Systems Engineer**
* **Electromagnetic Fields and Waves Specialist**
* **EDA Tools User**
* **Communication Engineer** (design and optimisation of satellite, wireless, mobile networks)
* **Embedded Systems Engineer** (development of embedded solutions, IoT devices)
* **Signal Processing Engineer** (analysis, processing, transmission of signals in audio/video, telecommunications, radar)
* **RF Engineer** (designing and optimising radio frequency circuits)
* **VLSI Engineer** (designing and optimising integrated circuits)
* **Automation and Control Engineer** (designing control systems for industrial automation, robotics, smart devices)

**Why Pursue ECE (Global & Domestic Demand):**

* **Global Demand:** The "semiconductor market is projected to exceed $1 trillion by 2033" with a CAGR of 7.6%.
* **Emerging Sectors:** "Growth in AI, IoT, 5G, electric vehicles (EVs), and renewable energy systems is creating massive demand for specialized semiconductors."
* **Domestic Push:** "India's initiatives like Make in India and the Semicon India Program, are fostering local production, increasing job creation."
* **Job Creation:** "According to NITI Aayog, India has set an ambitious target to achieve $500 billion in electronics manufacturing, which will create 6 million jobs by 2030."

**6. Internships & Placements**

The programme boasts a "70%" placement support rate.

* **Top Recruiters:** Ericsson, Nokia, Qualcomm, Intel, Texas Instruments, Broadcom, Bosch, Honeywell, Siemens, Apple, Samsung Electronics, Motorola Solutions, Micron Technology, Xilinx, Renesas Electronics, Tata Consultancy Services (TCS), General Motors (GM), Defense Research and Development Organisation (DRDO), Indian Space Research Organisation (ISRO).
* **Internship & Placement Opportunities:** Mentor Graphics, Cadence, Truechip, Samsung, Tech Mahindra, IBM, Dell, Wipro, Genpact, HCL, NXP, CEERI Pilani, NITTTR Bhopal.

**7. Fees and Application Process**

* **Annual Fee:** INR 1,92,700 / US $4,000.
* **Modes of Payment:** Online (net banking, debit/credit card, UPI), Bank Transfer (NEFT/RTGS), Demand Draft, Cash Payment (at Accounts Office), Education Loan (tie-ups with PNB, SBI, HDFC, ICICI).

**Application Steps:**

1. **Visit the Official Website:** www.manavrachna.edu.in, navigate to the "Admissions" section.
2. **Fill Out the Online Application Form:** Click "Apply Now," create login, complete personal, academic, and contact details.
3. **Upload Required Documents:** Submit scanned copies of Class 10 & 12 mark sheets, Aadhaar card, and passport-size photographs.
4. **Pay the Application Fee:** Online payment.

**8. Facilities and Support Services**

* **Residential Services:** On-campus and off-campus hostel accommodation (boys and girls) with various room categories (AC/Non-AC, single/double/triple/five-seater) with attached/common bathrooms. Includes medical facilities, medical insurance, library, and laundry. Mess plan is included in hostel fees.
* **Sports:** World-class facilities for outdoor and indoor games (basketball, volleyball, cricket, shooting, table tennis, squash, billiards, soccer, chess, carom), including a 25m and 10m indoor shooting range with Olympics standards, indoor badminton and table tennis stadia, a Sports Fitness Centre, Soccer Academy, and a Semi Olympic-sized swimming pool.
* **Parking:** Ample space available for students.
* **Transport:** Well-organized transport facility from Delhi and Gurugram with GPS-enabled buses.
* **Extra-Curricular Activities:** Students are members of technical club ISTE and engage in various activities. Strong emphasis on "experiential, participative, and problem-based learning methodologies."
* **Cultural Societies:** A wide array of societies including Dramatics (Khalbali), Music (Moksh), Dance (Rudra), Fashion (Noora), Media (Drishti), Literary (Rehnuma), Personality Development (Karisma, TechSoul), Art (Felicia), and Gaming (GAMENIX).
* **Capstone Project & Research:** Mandatory "6-month or year-long internships" in companies like Truechip, Cadence, L&T, or Intel. Opportunities for "Live Industry Projects" (chip design, embedded systems, 5G, AI) and "Sponsored Research Work."
* **Innovation & Startups:** Manav Rachna Business Incubator supports "tech-driven startups" by providing "academic flexibility," supporting "patent filing and IPR protection," and offering access to "capital from angel investors, state governments, economic-development coalitions and other investors," along with "mentorship, expertise and networking."
* **Alumni Network:** Active alumni network with seminars and prominent alumni.

**9. Best Practices and Unique Tie-ups**

* **National Innovation and Startup Policy:** Encourages "tech-driven startups" and supports "patent filing and IPR protection."
* **E-Waste Management for Sustainability:** Regular "E-Waste Collection Drives" and promotion of "eco-friendly electronics design" in coursework, collaborating with "certified recyclers."
* **Truechip Tie-Up:** A unique partnership that bridges the gap between academia and industry.
* **Co-Certified Curriculum:** Jointly designed syllabus covering "VLSI Design & Verification."
* **Hands-on Industry Training:** Practical exposure to "chip design workflows, HDL programming, and ASIC/FPGA verification."
* **Internship & Placement Support:** Opportunities for "internships and placements in the semiconductor industry through Truechip."
* **Expert-Led Sessions:** Learning directly from "industry professionals and Truechip faculty."
* **Industry-Aligned Projects:** Work on "real-world semiconductor design challenges."

This programme aims to develop well-rounded, industry-ready engineers who are not only proficient in core ECE concepts but also adaptable to emerging technologies and equipped with essential professional and soft skills.

**11.Briefing Document: Bachelor of Technology in Electronics and Communication Engineering (Specialisation in VLSI Design and Verification)**

**Programme Overview:**

This document provides a detailed overview of the Bachelor of Technology (B.Tech) in Electronics and Communication Engineering (ECE) with a specialisation in VLSI Design and Verification, offered in association with Truechip. The programme, with a rating of ⭐4.3 based on 18 reviews, is an undergraduate degree designed to equip students with the skills and knowledge required for the booming semiconductor sector.

**Key Themes and Important Information:**

**1. Strong Industry Collaboration with Truechip:**

A central theme of this programme is its deep integration with industry, specifically through a partnership with Truechip. This collaboration is highlighted repeatedly as a core strength and differentiator.

* **Co-designed, Co-delivered & Co-certified:** The curriculum is "Jointly developed curriculum with Truechip experts, ensuring cutting-edge industry relevance." This means the programme content is directly shaped by industry needs and standards. Graduates receive "Truechip certification upon successful completion."
* **Hands-on Training and Real-World Exposure:** The programme offers "hands-on training in digital design, HDL, and ASIC/FPGA verification" and promises students will "work on real-world projects, and master EDA tools." This practical focus is further reinforced by "Internships & Industry Mentorship" and the opportunity to "Work on real-world industrial SoC projects in the final semester."
* **Industry Expertise and Tools:** Students will "Learn directly from industry professionals and Truechip faculty on cutting-edge VLSI technologies" and gain access to "cutting-edge VLSI design and verification tools such as EDA playground."
* **Enhanced Employability:** The collaboration "bridges academia with industry, empowering students to excel in the booming semiconductor sector," making students "job-ready for the VLSI sector." Truechip also "co-certifies the program, boosting graduate employability."

**2. Focus on VLSI Design and Verification:**

The specialisation in VLSI Design and Verification is a core pillar of the programme, addressing a high-demand area within electronics.

* **Core Skills Developed:** The curriculum provides "In-depth knowledge of designing complex integrated circuits (ICs) and verifying them for performance, power, area, and functionality." Students will also learn "Digital and Analog Circuit Design" and the "Usage of Electronic Design Automation tools like Cadence, Synopsys, and Mentor Graphics."
* **Future-Ready Careers:** The programme aims to prepare students for "High-demand roles in ASIC/FPGA design, verification, and semiconductor R&D with a global scope." Potential career opportunities include "VLSI Design Engineer," "Verification Engineer," "Physical Design Engineer," and "FPGA Engineer."
* **Addressing Global Demand:** The programme is positioned to meet the "Global Demand: With a CAGR of 7.6%, the semiconductor market is projected to exceed $1 trillion by 2033." It also acknowledges "Emerging Sectors: Growth in AI, IoT, 5G, electric vehicles (EVs), and renewable energy systems is creating massive demand for specialized semiconductors."

**3. Comprehensive Internship and Placement Opportunities:**

The programme places significant emphasis on providing students with practical work experience and strong placement support.

* **Guaranteed Opportunities:** The university facilitates "Internship and placement opportunities for eligible students," with a specific mention of "Internship and placement opportunities facilitated for all students at Truechip."
* **International Exposure:** Students have the chance for "International internships in Fab labs" and to "Gain global perspectives through international summer internships, immersion programs, cultural exchanges, and research activities at our partner universities around the world."
* **Early Career Assurance:** The programme "Offers a Letter of Intent at admission with a package up to 6.5 LPA."
* **Prominent Recruiters:** Top recruiters listed include "Mentor Graphics, Cadence, Truechip, Samsung, Tech Mahindra, IBM, Dell, Wipro, Genpact, HCL, Jubilant, NXP, CEERI Pilani, NITTTR Bhopal."

**4. Holistic Student Development and Support:**

Beyond academics, the university offers various facilities and initiatives to support student well-being and overall development.

* **Residential Facilities:** Both on-campus and off-campus hostel accommodation are available with various room categories (AC/Non-AC, single/double/triple/five-seater) and include "Medical facilities, medical insurance, library facilities and laundry facilities."
* **Sports and Co-curricular Activities:** The campus boasts "World-class sports facilities" including a "25m Shooting Range and 10m air-conditioned Indoor Shooting Range operated on SIUS Ascor electronic targets of Olympics standards." There is a "Strong emphasis is on experiential, participative, and problem-based learning methodologies."
* **Cultural Societies:** A wide range of cultural societies such as "Khalbali - The Dramatics Society," "Moksh - The Music Society," "Rudra - The Dance Society," and "Noora - The Fashion Society," promote diverse interests and talents.
* **Innovation and Entrepreneurship:** The "Manav Rachna Business Incubator is an initiative towards nurturing the innovative instinct of the students, alumni and faculty of MREI," providing support for "tech-driven startups" including "design, fabrication, manufacturing facilities" and access to "capital from angel investors."
* **Alumni Network:** The university leverages its "Alumni Network" through "Alumni Seminars" and showcases "Prominent Alumni." Testimonials from alumni like Raghav Rastogi (Senior Member Technical Staff at Siemens EDA) and Dhruv Sharma (Application Engineer I at Cadence Design Systems) highlight successful career paths in the VLSI domain.

**5. Admission and Fee Details:**

* **Eligibility:** Pass in 10+2 examination with at least 55% marks in aggregate in 5 subjects, with specific subject requirements in English, Physics, Mathematics, and one additional subject from a specified list.
* **Admission Criteria:** Merit-based selection determined by scores in "JEE Mains/ SAT / Pearson / MRNAT/XII Qualifying Examination."
* **Scholarships:** Scholarships "up to 100%" are available based on MRNAT, JEE Scores, and 12th marks.
* **Course Fee:** The annual course fee is "INR 2,44,000/ US 2852 $."
* **Payment Options:** Multiple payment modes are accepted, including online payment, bank transfer, Demand Draft, cash payment (subject to limits), and "Education Loan: Through tie-ups with banks like PNB, SBI, HDFC, and ICICI."

**Programme Outcomes:**

The programme aims to produce engineers who can:

* **PSO1:** "Apply the principles of Electronics and Communication Engineering, including VLSI, AI, and IoT, in designing and developing integrated solutions that solve real-world problems and meet industry standards."
* **PSO2:** "Develop the ability to bridge the gap between academia and industry by involving in innovative research and problem-solving activities using the latest technologies in Electronics and Communication Engineering."
* **PO1-11:** General engineering outcomes covering knowledge, problem analysis, design, investigations, tool usage, societal impact, ethics, teamwork, communication, project management, and lifelong learning.

In summary, the B.Tech ECE with a specialisation in VLSI Design and Verification is a highly industry-aligned programme, strongly focused on practical skills and career readiness in the semiconductor sector, supported by comprehensive academic and extracurricular facilities.

**12.Detailed Briefing: B.Tech ECE (Hons.) (Lateral Entry) - VLSI Design and Verification in association with TrueChip**

This briefing provides a comprehensive overview of the B.Tech ECE (Hons.) (Lateral Entry) - VLSI Design and Verification programme, highlighting its key features, curriculum, career prospects, and unique industry collaboration with TrueChip.

1. Programme Overview & Structure

The B.Tech ECE (Hons.) (Lateral Entry) - VLSI Design and Verification in association with TrueChip is an undergraduate course offered by the Department of Electronics and Communication Engineering. It is a 3-year (6 Semesters) programme designed to provide "hands-on training in digital design, HDL, and ASIC/FPGA verification." The annual course fee is INR 2,31,000 / US $2724.

**Key Highlights:**

* **Duration:** 3 Years (6 Semesters)
* **Course Fee:** INR 2,31,000/ US $2724 per annum
* **Target Audience:** Lateral entry students, implying a focus on those with prior technical qualifications (e.g., Diploma in Engineering or B.Sc. with Mathematics).
* **Overall Goal:** To "build the future of chip design and verification" by equipping students with skills in this booming sector.

2. Collaboration with TrueChip: A Core Differentiator

The programme's association with TrueChip is a central theme, offering significant advantages to students. This collaboration is highlighted as bridging "academia with industry, empowering students to excel in the booming semiconductor sector."

**Unique Features of TrueChip Tie-Up:**

* **Co-Certified Curriculum:** The syllabus is "Jointly designed... covering VLSI Design & Verification, ensuring industry relevance."
* **Hands-on Industry Training:** Students gain "Practical exposure to chip design workflows, HDL programming, and ASIC/FPGA verification."
* **Internship & Placement Support:** TrueChip facilitates "opportunities for internships and placements in the semiconductor industry."
* **Expert-Led Sessions:** Students learn directly from "industry professionals and Truechip faculty" on cutting-edge VLSI technologies.
* **Industry-Aligned Projects:** Students "work on real-world semiconductor design challenges."
* **Letter of Intent:** Offers a "Letter of Intent at admission with a package up to 6.5 LPA."

3. Key Educational Benefits & USPs

The programme emphasises practical, industry-aligned learning to prepare students for high-demand roles.

* **Industry-Aligned Learning:** Focuses on "VLSI design & verification, digital design methodologies, and HDL programming (Verilog, VHDL)."
* **Hands-on Verification Expertise:** Provides training in "functional correctness, pre/post-silicon validation, and industry-grade simulation tools."
* **Future-Ready Careers:** Aims for "High-demand roles in ASIC/FPGA design, verification, and semiconductor R&D with a global scope."
* **Cutting-edge Tools:** Provides "cutting-edge VLSI design and verification tools such as EDA playground."
* **Global Exposure:** Offers "International internships in Fab labs" and opportunities to "Gain global perspectives through international summer internships, immersion programs, cultural exchanges, and research activities at our partner universities around the world."

4. Admission Requirements & Process

**Eligibility:**

* 50% marks in a 3-year Diploma in Engineering (any discipline) from State Board of Technical Education, Haryana or equivalent.
* OR B.Sc. Degree from a recognised University (UGC defined) with at least 50% marks and XII standard with Mathematics as a subject.

**Admission Criteria:**

* "Merit preparation/ short listing of candidates shall be on the basis of score in Diploma."
* Nationality: Indian/NRI/PIO/Foreign.

**Application Process:**

1. Visit the Official Website (www.manavrachna.edu.in) and navigate to the Admissions section.
2. Fill Out the Online Application Form.
3. Upload Required Documents (Class 10 & 12 mark sheets, Aadhaar card, passport-size photographs).
4. Pay the Application Fee online.

5. Curriculum Structure & Core Subjects

The 3-year programme covers a wide array of subjects, with a strong emphasis on VLSI design and verification from Semester 4 onwards.

**Key Subject Areas (Examples):**

* **Semester 3:** Network Theory, Analog Electronics, Signals and Systems, Digital Electronics, Programming Fundamentals Using Linux.
* **Semester 4:** VLSI Design, Digital Hardware Modelling using VHDL, Microprocessor and Interfacing, Electromaganetic Field and Waves, Analog & Digital Communication. Optional foreign languages (Spanish/German/French) and Python programming are also offered.
* **Semester 5:** Hardware Verification using System Verilog, CMOS VLSI Design, Microcontrollers & Interfacing, Information Theory and Coding. Electives include Wireless Sensor Networks, OOPS Using Java, Internet of Things, Prototyping IoT Based Healthcare Systems, Artificial Intelligence, Basics of Economics/Finance, and Digital System Design.
* **Semester 6:** Introduction to Neural Networks, Digital Signal and Image Processing, Control Systems, PLC Programming and Applications. Electives include Wavelets and Multirate Systems, Health Care Systems, Biomedical Signal Processing, Cyber Law, and Laws Relating to Intellectual Property Rights.
* **Semester 7:** Wireless and Mobile Communication, Data Communication, Embedded System Design, VLSI Testing, Microwave and Radar Engineering, MEMS. Electives include Digital Image Processing and Computer Vision, Mechatronics, Theory of Automata and Compiler Design, Big Data, ASIC Design and FPGA, RF System Design, Speech Processing and Recognition, Random Processes for Wireless Communication, Nanotechnology, Blockchain Development, Cloud Computing, Basics of Entrepreneurship, and Hardware Verification using UVM.
* **Semester 8:** Dedicated to "PROJECT PHASE-II/INDUSTRIAL TRAINING."

**Curriculum Highlights:**

* Core electives are categorised into **Communication Systems, VLSI & Embedded Systems, Computers Applications, and Medical Electronics.**
* The programme aims to make students "versed with all the latest technologies used in the design and development of all new electronics and computer products."

6. Internship & Placement Opportunities

The programme places a strong emphasis on industry exposure, internships, and placements, facilitating opportunities for all eligible students.

* **Mandatory Industry Internships:** Students must complete "6-month or year-long internships in companies like Truechip, Cadence, L&T, or Intel."
* **Live Industry Projects:** Provides "Hands-on experience in chip design, embedded systems, 5G, and AI applications in ECE."
* **Sponsored Research Work:** Collaboration with "industry-sponsored projects to work on cutting-edge research."
* **Placement Support:** Stated as "70%."
* **Top Recruiters & Internships:** Include "Mentor Graphics, Cadence, Truechip, Samsung, Tech Mahindra, IBM, Dell, Wipro, Genpact, HCL, NXP, CEERI Pilani, NITTTR Bhopal."

7. Career Pathways & Prospects

The programme develops core skills crucial for the booming semiconductor sector, leading to high-demand roles.

**Core Skills Developed:**

* "VLSI Design and Verification: In-depth knowledge of designing complex integrated circuits (ICs) and verifying them for performance, power, area, and functionality."
* "Digital and Analog Circuit Design."
* "EDA Tools: Usage of Electronic Design Automation tools like Cadence, Synopsys, and Mentor Graphics."
* "Testing and Verification: Skills in testing and debugging VLSI chips."

**Potential Career Opportunities:**

* VLSI Design Engineer
* Verification Engineer
* Physical Design Engineer
* FPGA Engineer

**Possible Employers:**

* "Companies like Intel, Qualcomm, AMD, Broadcom, True Chip, Cadence, Synopsys, and others involved in semiconductor and EDA tools development."

**Why Pursue this Programme (Market Demand):**

* **Global Demand:** "The semiconductor market is projected to exceed $1 trillion by 2033."
* **Emerging Sectors:** "Growth in AI, IoT, 5G, electric vehicles (EVs), and renewable energy systems is creating massive demand for specialized semiconductors."
* **Domestic Push:** India's initiatives like Make in India and the Semicon India Program are "fostering local production, increasing job creation."
* **Job Creation Target:** "India has set an ambitious target to achieve $500 billion in electronics manufacturing, which will create 6 million jobs by 2030."

8. Student Life & Facilities

The university offers a supportive environment with various facilities and activities.

* **Residential Services:** On-campus and off-campus hostel accommodation with various room categories (AC/Non-AC, single/double/triple/five-seater) and attached/common bathrooms. Includes medical facilities, medical insurance, library, and laundry.
* **Mess Plan:** Included in Hostel Fees.
* **Sports:** World-class facilities for outdoor and indoor games, including a 25m Shooting Range, indoor badminton and table tennis stadia, a Sports Fitness Centre, Soccer Academy, and a Semi Olympic-sized swimming pool.
* **Transport:** "Well-organized transport facility... for students traveling from Delhi and Gurugram" with GPS-enabled buses.
* **Co-curricular Activities:** Students are members of the technical club ISTE, with a strong emphasis on "experiential, participative, and problem-based learning methodologies."
* **Cultural Societies:** A wide range of societies including Dramatics (Khalbali), Music (Moksh), Dance (Rudra), Fashion (Noora), Media (Drishti), Literary (Rehnuma), Personality Development (Karisma, TechSoul), Art (Felicia), and Gaming (GAMENIX).
* **Innovation & Startups:** Manav Rachna Business Incubator supports "tech-driven startups" and provides "design, fabrication, manufacturing facilities" and "a good path to capital from angel investors."
* **Alumni Network:** Active alumni engagement through seminars and testimonials.

9. Program Specific Outcomes (PSOs) & Program Outcomes (POs)

The programme aims to develop well-rounded engineers capable of addressing real-world challenges.

**Program Specific Outcomes (Revised PSO):**

* **PSO1:** "Apply the principles of Electronics and Communication Engineering, including VLSI, AI, and IoT, in designing and developing integrated solutions that solve real-world problems and meet industry standards."
* **PSO2:** "Develop the ability to bridge the gap between academia and industry by involving in innovative research and problem-solving activities using the latest technologies in Electronics and Communication Engineering."

**Program Outcomes (PO):**

The POs cover a broad spectrum of engineering competencies, including engineering knowledge, problem analysis, design and development, investigation, tool usage, societal impact, ethics, teamwork, communication, project management, and life-long learning.

10. Student Testimonials

Testimonials from alumni highlight the quality of education, faculty support, and career opportunities provided by the university, particularly in core electronics and semiconductor firms.

* **Poorav Panchal (Software Developer, SNUG Technologies):** Emphasises the "transformative power of education" and values instilled.
* **Raghav Rastogi (Senior Member Technical Staff at Siemens EDA):** Credits the university and faculty for providing "required knowledge" to work at Truechip Solutions Pvt Ltd.
* **Dhruv Sharma (Application Engineer I at Cadence Design Systems):** Highlights the "appropriate platform to enhance my skills" and departmental support for placement in a core Electronics firm.
* **Anioushka Lomas (Wg. Commander, Indian Air Force):** Expresses gratitude for motivating and supportive faculty.
* **Ms. Priyanka Mangla (Scientist ‘SC’, Space Application Centre, ISRO):** Mentions "great values" imparted by faculty and helpful tutorial sessions.

**13.Briefing Document: B.Tech in Electronics & Communication Engineering with Chip Design Specialization (in partnership with L&T EduTech)**

This briefing document summarises the key themes, ideas, and facts presented in the provided source regarding the B.Tech in Electronics & Communication Engineering with Chip Design Specialization, offered in association with Larsen & Toubro (L&T EduTech).

**1. Programme Overview & Industry Relevance**

The core theme of this programme is its **strong industry-driven approach and direct relevance to the booming semiconductor sector.** It is designed to bridge the gap between academic knowledge and industry demands, particularly in the rapidly expanding fields of chip design and VLSI (Very Large Scale Integration).

* **Industry Partnership:** The programme is "Co-designed, Co-delivered & Co- certified with Larsen & Toubro Limited experts," a global leader in engineering and manufacturing. This collaboration ensures an "industry-driven pathway to semiconductor excellence."
* **Focus on End-to-End Chip Design:** The curriculum "primarily focuses on the end-to-end design of semiconductor chips, from concept to silicon. It covers aspects such as microarchitecture, circuit design, layout, and theory of fabrication, emphasizing custom chip design for specific applications."
* **High Demand Sector:** The programme explicitly highlights the "Global Demand" for semiconductors, with the market "projected to exceed $1 trillion by 2033." It also notes the "Emerging Sectors" like "AI, IoT, 5G, electric vehicles (EVs), and renewable energy systems" creating "massive demand for specialized semiconductors."
* **National Initiatives:** India's "Domestic Push" through initiatives like "Make in India and the Semicon India Program are fostering local production, increasing job creation." The document quotes NITI Aayog's target of "$500 billion in electronics manufacturing, which will create 6 million jobs by 2030."

**2. Unique Selling Propositions (USPs) and Practical Exposure**

A significant emphasis is placed on the practical, hands-on learning experience and the unique benefits derived from the L&T EduTech partnership.

* **Hands-on Training and Real-World Projects:** Students gain "hands-on training in chip design methodologies, featuring L&T-developed coursework, access to professional EDA tools, and real-world tapeout projects." They will "work on real-world industrial SoC projects in the final semester" and "real-world chip design challenges, enhancing problem-solving and innovation skills."
* **Industry-Recognised Credentials:** The programme offers the opportunity to "Earn industry-recognized credentials from a global leader."
* **Direct Industry Interaction:** Students benefit from "masterclasses by L&T engineers," "Regular guest lectures, webinars, and mentorship from L&T professionals and semiconductor industry leaders." There are also "On-site visits to L&T projects during 4th and 6th semesters."
* **Advanced Technical Skills:** Training includes "advanced technical skills like RTL design, physical design, and SoC principles." The curriculum provides "specialized training in VLSI, ASIC, FPGA, and SoC design, making students industry-ready for careers in semiconductor design and fabrication."
* **Cutting-Edge Technology:** The programme includes "AI-driven chip design, IoT applications, and semiconductor manufacturing insights," and leverages a "Certified Digital campus on Google Cloud in Elite Tier with advanced digital tools and generative AI capabilities modernizing teaching and learning in classroom."
* **Dedicated Labs:** Students have "Access to specialized Chip Design & Embedded Systems Labs for hands-on experience with the latest technology."

**3. Career Prospects & Placement Opportunities**

The programme clearly outlines a strong career pathway for graduates, with significant emphasis on placement assistance and collaboration with leading companies.

* **Core Skills Developed:** Graduates will develop "end-to-end IC design skills - from RTL to GDSII," including "Chip Design," "Low-level Circuitry," "System Design," and "Design for Testability (DFT)."
* **Potential Career Opportunities:** Roles highlighted include "Chip Design Engineer," "ASIC Design Engineer," "Embedded Systems Engineer," and "System-on-Chip (SoC) Design Engineer."
* **Key Employers:** "Companies like Intel, TSMC, Samsung, L&T Technology Services, NXP Semiconductors, ARM, and other organizations focusing on semiconductor manufacturing and system design" are identified as potential employers.
* **Strong Placement Assistance:** The programme offers "Internship and placement opportunities facilitated for eligible students," with "strong placement assistance with opportunities for internships and projects at L&T and other top semiconductor companies."
* **Top Recruiters & Placement Data:** A list of "Top Recruiters" and "Internship & Placement Opportunities" includes prominent names such as "Mentor Graphics, Cadence, Truechip, Samsung, Tech Mahindra, IBM, Dell, Wipro, Genpact, HCL, Jubilant, L&T, CEERI." Student testimonials reinforce successful placements, with alumni working at "Truechip Solutions Pvt Ltd," "Siemens EDA," "Cadence Design Systems," and "Space Application Centre, ISRO."
* **Global Exposure:** "International internships in semiconductor fabrication labs" and "global perspectives through international summer internships, immersion programs, cultural exchanges, and research activities at partner universities worldwide" are also offered.

**4. Academic Structure & Eligibility**

The document provides clear details regarding the academic framework and admission requirements.

* **Duration:** The programme is a "4 Years (8 Semesters)" undergraduate course.
* **Eligibility:** Candidates must have a "Pass in 10+2 examination with at least 55% marks in aggregate in 5 subjects," with specific subject requirements including English, Physics, and Mathematics, plus one subject from a list of technology/science disciplines.
* **Admission Criteria:** Selection is based on "Merit preparation / short listing of candidates... on the basis of score in JEE Mains/ SAT / Pearson / MRNAT/XII Qualifying Examination."
* **Scholarships:** Scholarships "up to 100%" are available "Based on MRNAT, JEE Scores and 12th marks."
* **Curriculum Highlights:** Core electives are categorised into "Communication Systems," "VLSI & Embedded systems," "Computers Applications," and "Medical electronics." The curriculum also covers emerging areas like "Internet of Things, Robotics, Mechatronics, Embedded System, Digital Image Processing, Electromagnetics, Remote Sensing, and Microwaves, Optics and Photonics, Nanotechnology and Electronic Materials, Sustainable Energy and Power Systems, Telecom Sector, VLSI Design."

**5. Facilities and Campus Life**

Beyond academics, the university offers comprehensive support services and a vibrant campus environment.

* **Residential Facilities:** Both "on-campus and off-campus hostel accommodation for boys and girls" are available, with various room categories and amenities including medical facilities, insurance, library, and laundry.
* **Sports Facilities:** World-class sports facilities for "outdoor and indoor games" are provided, including a "25m Shooting Range and 10m air-conditioned Indoor Shooting Range operated on SIUS Ascor electronic targets of Olympics standards."
* **Transportation:** A "well-organized transport facility ensures a safe, reliable, and hassle-free commute for students traveling from Delhi and Gurugram."
* **Innovation & Startups:** The "Manav Rachna Business Incubator" nurtures "innovative instinct of the students, alumni and faculty," providing "design, fabrication, manufacturing facilities" and access to "capital from angel investors, state governments, economic-development coalitions and other investors." The university boasts "50+ global partnerships" and "90+ Corporate Tie-Ups" to foster innovation and entrepreneurship.
* **Cultural & Co-curricular Activities:** A wide array of "Cultural Societies" such as "Khalbali - The Dramatics Society," "Moksh - The Music Society," "Rudra - The Dance Society," and "GAMENIX - The Gaming Society" foster holistic development. "Strong emphasis is on experiential, participative and problem-based learning methodologies."

**Conclusion**

The B.Tech in Electronics & Communication Engineering with Chip Design Specialization, in partnership with L&T EduTech, positions itself as a **premier, industry-aligned programme** designed to equip students with the skills and knowledge required for high-demand roles in the global semiconductor and VLSI industries. Its key strengths lie in the strong collaboration with L&T, the focus on practical, end-to-end chip design, extensive industry exposure, and robust placement support, all within a supportive and well-equipped academic environment.

**14.Briefing Document: BBA LLB (Hons) Programme Overview**

This document provides a detailed overview of the BBA LLB (Hons) programme, highlighting its key features, curriculum, career prospects, and unique selling propositions.

1. Programme Overview

The BBA LLB (Hons) is a highly-rated (⭐4.3 with 18 reviews) five-year (10 semesters) undergraduate integrated programme offered by the Department of Law. It combines legal studies with business administration, aiming to provide students with a "unique blend of legal and management skills" to navigate complex legal and business challenges. The annual course fee is INR 2,26,000 (US $ 4,000).

**1.1. Core Focus:** The programme "equips the students with a comprehensive understanding of both disciplines, enabling them to navigate complex legal and business challenges." It covers a "wide range of subjects like contract law, competition law, corporate law, environment law, taxation and human resource management etc."

**1.2. Specialisations:** Students can specialise in:

* **Corporate Law**
* **Business Law**
* **Intellectual Property Right Law**

**1.3. Pedagogical Approach:** The course employs diverse teaching methods, including "classroom teaching, case studies, and moot courts," with a strong emphasis on "Experiential Learning, ‘Learning by Doing’" and "Clinical Legal Education."

2. Key Educational Benefits and Unique Selling Propositions (USPs)

The programme offers several significant advantages:

* **Professional Degree:** It is a "Professional Degree" approved by the Bar Council of India (BCI) and University Grants Commission (UGC).
* **Strong Foundation for a Lucrative Career:** It provides a solid base for multiple career options and comprehensive knowledge of law and rights.
* **Skill Development:** Students "Master Critical Thinking and Reasoning Abilities."
* **Prestige and Respect:** Earning this degree is associated with prestige and respect.
* **Expert Faculty and Advisory Council:** The programme boasts "Faculty from top-notch institutions such as NLUs, JNU and others." An "Advisory Council headed by Hon’ble Former Chief Justice Uday Umesh Lalit, the Supreme Court of India, with former High Court Judges, Senior Advocates and Bureaucrats as members."
* **Centres of Excellence and Research Groups:** Various centres like the "Centre for ADR, Centre for Public policy, Center for Law and Technology etc." facilitate specialised learning and research.
* **Industry Linkages:** "Strong linkages with industry, corporates, law firms, Senior Advocates of the various High Courts and the Supreme Court of India, and regulatory bodies which helps to facilitate internships and placements."
* **Holistic Development:** There is a "Strong emphasis on professional training and holistic personality development."
* **State-of-art infrastructure** and "Inter-disciplinary approach" are also highlighted.
* **Student Participation:** Encouragement for "International and National Moot Court Competitions, Client Counselling and Mediation Competitions, Judgment Writing, International and National Conferences and Seminars etc."

3. Admissions Requirements

* **Eligibility:** Pass in 10+2 examination with at least 50% or more marks in aggregate in 5 subjects, with English as a qualified subject.
* **Admission Criteria/Selection:** Merit preparation based on scores in "SAT/ CLAT/ MRNAT 2024 / Pearson/ 10+2 Qualifying Examination."
* **Nationality:** Indian/NRI/PIO/Foreign candidates are eligible.
* **Scholarships:** Up to 100% scholarships are available based on MRNAT, CLAT Scores, and 12th marks.

4. Curriculum Structure (5-Year Programme)

The curriculum is comprehensive, covering a broad spectrum of legal and business subjects. Key themes observed across semesters include:

* **Foundational Law:** Law of Torts, Law of Contract, Constitutional Law, Family Law, Law of Crimes, Property Law, Civil Procedure Code, Evidence Law.
* **Business & Management:** Principles of Management, Human Resource Management, Marketing Management, Financial Management, Organizational Behaviour.
* **Specialised & Emerging Legal Areas:** Environmental Law, Intellectual Property Rights Law, Taxation, Cyber Law, Private International Law, Labour Laws, Competition Law, Insolvency and Bankruptcy Law, Information Technology and Telecommunications Law, Banking and Insurance Law, Gender Justice, International Humanitarian and Refugee Law, International Investment Law, International Criminal Law.
* **Skills Development:** Legal English, Professional Communication Law, Drafting, Pleading and Conveyancing, Moot Court Exercise, Internship Vivas.
* **Interdisciplinary Studies:** Economics, Political Science (Public Administration), Foreign Languages (French, German, Spanish).
* **Clinical Legal Education:** Integrated throughout, with dedicated Internship Viva modules in semesters 3, 5, 7, and 9.

**Examples of Course Outcomes (COs):**

* **Law of Torts (LWH121B):** "CO1 Identify tortious wrongs, types and liability and differentiate tort from criminal, Contractual and equitable wrongs."
* **Law of Contract-I (LWH122B):** "CO2 Apply the general principles of contract to the commercial transactions."
* **Constitutional Law-I (LWH231B):** "CO4 To Represent the client in the Supreme Court and High Courts in the matters involving violation of fundamental rights."
* **Drafting, Pleading and Conveyancing (LWH453):** "To Draft basic documents relevant for civil and criminal proceedings."
* **Moot Court Exercise and Internship (LWS412):** "To Present oral submissions in front of judges and respond to their queries."

5. Career Pathways & Industry Exposure

Graduates are well-prepared for diverse roles in both legal and business sectors, possessing a "competitive edge in the job market, as they are well-prepared to handle legal matters with a business context."

**5.1. Career Options:**

* **Litigation:** Practising in District Courts, High Courts, and the Supreme Court of India.
* **Civil Services:** UPSC, Judicial Services.
* **Specialised Legal Roles:** Armed Forces (Judge Advocate General), Judicial Clerkship, Law firms, In-house counsels, Legal Editor, Legal Journalist, Legal Advisor for MNCs, Legal officers for Banks and Insurance Companies, LPOs, KPOs.
* **Business & Academia:** MBA, Company Secretary/Chartered Accountant, NGOs, Academia as industry experts.

**5.2. Internship & Placement Support:** There is "100% internship and placement assistance through dedicated Department of Training and Placements." Notable past recruiters include Amazon, Nokia, Infosys, Apple, Boeing, and various top law firms like Areness Law and SKV Law Offices.

6. Campus Facilities & Student Life

* **Residential Facilities:** Both on-campus and off-campus hostel accommodation are available for boys and girls, with various room categories (AC/Non-AC, single/double/triple/five-seater) and attached/common bathrooms. Hostel fees include medical facilities, medical insurance, library, and laundry.
* **Sports:** World-class facilities for various indoor and outdoor games, including a 25m Shooting Range, 10m air-conditioned Indoor Shooting Range, badminton and table tennis stadia, a Soccer Academy, and a Semi Olympic-sized swimming pool. A Sports Fitness Centre is also available.
* **Transport:** A "well-organized transport facility ensures a safe, reliable, and hassle-free commute for students traveling from Delhi and Gurugram," with GPS-enabled buses.
* **Cultural Societies:** A vibrant student life is supported by numerous cultural societies focusing on dramatics (Khalbali), music (Moksh), dance (Rudra), fashion (Noora), media (Drishti), literature (Rehnuma), personality development (Karisma, TechSoul), art (Felicia), and gaming (GAMENIX).
* **Innovation & Startups:** The "Manav Rachna Business Incubator" nurtures innovative instincts, providing "design, fabrication, manufacturing facilities" and access to "capital from angel investors, state governments, economic-development coalitions and other investors." Strong corporate tie-ups (90+) ensure "100% industry exposure."

7. Global Exposure & Research

The institution fosters "50+ global partnerships" and has "5 specialized centers" and "2 Centers of Excellence" for cutting-edge research in areas like AI, VLSI, Business Analytics, Materials Science, and Law & Tech. This commitment to research and innovation is aligned with national missions such as *Make in India* and *Aatmanirbhar Bharat*.

**15.Briefing Document: B.Tech in Computer Science & Engineering with specialization in Generative AI at Manav Rachna University**

This document provides a detailed overview of the B.Tech in Computer Science & Engineering (CSE) with a specialization in Generative Artificial Intelligence (AI) program offered by Manav Rachna University (MRU), in association with Google. It highlights key features, academic structure, career prospects, and unique benefits.

1. Programme Overview

The B.Tech (CSE) with Generative AI specialization is a four-year (8 semesters) undergraduate programme designed to integrate core computer science principles with advanced studies in AI, specifically focusing on generative models. The curriculum is described as "cutting-edge" and aims to prepare engineers for "technology, management, implementation and design of software and hardware information systems."

**Key areas of specialized knowledge include:**

* Generative Adversarial Networks (GANs)
* Large Language Models (LLMs)
* Diffusion models
* Other generative techniques

Students will gain skills in "industry-standard tools and frameworks such as: TensorFlow, PyTorch, Keras, OpenCV, Scikit-learn, and GAN libraries etc. on QwickLabs - Google Cloud Platform."

2. Unique Selling Propositions (USPs)

The programme boasts several distinguishing features that enhance its value and student readiness for the industry:

* **Accreditations:** NBA and NAAC 'A' accredited. The School of Engineering holds a "prestigious Platinum Badge in QS I-GAUGE Engineering."
* **Strong Industry Associations:** A significant highlight is the association with "giants like Google Cloud, MongoDB, and UI Path," which influences curriculum design, training, internships, and placements to ensure "industry-ready graduates."
* **State-of-the-Art Facilities:** Nine "fully equipped state-of-the-art laboratories" are available.
* **Curriculum & Training:** Adheres to the AICTE model curriculum with industry-oriented, choice-based courses. It emphasizes "skill-based training for enhancing employability skills" through MOUs and access to e-learning platforms like MOOC, NPTEL, Coursera, Infosys Springboard, LinkedIn Learning, UI Path, MongoDB, and Xebia.
* **Placement Support:** Dedicated "Career Development Cell(CDC) experts" provide student grooming for placement readiness, including "Super 40 batches for placement support."
* **Innovation & Research Focus:** Opportunities for "patents, copyrights, funded projects, consultancy, and student start-ups" are encouraged. Research-focused courses are introduced from the 3rd to 5th semester, emphasizing "originality, feasibility for start-ups, and documentation of outcomes (research paper, patent, product, start-up, copyright)."
* **Global Opportunities:** Provides opportunities for "higher studies and research in India and abroad."
* **Scholarships:** Provision of "up to 100% scholarship."
* **Learning Pedagogy:** Focuses on "Project-based and experiential learning" and "learning-by-doing."

3. Google Cloud Tie-up Unique Features

The association with Google Cloud is a core differentiator, offering exclusive benefits:

* **Dedicated Labs:** "ChromeOS & Gemini AI lab for hands on practice, research and learning."
* **Digital Campus:** Certified Digital Campus on Google Cloud (DCGC 2.0) with advanced digital tools and Generative AI capabilities.
* **Google Workspace:** Google Workspace for Education (Plus) providing enterprise-class platforms and applications.
* **Co-designed Curriculum:** "Co-designed and industry-ready curriculum with Google."
* **Certifications:** Free access to Google certification courses and badges, and subsidized prices for paid certifications (e.g., Google Cloud Gen AI Skill Badge Pathways, Associate Cloud Engineer (ACE) Program).
* **Google Cloud Skill Boost Platform:** Access to Google's Learning Management System.
* **Placement Fairs:** Access to "Placement Fairs by Google for students with various Google certifications."
* **Virtual Tutors:** Access to virtual tutors for personalized guidance.
* **Automated Content:** Automated content generation and summarization.
* **Hackathons:** Exclusive 12-hour hackathons for MRU students with expert jury members from Google.
* **Certified Faculty:** "Google Certified Faculty for Curriculum Delivery."

4. Admission Requirements & Criteria

* **Eligibility:** Pass in 10+2 examination with at least 60% marks in aggregate in 5 subjects. Eligibility is based on aggregate marks in English, Physics & Mathematics, one subject from Chemistry/Computer Science/Biology/Biotechnology, and one subject with the highest score from the remaining.
* **Admission Criteria:** Merit-based shortlisting through JEE Mains/SAT/Pearson/MRNAT/XII Qualifying Examination scores.
* **Scholarships:** MRNAT: Utkarsh and Uttam scholarships, along with JEE Scores, offer "up to 100% Scholarships."

5. Curriculum Structure & Specialized Courses

The 4-year program has a structured curriculum with core computer science subjects and specialized Generative AI courses introduced progressively.

**Key specialized courses include:**

* **Semester 2:** "Introduction to Generative AI and Ethics"
* **Semester 3:** "Advanced Python for AI"
* **Semester 4:** "Deep Learning"
* **Semester 5:** "LLM and Text Generation"
* **Semester 6:** "Computer Vision with GANs"
* **Semester 7:** "Prompt Engineering"

The curriculum emphasizes practical application with numerous lab components and project-based learning.

6. Career Pathways & Prospects

The programme prepares students for a wide range of roles in the "rapidly evolving field of cybersecurity" and the broader tech industry.

**Direct career roles specifically mentioned for Generative AI graduates include:**

* Generative AI Engineer
* Machine Learning Engineer
* AI Research Scientist
* Synthetic Data Specialist
* Creative AI Developer
* AI Solutions Architect

**Other potential career pathways include:**

* **IT Jobs:** Software Engineer, Frontend/Backend Developer, Mobile App Developer, Cybersecurity Analyst, Data Analyst, Cloud Engineer, DevOps Engineer, Database Administrator, Web Developer, UX/UI Designer, IT Consultant, Product Manager.
* **Startup & Entrepreneurship:** Encouraged through the MRU-Innovation & Incubation Centre, offering workshops, mentorship, funding assistance, and networking.
* **Research:** Opportunities for higher studies (M.Tech/MS in CS, MBA) and engaging in research activities with faculty-led clusters.
* **Certifications:** Graduates can pursue industry certifications (AWS, Google, Microsoft, CISSP, CEH, PMP).

**Expected Salary:** Freshers can expect "₹6-12 LPA in India (higher in top-tier companies)," with experienced professionals earning significantly more.

**Distinction from Traditional B.Tech CSE:** The programme "focuses on an emerging specialization with tremendous demand," opening up "creative and innovative applications in tech and non-tech industries" and positioning graduates at the "forefront of technological advancements."

7. Internship & Placement Opportunities

MRU emphasizes strong support for internships and placements:

* **Internship avenues:** Industrial visits, guest speakers/networking events, online portals, alumni networks, hackathons, and competitions.
* **Placement avenues:** On-campus recruitment, CRC Department for placements, and walk-in interviews.
* **Notable Internships (Current Academic Year):**Ashwani Soni, B.Tech, CSE: Summer Internship Google (₹1.23 Lakh/month)
* Kanika Sharma, B.Tech, CSE: Summer Internship JPMorgan Chase & Co. (₹75K)
* Manis Tyagi, B.Tech CSE: Summer Internship, UiPath (₹50K)
* **Placement Statistics (AY 23-24 for AIML specialization):**MAX: ₹34 LPA
* MIN: ₹4 LPA
* AVG: ₹10 LPA

8. Student Life & Support Services

* **Fee:** Annual fee is INR 3,14,000. Various payment modes are available, including education loans.
* **Residential Facilities:** On-campus and off-campus hostel accommodation with various room categories (AC/Non-AC, single/double/triple/five-seater). Includes medical facilities, insurance, library access, laundry, and mess plan.
* **Transport:** Well-organized GPS-enabled bus fleet for commutes from Delhi and Gurugram.
* **Sports:** World-class facilities for outdoor and indoor games, including a 25m Shooting Range, indoor badminton and table tennis stadia, a Soccer Academy, and a semi-Olympic sized swimming pool.
* **Extracurricular Activities:** Vibrant student life with cultural societies (Art, Literary, Music, Media, Drama, Fashion, Dance, CSR, Sports), technical clubs (Tech Soul, Gamenics), and active participation in IEEE, ISTE, and NPTEL.
* **Student Support Services:** Career Development Centre (CDC), Corporate Relations Centre (CRC), Alumni Network, Mentor-Mentee program, In-house Internships, Research Cluster of Computing (RCC), Institution's Innovation Council (IIC), Intellectual Property Rights (IPR Cell), Technical Clubs and Societies, National Innovation and Startup Policy (NISP).
* **Student Achievements:** Numerous awards in hackathons, coding challenges, research paper presentations, powerlifting, and NPTEL topper recognitions. Notable alumni include founders of successful ventures and those placed in high-paying international roles (e.g., Karan Aditya Ghoshal, KPMG Canada, ₹60 LPA; Sarthak Rastogi, Space and Time Labs, US, ₹55 LPA).

9. Program Outcomes (POs) & Program Specific Outcomes (PSOs)

The program is designed to equip students with a comprehensive set of skills:

* **PSOs:** Focus on designing and developing computer programs, acquaintance with emerging technologies (mobile app, AI, ML, web development, data analytics, cloud, networking, cybersecurity, gaming, animation), and delivering innovative solutions for career, entrepreneurship, and research.
* **POs:** Cover a broad range of engineering competencies including problem analysis, design/development of solutions, conducting investigations, engineering tool usage, societal and environmental impact analysis, ethics, teamwork, communication, project management, and life-long learning.

10. Research Opportunities

MRU fosters a strong research environment, offering:

* **Introduction to Research (ITR) Course:** In initial years to enhance research capabilities.
* **Research Groups/Clusters:** Students can connect with faculty-led research groups in areas like Data Analytics, Communication Networks, AI, Web Technologies, Data Mining, and Network Security.
* **Resources:** Access to National and International online journals (IEEE, Springer, DELNET, CSI) and e-library facilities.
* **Guidance:** Support for writing research papers and filing patents.

The B.Tech (CSE) with Generative AI specialization at Manav Rachna University presents a robust and forward-looking academic offering, distinguished by its industry collaborations, practical focus, and comprehensive student support.

**16.Briefing Document: BBA in Business Analytics Programme**

This briefing document provides a detailed overview of the Bachelor of Business Administration (BBA) with a specialisation in Business Analytics, as outlined in the provided source "Copy of Key pointers BBA business analytics".

1. Programme Overview and Core Philosophy

The BBA in Business Analytics is an undergraduate programme offered by the School of Management & Commerce. It is designed to equip graduates with skills for the "VUCA world" (Volatile, Uncertain, Complex, Ambiguous), emphasising "creativity, communication, collaboration, critical analysis, and commitment." The programme acknowledges the demands of "Industry 4.0," which "requires the students to be data literate and experts in tools like R, Python, Sas, Tableau, etc."

A significant aspect of this programme is its association with **The Institute of Analytics (IoA)**, a professional body dedicated to promoting "greater awareness, understanding, and innovation in analytics." This collaboration aims to prepare students with "necessary skills and knowledge in the area of data analysis so that they can meet the challenges of a changing business environment."

The programme focuses on **data-driven decision-making** and the application of "analytic tools and techniques to solve business analytic problems." It integrates core business courses with specialised analytics subjects.

2. Key Educational Benefits and Unique Selling Propositions (USPs)

The programme stands out due to several key benefits:

* **Practical Exposure:** The design and delivery include "practical exposure through real life cases and examples."
* **Specialisation Options:** Students have the "option to specialize in Supply Chain Management/ Project Management/ Logistics Management in semester’s V and VI."
* **Holistic Skill Development:** The curriculum includes "Business Communication, Personality development, IT subjects, foreign language and soft skills required to succeed in the competitive world."
* **Industry Integration:**"Industry visits and internship opportunities" are provided.
* Training on "Operations Management software tools" is included.
* The curriculum features "8- 10 months of internship during their II, IV and VI semesters with firms specializing in logistics and supply chain."
* "Mentoring by Industry experts in semester’s V and VI" is a notable feature.
* "Industry aligned Programs" are designed "as per the NABH standards and guidelines and in association with experts from hospitals, like Asian Institute of Medical Sciences, Sarvodaya Hospital, Paras hospitals etc." (While this specific example refers to healthcare, it implies a broader commitment to industry alignment).
* **Global and Online Learning Opportunities:**"Student exchange programmes and study tours at the Institution, College and Department levels" are available.
* Opportunities for "International Internships and participation in conferences and projects" are offered.
* Students can access "Online courses from NPTEL/Coursera/SWAYAM."

3. Curriculum and Core Subjects

The programme is a 3-year (6 semesters) course. The curriculum is specifically highlighted for its association with The Institute of Analytics (IoA). Key specialised courses embedded within the programme include:

* Business Analytics
* Spreadsheet Modeling
* Marketing & HR Analytics
* Supply-Chain Analytics
* Data Visualization
* R programming
* Business Intelligence & Data Mining

4. Admission Requirements and Process

* **Eligibility:** Candidates must have "Passed in 10+2 examination with at least 50% marks in aggregate in 5 subjects. Should have qualified English as a subject."
* **Nationality:** Indian/NRI/PIO/Foreign students are eligible.
* **Admission Criteria/Selection Criteria:** Merit preparation/shortlisting is based on scores in "SAT/ MRNAT," "Marks in Qualifying Examination," and "Pearson Test Score."

1. **Application Process:**Visit the official website (www.manavrachna.edu.in) and navigate to the Admissions section.
2. Fill out the online application form with personal, academic, and contact details.
3. Upload scanned copies of essential documents (Class 10 & 12 mark sheets, Aadhaar card, passport-size photographs).
4. Pay the application fee online.
5. "Appear for MRNAT (Manav Rachna National Aptitude Test) or Submit JEE Score" for merit-based admission.

5. Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

The programme aims to develop a wide range of competencies for "professional and personal success."

**Key Programme Highlights/Specific Outcomes:**

* **Intellectual & Behavioural Competencies:** Develops critical thinking, analytical, and problem-solving skills.
* **Communication Skills:** Students will learn to "communicate professionally and effectively."
* **Core Business Knowledge:** Students will "develop functional business knowledge."
* **Global Perspective:** Fosters "global awareness and appreciation for diverse perspectives."
* **Ethical Behaviour & Social Responsibility:** Teaches students to "recognize and analyze ethical problems, and take appropriate decisions."
* **Teamwork & Leadership:** Develops "effective teamwork and leadership skills."

**Broader Programme Outcomes (POs) include:**

* Domain Knowledge of Business Environment
* Integrity, Ethics & Professional Conduct
* Critical Thinking & Problem-Solving Ability
* Analytical & Decision-making Ability
* Research Aptitude & Inquiry
* Multicultural Competence & Global Outlook
* Leadership readiness & Behavioural Skills
* Effective Business Communication & Social Networking
* Social Networking Skills & Emotional Intelligence
* Creativity, Empathy & Community Engagement
* Environment & Sustainability (with emphasis on ESG)
* Information/Digital literacy

6. Career Pathways and Top Recruiters

While the "Career Pathway" section initially describes diverse law career options (which appears to be an error in the source document, likely copied from a law programme description), it then lists relevant career options for a BBA in Business Analytics:

* Financial Analyst, Financial planning & consultancy
* Financial Risk Manager
* Corporate Finance (M&A, IPO, Equity and Debt)
* Management & Cost Accountant
* Investment Analyst
* Auditor
* Sales & Marketing of Financial Services
* Relationship managers in Banking and NBFCs
* Portfolio Manager

**Top Recruiters** and **Internship & Placement Opportunities** are listed as: Cognizant, TCS, Accenture, Niti Ayog, HDFC, Wipro, GC Media Pvt Ltd, Kamdhenu Cement, Amrita Hospital, Sarvodaya, Intellipaat, Policy Bazaar, Hike Edu.

7. Fees and Financial Aid

* **Annual Course Fee:** INR 2,37,500 / US $3,500.
* **Scholarships:** Information available via a provided link: https://manavrachna.edu.in/mru/admissions/financial-aid-and-scholarships.
* **Modes of Payment:**Online Payment (net banking, debit/credit card, UPI)
* Bank Transfer (NEFT/RTGS)
* Demand Draft (DD)
* Cash Payment (at Accounts Office)
* Education Loan (through tie-ups with banks like PNB, SBI, HDFC, and ICICI).

8. Campus Facilities and Student Life

* **Residential Facilities:** Both on-campus and off-campus hostel accommodation for boys and girls are available, with various room categories (AC/Non-AC, single/two/three/five-seater) and attached/common bathrooms. Hostel fees include medical facilities, medical insurance, library access, and laundry.
* **Mess Plan:** Included in the Hostel Fees.
* **Sports:** World-class facilities for outdoor and indoor games (basketball, volleyball, cricket, shooting, table tennis, squash, billiards, soccer, chess, carom). Highlights include a 25m/10m Shooting Range, indoor badminton and table tennis stadia, a Sports Fitness Centre, Soccer Academy, and a Semi Olympic-sized swimming pool.
* **Transport:** "Well-organized transport facility ensures a safe, reliable, and hassle-free commute for students traveling from Delhi and Gurugram" with GPS-enabled buses.
* **Extra-Curricular Activities:** Strong emphasis on "experiential, participative and problem-based learning methodologies." Numerous cultural societies exist:
* Khalbali - The Dramatics Society
* Moksh - The Music Society
* Rudra - The Dance Society
* Noora - The Fashion Society
* Drishti - The Media Society
* Rehnuma - The Literary Society
* Karisma - The Personality Development Society (Also listed as TechSoul)
* Felicia - The Art Society
* GAMENIX - The Gaming Society
* **Innovation & Startups:** Manav Rachna Business Incubator nurtures innovation, research, and entrepreneurship. It provides "design, fabrication, manufacturing facilities," "good path to capital from angel investors," "mentorship, expertise and networking." The university boasts "50+ global partnerships" and "90+ Corporate Tie-Ups" ensuring "100% industry exposure."
* **Best Practices:** Includes a "National Innovation and Startup Policy" encouraging "tech-driven startups," "academic flexibility for student entrepreneurs," and "patent filing and IPR protection." Also, "E-Waste Management for Sustainability" through collection drives and promotion of eco-friendly design.
* **L&T Tie-Up (Unique Feature):** While primarily mentioned under ECE, its inclusion here suggests a broader institutional commitment to industry collaboration. It involves "Jointly designed syllabus covering VLSI, ASIC, FPGA, and SoC Design," "Hands-on Industry Training," "Internship & Placement Support," and learning "directly from L&T professionals."

**17.Detailed Briefing: AI-Led BBA in Healthcare Management**

This briefing document provides a detailed overview of the "AI-led BBA Health care Management" programme, highlighting its key features, educational benefits, career prospects, and institutional support.

1. Programme Overview and Philosophy

The AI-led BBA in Healthcare Management is an undergraduate programme offered by the School of Management & Commerce. It is designed to prepare graduates for the "VUCA world" (Volatility, Uncertainty, Complexity, Ambiguity) by equipping them with critical 21st-century skills such as creativity, communication, collaboration, critical analysis, and commitment. The programme specifically addresses the demands of "Industry 4.0", emphasising data literacy and proficiency in tools like R, Python, SAS, and Tableau.

The core philosophy is to blend traditional business education with advanced technological applications in healthcare. As the source states, "An AI-led Bachelor of Business Administration (BBA) in Healthcare Management integrates artificial intelligence into the curriculum, equipping students with the skills to navigate the evolving healthcare landscape." This interdisciplinary approach aims to produce graduates "proficient in both the managerial aspects of healthcare and the technological innovations driving the industry forward."

**Key Programme Details:**

* **Course Name:** AI-led BBA Health care Management
* **Course Level:** Undergraduate
* **Duration:** 4 Years (8 Semesters) with exit options.
* **Course Fee:** Same as per norms (details linked to admissions/financial aid page).
* **Specialisation:** AI-led BBA In Healthcare Management.

2. Key Educational Benefits and Curriculum Highlights

The programme's unique selling propositions (USPs) centre around its integration of AI into healthcare management, experiential learning, and industry relevance.

**Key Educational Benefits (as highlighted in source):**

* **Modern Curriculum:** "Latest curriculum specifically designed to cater not only current but also future industrial requirements." This includes courses such as "introduction to Artificial Intelligence, Data Data Analytics for healthcare (health Informetics) A1 powered Hospital Management, A1 in patient Care, Block Chain in health Care, AI In Medical imaging."
* **Comprehensive Management and Healthcare Courses:** Alongside AI, the curriculum covers essential management principles (e.g., Marketing Management, HRM, Financial Management, Strategic Management) and specialised healthcare topics (e.g., Hospital Hazards and waste management, Clinical services, Planning and Designing of Hospital, Health insurance, Legal and ethical Issues in health care, Management of Medication, HIS).
* **Experiential Learning:** Teaching is based on "experiential learning pedagogy - Live projects; Case studies are major part of every course."
* **Extensive Internship Opportunities:** Students benefit from "8- 10 months of internship during their II, IV and VI semesters in providing Practical Application of Theoretical Knowledge and Development of Critical Thinking and Problem-Solving Skills." These opportunities are in "leading superspecialist Hospitals of Delhi NCR."
* **Hands-on Training:** Practical skills are developed through "Hands on training on latest Business intelligence software, tools and languages like R-Studio, Python & Tableau etc."
* **AI Integration in Projects:** The programme "demands AI integration in health care projects from students."
* **Online Learning:** Includes "Online courses from NPTEL/Coursera/SWAYAM etc."
* **Global Exposure:** Facilitated through "Student exchange programmes and study tours at the Institution, College and Department levels."

**Curriculum Structure:**

The programme is a 4-year curriculum, with specific course details for each semester "To be declared after BOS approval."

3. Admission Requirements and Process

**Eligibility:**

* Candidates must have passed the "10+2 examination with at least 50% marks in aggregate in 5 subjects."
* English must have been a qualified subject.

**Admission Criteria/Selection:**

* Merit preparation/shortlisting is based on scores in SAT/MRNAT (Manav Rachna National Aptitude Test).
* Marks in the Qualifying Examination.
* Pearson Test Score.

**Nationality:** Indian/NRI/PIO/Foreign candidates are eligible.

**Application Process (5 Steps):**

1. **Visit Official Website:** Go to www.manavrachna.edu.in and navigate to the Admissions section.
2. **Fill Online Application Form:** Click "Apply Now," create login credentials, and complete the form with personal, academic, and contact details.
3. **Upload Required Documents:** Submit scanned copies of Class 10 & 12 mark sheets, Aadhaar card, and passport-size photographs.
4. **Pay Application Fee:** Complete payment online via net banking, debit/credit card, or UPI.
5. **Appear for MRNAT or Submit JEE Score:** Qualify through MRNAT or submit a valid JEE Main score for merit-based admission.

4. Career Pathways and Industry Integration

The programme prepares graduates for dynamic roles in the healthcare industry, leveraging the growing demand for professionals at the intersection of business, healthcare, and technology.

**Industry Trends and Opportunities:**

* "The integration of AI in healthcare is accelerating, increasing the demand for professionals who can navigate both healthcare systems and technological innovations."
* Emphasises the need for "Continuous learning in areas like machine learning, data analytics, and healthcare regulations."
* Highlights "Global Impact" with opportunities worldwide, particularly in telemedicine and remote patient monitoring.

**Potential Career Paths:**

* Health Data Analyst
* Medical Data Scientist
* Healthcare AI Engineer
* Healthcare Administrator with AI Specialization
* Health Informatics Specialist
* Chief AI Officer (CAIO)

**Top Recruiters and Internship/Placement Opportunities:**

Graduates are sought after by a diverse range of organisations including:

* **Top Hospital & Healthcare Providers:** Apollo Hospitals, Fortis Healthcare, Max Healthcare, Medanta, Amrita Hospital, and many more.
* **Pharmaceutical & Life Sciences Companies:** Pfizer, Cipla, Johnson & Johnson, Abbott, Novartis, etc.
* **Public Sector & International Organisations:** Ministry of Health and Family Welfare (India), World Health Organization (WHO), UNICEF.
* **IT/Consulting Firms:** Leading IT Companies, GE Healthcare, Omega Healthcare Management, Deloitte, Baxer & Taylor IT.

The source explicitly lists specific hospitals and companies where students can expect "Internship & Placement Opportunities."

5. Programme Outcomes (PO & PSO)

The programme aims to develop a holistic set of intellectual, behavioural, and professional competencies in students.

**Program Specific Outcomes (PSO):**

* **PSO1 (Employability & Entrepreneurship):** Students will define career aspirations and develop relevant skills and competencies for corporate careers, startups, family businesses, or higher education.
* **PSO2 (Specialised knowledge & skills):** Students will acquire comprehensive and procedural knowledge in the specialised field to solve challenging problems.

**Programme Outcomes (PO):**

A comprehensive list of 12 POs covers:

* **Domain Knowledge:** Applying management theories in emerging business environments (PO1).
* **Ethics & Professional Conduct:** Demonstrating integrity and ethical behaviour (PO2).
* **Critical Thinking & Problem-Solving:** Designing and implementing innovative solutions (PO3).
* **Analytical & Decision-making:** Using data analytics and decision support tools (PO4).
* **Research Aptitude:** Exhibiting research acumen for innovative solutions (PO5).
* **Multicultural Competence & Global Outlook:** Working in diverse groups and becoming responsible global citizens (PO6).
* **Leadership & Behavioural Skills:** Demonstrating leadership and collaborative teamwork (PO7).
* **Communication & Social Networking:** Effective business communication and interpersonal relationships (PO8 & PO9).
* **Creativity, Empathy & Community Engagement:** Identifying with others, innovating for societal well-being (PO10).
* **Environment & Sustainability:** Analysing managerial decisions in the context of ESG (PO11).
* **Information/Digital Literacy:** Accessing, evaluating, and using ICT for data analysis (PO12).

6. Campus Facilities and Student Life

Manav Rachna offers a wide array of facilities to support student life and development.

**Residential Facilities & Transport:**

* On-campus and off-campus hostel accommodation for boys and girls (single, double, triple rooms).
* Various room categories (AC, Non-AC, different seating capacities) with attached/common bathrooms.
* Hostel fees include medical facilities, medical insurance, library access, and laundry services.
* Mess plan included in hostel fees.
* Well-organised transport facility with GPS-enabled buses for Delhi and Gurugram commuters.
* Ample parking space available.

**Sports:**

* World-class facilities for outdoor and indoor games (basketball, volleyball, cricket, shooting, table tennis, squash, billiards, soccer, chess, carom).
* 25m and 10m indoor shooting ranges (Olympics standards).
* Indoor badminton and table tennis stadia with synthetic courts.
* Sports Fitness Centre (psychological, physiotherapy, health-related issues).
* Soccer Academy and a Semi Olympic-sized swimming pool.

**Extra-Curricular Activities & Support:**

* **Experiential Learning:** Strong emphasis on "experiential, participative and problem-based learning methodologies."
* **Cultural Societies:** A wide range of societies fostering creativity, performance, and personal development, including:
* **Khalbali:** The Dramatics Society.
* **Moksh:** The Music Society.
* **Rudra:** The Dance Society.
* **Noora:** The Fashion Society.
* **Drishti:** The Media Society.
* **Rehnuma:** The Literary Society.
* **Karisma & TechSoul:** Personality Development Societies.
* **Felicia:** The Art Society.
* **GAMENIX:** The Gaming Society.
* **Placement Support:** Provided at both central and departmental levels.
* **Global Exposure:** Through International Immersion Programmes.
* **Alumni Network:** Supported by Alumni Seminars, prominent alumni engagement, and "Alumni Speak" events.

7. Financial Information

* **Course Fee (Annual):** "Same as per norms."
* **Scholarships:** Link provided to "https://manavrachna.edu.in/mru/admissions/financial-aid-and-scholarships."
* **Modes of Payment:**Online Payment (net banking, debit/credit card, UPI).
* Bank Transfer (NEFT/RTGS).
* Demand Draft (DD) in favour of "Manav Rachna International Institute of Research and Studies."
* Cash Payment (subject to government limits).
* Education Loan through tie-ups with major banks (PNB, SBI, HDFC, ICICI).

This briefing highlights the comprehensive and forward-thinking nature of the AI-led BBA in Healthcare Management, positioning it as a programme designed to equip students with the necessary skills for a technologically advanced and rapidly evolving healthcare sector.

**18.Detailed Briefing Document: BBA in Financial Market and Trading Programme**

This briefing document provides a comprehensive overview of the Bachelor of Business Administration (BBA) in Financial Market and Trading programme, drawing key themes and factual information from the provided source.

1. Programme Overview and Philosophy

The BBA in Financial Market and Trading is a newly launched, undergraduate programme offered by the School of Management & Commerce. It is designed to equip graduates with the necessary skills to thrive in the "VUCA world" (Volatile, Uncertain, Complex, Ambiguous) by focusing on industry-relevant skills such as creativity, communication, collaboration, critical analysis, and commitment. The programme aims to move beyond conventional courses to explore new areas of management education that address recent trends and challenges, particularly those driven by Industry 4.0, which demands data literacy and expertise in tools like R, Python, SAS, and Tableau.

The programme's core philosophy is to provide **experiential learning** through simulations, game-based exercises, and national and international industry internship opportunities to enhance creativity and collaborative teamwork. Beyond academic and technical skills, it also emphasises **personality development, teamwork, confidence building, soft skills, and leadership qualities**.

2. Key Educational Benefits and Curriculum Structure

The programme offers a strong foundation in business principles, investment strategies, and trading practices, preparing graduates to navigate the complexities of global financial markets.

**Key Educational Benefits highlighted include:**

* **Live training at the National Stock Exchange (NSE)** and the **Singapore Stock Exchange**. This offers invaluable practical exposure to real-world trading environments.
* An **industry-aligned curriculum** designed to meet both current and future demands of the financial sector. This includes core courses such as:
* **Financial Markets & Trading Specifics:** Introduction to Financial Markets, Equity and Derivatives Trading, Portfolio and Risk Management, Technical and Fundamental Analysis, Financial Regulations and Compliance, Wealth Management, Global Financial Instruments, Capital Markets, Investment Analysis and Portfolio Management, Financial Services, Trading Strategies, Stock Market Operations, Derivatives and Commodities Market, Risk and Wealth Management, Financial Planning, and Legal and Ethical Issues in Financial Markets.
* **Core Management Courses:** Principles of Management and Organisational Behaviour, Marketing Management, Human Resource Management, Financial Management, Business Economics, Business Communication, Operations Management, Strategic Management, and Entrepreneurship.
* **Experiential Learning Pedagogy:** Teaching is based on "experiential learning pedagogy-Live projects; Case studies are major part of every course."
* **Extensive Internship Opportunities:** The curriculum includes "8-10 months of internship during their II, IV and VI semesters in providing Practical Application of Theoretical Knowledge and Development of Critical Thinking and Problem-Solving Skills."
* **Hands-on Training with Industry-Relevant Tools:** Students receive practical training with platforms such as MetaTrader, NSE SMART, and Excel for Financial Modelling.
* **Advanced Knowledge through Online Platforms:** The curriculum integrates learning from NPTEL/Coursera/SWAYAM/LinkedIn, among others.
* **Student Exchange Programmes and Study Tours:** Opportunities are available at institutional, college, and departmental levels.

The BBA is a **4-year (8 Semesters) programme with exit options**. While specific course details for each semester are "To be declared after BOS approval," the overall curriculum structure is designed to integrate "core business principles with specialized knowledge in financial systems, trading strategies, and investment management."

3. Admission Requirements and Selection Criteria

**Eligibility:** Candidates must have passed the "10+2 examination with at least 50% marks in aggregate in 5 subjects" and "Should have qualified English as a subject."

**Admission Criteria/Selection Criteria:** Merit preparation and shortlisting of candidates will be based on:

* Score in **SAT/MRNAT (Manav Rachna National Aptitude Test)**.
* **Marks in Qualifying Examination**.
* **Pearson Test Score**.

The programme accepts Indian, NRI, PIO, and Foreign nationals.

4. Programme Highlights and Desired Outcomes

The programme aims to develop a range of intellectual, behavioural, and professional competencies in students:

* **Intellectual and Behavioural Competence:** Acquisition of knowledge, skills, and mindset for professional success and personal growth in the financial sector.
* **Critical Thinking and Decision Making:** Development of strong analytical, problem-solving, and decision-making abilities.
* **Effective Communication:** Ability to communicate clearly and professionally in diverse business settings.
* **Core Business Knowledge:** Solid foundation in business principles with a strong emphasis on financial markets, trading, and investment strategies.
* **Global Perspective:** Understanding of global financial systems and appreciation for cultural and economic diversity.
* **Ethical Behaviour and Social Responsibility:** Ability to identify and address ethical issues in finance, promoting integrity and responsible business practices.
* **Teamwork and Leadership:** Development of collaborative teamwork and leadership skills in dynamic business environments.

The programme explicitly states its commitment to **Industry Exposure**, integrating the BBA with the Financial Industry "through exposure to practical experiences and engagement with current market technologies and trading platforms—ensuring students gain real-world insights and are industry-ready upon graduation."

5. Career Pathways and Top Recruiters

Graduates are prepared for a "wide range of dynamic and high-growth career opportunities in the financial services industry," driven by the "global expansion of capital markets and increasing retail investor participation."

**Potential Career Pathways include:**

* Equity Analyst
* Financial Planner
* Investment Banker
* Stock Broker
* Portfolio Manager
* Derivatives Trader
* Risk Analyst
* Compliance Officer
* Wealth Manager

The programme highlights an impressive list of **Top Recruiters** spanning financial institutions, investment firms, multinational corporations, consulting agencies, and government bodies. These include:

* **Top Financial Institutions & Investment Firms:** Goldman Sachs, Morgan Stanley, JPMorgan Chase, HSBC, Citibank, Deutsche Bank, ICICI Bank, HDFC Bank, Kotak Mahindra Bank, Axis Bank.
* **Asset Management & Private Equity Firms:** BlackRock, Fidelity Investments, Vanguard Group, TPG Capital, Carlyle Group, KKR & Co., Aditya Birla Capital, Edelweiss Asset Management, Franklin Templeton Investments.
* **Public Sector & Regulatory Bodies:** Securities and Exchange Board of India (SEBI), Reserve Bank of India (RBI), Ministry of Finance, India, National Stock Exchange (NSE), Bombay Stock Exchange (BSE), World Bank, International Monetary Fund (IMF).

Specific **Internship & Placement Opportunities** mentioned include Goldman Sachs, JPMorgan Chase, HSBC, ICICI Bank, Kotak Mahindra Bank, BlackRock, Deloitte, Zerodha, Franklin Templeton Investments, Paytm, Morgan Stanley, Deutsche Bank, HDFC Bank, Accenture, and Upstox. Placement support is given at both central and departmental levels.

6. Programme Logistics and Facilities

* **Course Fee (Annual):** Rs. 2,37,500.
* **Payment Modes:** Online Payment, Bank Transfer (NEFT/RTGS), Demand Draft (DD), Cash Payment (subject to limits), and Education Loan (tie-ups with PNB, SBI, HDFC, ICICI).
* **Residential Facilities:** Both on-campus and off-campus hostel accommodation for boys and girls with various room categories (AC/Non-AC, single/double/triple/five-seater) and attached/common bathrooms. Hostel fees include medical facilities, medical insurance, library facilities, and laundry. Mess plan is also included.
* **Sports Facilities:** World-class facilities for outdoor and indoor games, including a 25m Shooting Range and 10m air-conditioned Indoor Shooting Range, indoor badminton and table tennis stadia, a Sports Fitness Centre, Soccer Academy, and a Semi Olympic-sized swimming pool.
* **Transport:** Well-organised, GPS-enabled bus facility from Delhi and Gurugram.
* **Extra-Curricular Activities:** Strong emphasis on experiential learning. A diverse range of cultural societies cater to various interests, including Dramatics (Khalbali), Music (Moksh), Dance (Rudra), Fashion (Noora), Media (Drishti), Literary (Rehnuma), Personality Development (Karisma, TechSoul), Art (Felicia), and Gaming (GAMENIX).
* **Global Exposure:** Offered through an International Immersion Program.
* **Alumni Network:** Supported by Alumni Seminars, prominent alumni, and "Alumni Speak" initiatives.

7. New Programme Status

It is important to note that this is a **newly launched course**, indicated by "Nil" ratings and reviews, and the brochure being "In process." Semester-wise course outcomes are also "To be declared after BOS approval." This suggests the programme is in its initial stages of implementation.

**19.BBA in Entrepreneurship & Family Business: Detailed Briefing**

**1. Programme Overview and Philosophy:**

The BBA in Entrepreneurship & Family Business is a 4-year (8-semester) undergraduate programme designed to equip graduates with the skills and mindset needed to thrive in a "VUCA world" (Volatile, Uncertain, Complex, Ambiguous). The programme emphasizes developing "creativity, communication, collaboration, critical analysis, and commitment" to meet the demands of Industry 4.0.

* **Core Aim:** To "make the graduates more competitive and employable" by moving "out of the conventional courses and delve into the new areas of management education that explore recent trends and challenges."
* **Industry 4.0 Focus:** Students are trained to be "data literate and experts in tools like R, Python, Sas, Tableau, etc."
* **Experiential Learning:** The curriculum strongly incorporates "experiential learning, simulation & game-based exercises, and national and international industry internship opportunities."
* **Specialization:** This BBA is specifically offered "in association with Marketplace Simulations, NEN and NSIC."

**2. Key Educational Benefits and USPs:**

The programme's unique selling points centre on its dual focus on innovation and heritage, practical exposure, and a forward-thinking curriculum.

* **Balancing Innovation and Heritage:** The programme "prepares graduates to *balance innovation with heritage*, tackle family-business-specific challenges (e.g., succession, governance), and lead ventures that blend profit with purpose."
* **Practical & Hands-On Exposure:**"Industry Visits to startup firms, incubation centres, and industry internship opportunities."
* "Pitching sessions, business plan competitions, meeting the start-up founders, mentoring sessions, business simulation games and hands on projects."
* Curriculum includes "Applied Entrepreneurship Projects, Capstone Business Simulation, Business Modelling, Design thinking & Problem Solving, Copyrights and IPR, Entrepreneurial finance."
* Mandatory "2 months of internship after their II, IV and VI semesters."
* **Holistic Skill Development:** Beyond technical skills, the curriculum includes "Business Communication, Personality development, IT subjects, foreign language and soft skills required to succeed in present competitive world."
* **Research & Case Study Focus:** Students are encouraged to "write case studies on their family businesses/ research papers/ present their business ideas in B Plan competitions, pitching opportunities."

**3. Admission Requirements and Selection Criteria:**

* **Eligibility:** Candidates must have "Passed in 10+2 examination with at least 50% marks in aggregate in 5 subjects" and "Should have qualified English as a subject."
* **Admission Criteria:** Merit-based shortlisting is conducted on the basis of:
* "Score in SAT/ MRNAT"
* "Marks in Qualifying Examination"
* "Pearson Test Score"
* **Application Process:** A five-step online process:

1. Visit the official website and navigate to "Admissions."
2. Fill out the online application form with personal, academic, and contact details.
3. Upload required documents (Class 10 & 12 mark sheets, Aadhaar card, passport-size photographs).
4. Pay the application fee online.
5. "Appear for MRNAT or Submit JEE Score" for merit-based admission.

**4. Programme Highlights and Outcomes:**

The BBA aims to cultivate a comprehensive set of skills, preparing students for diverse business environments.

* **Entrepreneurial Mindset & Behavioural Agility:** Students will "cultivate an entrepreneurial mindset and behavioural agility to identify opportunities, manage risks, and lead ventures, blending creativity, resilience, and ethical decision-making for success in startups *and* family enterprises."
* **Key Skill Development Areas:**Creativity, Innovation and entrepreneurial skills.
* Critical Thinking and Decision Making.
* Communication Skills.
* Core Business Knowledge.
* Global Perspective.
* Ethical behaviour and Social responsibility.
* Teamwork and Leadership.
* **Curriculum Highlights:** Prepares students to "Gain understanding and practical exposure in converting a business idea into a viable venture," "Better understand and apply the concepts and understanding of family business essentials," and "Develop... the right skills and mindset that prepares them to be intrapreneurial as well as entrepreneurial."
* **Programme Specific Outcomes (PSOs):PSO1: Employability & Entrepreneurship:** Students will define and work towards their career aspirations in corporate, startup, family business, or higher education.
* **PSO2: Specialized knowledge & skills:** Students will "demonstrate the acquisition of comprehensive & procedural knowledge for carrying out professional work/tasks in the specialized field and generate solutions in challenging environment."

**5. Career Pathways:**

The interdisciplinary nature of the BBA opens up a wide array of career opportunities across traditional and emerging sectors.

* **Traditional Entrepreneurial Ventures:** "Launch and scale *startups* or *social enterprises*."
* **Family Businesses:** "Innovate within *family businesses* (e.g., digital transformation, sustainability initiatives)," or assume roles like "Next-Gen Leader, Succession Planner, or Governance Advisor."
* **Consulting & Finance:** Roles as "Business Development Manager" for SMEs, "Consultant" for family business restructuring, "Financial Planner" for family wealth, "Risk Analyst," or "Investment Advisor."
* **Emerging Sectors:** Opportunities as "Sustainability Officer," "Tech Entrepreneur," or "E-commerce Specialist."
* **Public/Non-profit Sector:** Working with "government bodies on SME-friendly policies" or joining "NGOs promoting entrepreneurship."
* **Academia & Research:** Conducting "research on succession planning, innovation in legacy firms, or startup ecosystems."

**6. Internships, Placements & Industry Collaboration:**

* **Industry Aligned Programs:** The programme is aligned with "National Entrepreneurship Network(NEN) , Marketplace Simulations USA, NSIC and various industry experts."
* **Top Recruiters & Placement Opportunities:** The source lists companies such as Cognizant, TCS, Accenture, HDFC, Wipro, Niti Ayog, and Policy Bazaar.
* **Innovation & Startups:** Manav Rachna Business Incubator provides extensive support for student ventures, including "pre-incubation support, IPR guidance (50+ patents filed), and E-Cell mentorship." The university boasts "50+ global partnerships" and "90+ Corporate Tie-Ups" ensuring "100% industry exposure."

**7. Campus Facilities and Student Life:**

* **Residential Facilities:** On-campus and off-campus hostel accommodation for boys and girls with various room categories (AC, Non-AC, single/double/triple/five-seater). Hostel fees include medical facilities, medical insurance, library access, and laundry.
* **Mess Plan:** Included in Hostel Fees.
* **Sports:** "World class sports facilities" for a wide range of indoor and outdoor games, including a 25m shooting range, indoor badminton and table tennis stadia, a Soccer Academy, and a semi-Olympic sized swimming pool.
* **Transport:** A "well-organized transport facility" serving students from Delhi and Gurugram, prioritizing "punctuality, safety, and convenience."
* **Extra-Curricular Activities & Cultural Societies:** A strong emphasis on "experiential, participative and problem-based learning methodologies." Numerous cultural societies are available, including:
* Khalbali - The Dramatics Society
* Moksh - The Music Society
* Rudra - The Dance Society
* Noora - The Fashion Society
* Drishti - The Media Society
* Rehnuma - The Literary Society
* Karisma - The Personality Development Society
* Felicia - The Art Society
* GAMENIX - The Gaming Society
* TechSoul - The Personality Development Society

**8. Best Practices and Innovation Ecosystem:**

* **National Innovation and Startup Policy:** Encourages "tech-driven startups," "academic flexibility" for entrepreneurs, and "patent filing and IPR protection."
* **E-Waste Management for Sustainability:** Regular "E-Waste Collection Drives" and promotion of "eco-friendly electronics design."
* **Research & Industry Alignment:** The university fosters a dynamic ecosystem with "5 specialized centers" and "2 Centers of Excellence," along with state-of-the-art labs and hackathons with industry partners, driving "real-world impact."

**20.Briefing Document: Bachelor of Business Administration (BBA) in Global Operations Management**

**Programme Provider:** School of Management & Commerce, Department of Electronics and Communication Engineering (though the programme itself is BBA, not ECE specific)

**Course Name:** Bachelor of Business Administration (Specialisation in Global Operations Management)

**Level:** Undergraduate

**Duration:** 3 Years (6 Semesters)

**Annual Fee:** INR 2,21,200 / US $3,500

1. Programme Overview and Philosophy

The BBA in Global Operations Management is designed to equip graduates for the demands of a "VUCA world" (Volatile, Uncertain, Complex, Ambiguous). The programme aims to develop "creativity, communication, collaboration, critical analysis, and commitment" in young managers, moving beyond conventional courses to address "recent trends and challenges." A significant emphasis is placed on Industry 4.0 readiness, requiring students to be "data literate and experts in tools like R, Python, Sas, Tableau, etc."

The programme's core philosophy revolves around experiential learning, incorporating "real life cases and examples," "simulation & game-based exercises," and extensive "national and international industry internship opportunities." Beyond academic and technical skills, the curriculum includes "training and workshops on personality development, teamwork, confidence building, soft skills, and leadership qualities."

2. Key Specialisation and Curriculum Highlights

The programme specifically offers a specialisation in **Global Operations Management**, which prepares students for careers in "logistics, supply chain, operations management and such allied areas." The curriculum integrates fundamental management subjects with electives in "Supply Chain Management Logistics & Projects Management."

**Curriculum Highlights (USPs):**

* **Hands-on training:** Utilises "latest Business intelligence software, tools and languages like R-Studio, Python & Tableau etc."
* **Future-oriented curriculum:** Designed to cater to "not only current but also future industrial requirements," with core courses such as "Data Mining, Data Visualization, Big Data Analytics, Web Analytics, Marketing and Retail analytics, Operation and Supply Chain Analytics and HR analytics."
* **Holistic Skill Development:** Includes "Business Communication, Personality development, IT subjects, foreign language and soft skills."
* **Experiential Learning:** Employs "Live projects; Case studies are major part of every course."
* **Extensive Internships:** Features "8-10 months of internship during their II, IV and VI semesters in handling the analytics part in the respective business unit(s)."
* **Research Focus:** Demands "analytics research projects from students" and includes "live projects on Data collection, Data mining and Application of Analytics in IV and VI Semesters."
* **Global Exposure:** Offers "Student exchange programmes and study tours" and "Online courses from NPTEL/Coursera/SWAYAM etc."

3. Admission Requirements

**Eligibility:**

* Candidates must have passed the 10+2 examination with at least 50% marks in aggregate in 5 subjects.
* English must have been a qualified subject.

**Admission Criteria / Selection Criteria:** Merit-based selection is determined by a score in one of the following:

* SAT / MRNAT (Manav Rachna National Aptitude Test)
* Marks in Qualifying Examination
* Pearson Test Score

**Nationality:** Indian/NRI/PIO/Foreign

4. Programme Outcomes

The programme aims to develop a range of intellectual and behavioural competencies, categorised into specific outcomes (PSOs and POs).

**Key Programme Specific Outcomes (PSOs):**

* **Critical Thinking and Decision Making:** Development of analytical and problem-solving skills.
* **Communication Skills:** Professional and effective communication.
* **Core Business Knowledge:** Functional business knowledge.
* **Global Perspective:** Awareness and appreciation for diverse perspectives.
* **Ethical Behaviour and Social Responsibility:** Ability to recognise, analyse, and address ethical problems.
* **Teamwork and Leadership:** Effective teamwork and leadership skills.

**Broader Programme Outcomes (POs) include:**

* **Domain Knowledge of Business Environment:** Application of management theories in emerging business environments.
* **Integrity, Ethics & Professional Conduct:** Demonstration of ethical behaviour and professional integrity.
* **Analytical & Decision-making Ability:** Using data analytics and decision support tools.
* **Research Aptitude & Inquiry:** Exhibiting research acumen for innovative solutions.
* **Multicultural Competence & Global Outlook:** Working in diverse groups and emerging as responsible global citizens.
* **Leadership readiness & Behavioural Skills:** Effective work in a "VUCA world."
* **Effective Business Communication & Social Networking:** Engaging effectively and developing interpersonal relationships.
* **Social Networking Skills & Emotional Intelligence:** Working effectively with diverse groups in a multicultural environment.
* **Creativity, Empathy & Community Engagement:** Identifying with others, innovating for societal well-being.
* **Environment & Sustainability:** Analysing managerial decisions in the context of ESG (Environmental, Social, and Corporate Governance).
* **Information / Digital Literacy:** Accessing, evaluating, and using ICT for data analysis.

5. Career Pathways and Industry Exposure

The Global Operations Management specialisation opens doors to careers in "Logistics, e-commerce, Supply chain management, Operations management" or for pursuing higher studies.

**Example Career Pathways (note: some listed professions seem to be from a Law degree context in the original text, but the general thrust for BBA in Global Operations Management points to related fields):**

* Financial Analyst, Financial planning & consultancy
* Financial Risk Manager
* Corporate Finance (M&A, IPO, Equity and Debt)
* Management & Cost Accountant
* Investment Analyst
* Auditor
* Sales & Marketing of Financial Services
* Relationship managers in Banking and NBFCs
* Portfolio Manager *(Note: While the provided "Career Pathway" section largely discusses Law degrees, the "Curriculum Highlights" section explicitly links Global Operations Management to logistics, supply chain, and operations management careers.)*

**Industry Exposure:** The programme ensures "100% industry exposure" through "Industry Aligned Courses," "MOUs and participation of industry in program’s design & delivery, internships & placements."

**Top Recruiters & Placement Opportunities:** The list of top recruiters and internship/placement opportunities includes: Cognizant, TCS, Accenture, Niti Ayog, HDFC, Wipro, GC Media Pvt Ltd, Kamdhenu Cement, Amrita Hospital, Sarvodaya, Intellipaat, Policy Bazaar, Hike Edu.

6. Campus Facilities and Student Life

**Residential Facilities:**

* On-campus and off-campus hostel accommodation for boys and girls.
* Room categories: Air-conditioned, Non-Air-conditioned, single, two, three, and five-seater rooms with attached/common bathrooms.
* Hostel fees include medical facilities, medical insurance, library access, and laundry.
* Mess plan is included in hostel fees.

**Sports:**

* "World class sports facilities" for both outdoor and indoor games (basketball, volleyball, cricket, shooting, table tennis, squash, billiards, soccer, chess, carom).
* Features include a 25m and 10m air-conditioned Indoor Shooting Range with Olympic standards, indoor badminton and table tennis stadia, a Sports Fitness Centre, a Soccer Academy, and a Semi Olympic-sized swimming pool.

**Transport:**

* "Well-organized transport facility" from Delhi and Gurugram, with GPS-enabled buses, trained drivers, and onboard support staff.

**Extra-Curricular Activities & Cultural Societies:** Strong emphasis on "experiential, participative and problem-based learning methodologies." A wide array of cultural societies are available:

* **Khalbali:** The Dramatics Society
* **Moksh:** The Music Society
* **Rudra:** The Dance Society
* **Noora:** The Fashion Society
* **Drishti:** The Media Society
* **Rehnuma:** The Literary Society
* **Karisma:** The Personality Development Society
* **Felicia:** The Art Society
* **GAMENIX:** The Gaming Society
* **TechSoul:** The Personality Development Society (listed twice, suggesting a strong focus on this area).

7. Innovation, Research, and Partnerships

**Manav Rachna Business Incubator:** This initiative supports "tech-driven startups" by providing:

* "Design, fabrication, manufacturing facilities."
* "A good path to capital from angel investors, state governments, economic-development coalitions and other investors."
* "Mentorship, expertise and networking."
* Pre-incubation support, IPR guidance (50+ patents filed), and E-Cell mentorship.

**Global Partnerships:** "50+ global partnerships," including with industry leaders like L&T, Hitachi, Infosys, and Truechip, aim to "bridge theory with practice." This includes:

* **Cutting-Edge Research:** 5 specialised centres (AI, VLSI, Business Analytics, Materials Science, Law & Tech) and 2 Centers of Excellence, aligned with national missions.
* **Industry-Led Innovation:** State-of-the-art labs (Daikin HVAC, Altair DesignTech, VLSI prototyping) and hackathons with partners.
* **Proven Outcomes:** Student innovations like AI health chatbots, landslide-monitoring drones, and award-winning wearables.

**Best Practices:**

* **National Innovation and Startup Policy:** Encourages "tech-driven startups," "academic flexibility for student entrepreneurs," and "patent filing and IPR protection."
* **E-Waste Management for Sustainability:** Regular collection drives, promotion of eco-friendly design in coursework, and collaboration with certified recyclers.

**Unique features of L&T Tie-Up (though details refer to VLSI/semiconductor, not directly BBA Global Operations Management, it showcases strong industry integration):**

* Jointly designed syllabus ensuring industry relevance.
* "Hands-on Industry Training" and "Internship & Placement Support."
* Learning from "L&T professionals and industry leaders."
* Work on "real-world challenges."

8. Application Process and Fees

**Application Steps:**

1. Visit the Official Website: www.manavrachna.edu.in and navigate to the Admissions section.
2. Fill Out the Online Application Form: Click "Apply Now," create credentials, and complete personal, academic, and contact details.
3. Upload Required Documents: Scanned copies of Class 10 & 12 mark sheets, Aadhaar card, and passport-size photographs.
4. Pay the Application Fee: Online payment via net banking, debit/credit card, or UPI.
5. Appear for MRNAT or Submit JEE Score: Qualify through MRNAT for merit-based admission.

**Fee Payment Modes:**

1. Online Payment (net banking, debit/credit card, UPI).
2. Bank Transfer (NEFT/RTGS).
3. Demand Draft (DD) in favour of "Manav Rachna International Institute of Research and Studies."
4. Cash Payment (at Accounts Office on campus, subject to limits).
5. Education Loan (through tie-ups with PNB, SBI, HDFC, ICICI).

**Overall Impression:** The BBA in Global Operations Management at Manav Rachna presents itself as a forward-thinking, industry-aligned programme with a strong emphasis on practical skills, data literacy, and holistic student development. The focus on experiential learning, extensive internships, and integration of cutting-edge tools reflects a commitment to preparing students for the evolving demands of the global business landscape. The wide array of extracurricular activities and robust campus facilities further enhance the student experience.

**21.Detailed Briefing: Bachelor of Business Administration (BBA) in Finance & Accounts**

This briefing provides a detailed overview of the Bachelor of Business Administration (BBA) with a specialisation in Finance & Accounts, offered by the School of Management & Commerce. The programme aims to develop highly competitive and employable graduates equipped with industry-relevant skills for the modern "VUCA world" (Volatile, Uncertain, Complex, Ambiguous).

1. Programme Overview & Core Philosophy

The BBA in Finance & Accounts is a **3-year (6 semesters) undergraduate course** with an annual fee of INR 2,21,200/ US $3,500. The programme boasts a rating of **⭐4.3 from 18 reviews**.

**Key Principles:**

* **Industry Relevance:** The programme is specifically designed to meet current and future industry demands, particularly those influenced by "Industry 4.0", which requires graduates to be "data literate and experts in tools like R, Python, Sas, Tableau, etc."
* **Experiential Learning:** A strong emphasis is placed on "experiential learning, simulation & game-based exercises, and national and international industry internship opportunities that enhance their creativity and collaborative teamwork."
* **Holistic Development:** Beyond academic and technical skills, the curriculum includes "training and workshops on personality development, teamwork, confidence building, soft skills, and leadership qualities."
* **Specialisation Focus:** The specialisation in Finance & Accounts is offered "in association with Banking, Financial Services and Insurance Sector Skill Council of India (BFSISSC)," aiming to provide a "practical and market-ready curriculum with application-based pedagogy for experiential learning for deep industry immersion." This collaboration ensures "continuous skilling and reskilling of students by providing direct integration of existing industry-defined learning material."

2. Unique Selling Propositions (USPs)

The programme stands out due to several key educational benefits:

* **Practical Exposure:** "Program Design and Delivery include practical exposure through real life cases and examples."
* **Industry Immersion:** Features "Industry Visits and internship opportunities" with "8- 10 months of internship during their II, IV and VI semesters."
* **Advanced Curriculum:** Incorporates "Latest curriculum specifically designed to cater not only current but also future industrial requirements." This includes "Courses like Data Mining, Data Visualization, Big Data Analytics, Web Analytics, Marketing and Retail analytics, Operation and Supply Chain Analytics and HR analytics."
* **Skill Development:** Beyond technical skills, the curriculum "also includes Business Communication, Personality development, IT subjects, foreign language and soft skills."
* **Project-Based Learning:** Teaching is based on "experiential learning pedagogy-Live projects; Case studies are major part of every course." Students also engage in "live projects on Data collection, Data mining and Application of Analytics in IV and VI Semesters."
* **Technology & Tools:** Provides "Hands on training on latest Business intelligence software, tools and languages like R-Studio, Python & Tableau etc."
* **Global Exposure:** Offers "Student exchange programmes and study tours" and encourages "analytics research projects from students."
* **Online Learning:** Includes "Online courses from NPTEL/Coursera/SWAYAM etc."

3. Admission Requirements & Application Process

**Eligibility:**

* Candidates must have "Passed in 10+2 examination with at least 50% marks in aggregate in 5 subjects."
* "Should have qualified English as a subject."

**Admission Criteria/Selection Criteria:**

* "Merit preparation / shortlisting of candidates shall be on the basis of score in SAT/ MRNAT."
* "Marks in Qualifying Examination."
* "Pearson Test Score."

**Nationality:** Indian/NRI/PIO/Foreign candidates are eligible.

**Application Process:**

1. **Visit the Official Website:** Navigate to the Admissions section on www.manavrachna.edu.in.
2. **Fill Out the Online Application Form:** Click "Apply Now," create login credentials, and complete the form with personal, academic, and contact details.
3. **Upload Required Documents:** Submit scanned copies of Class 10 & 12 mark sheets, Aadhaar card, and passport-size photographs.
4. **Pay the Application Fee:** Complete payment online via net banking, debit/credit card, or UPI.
5. **Appear for MRNAT or Submit JEE Score:** Qualify through MRNAT (Manav Rachna National Aptitude Test) or submit a valid JEE Main score.

4. Programme Outcomes & Competencies

The programme aims to develop a range of intellectual, behavioural, and professional competencies:

* **PO1: Domain Knowledge of Business Environment:** Apply "knowledge of management theories, principles, practices & skills in emerging business environments."
* **PO2: Integrity, Ethics & Professional Conduct:** Demonstrate "ethical behavior and professional integrity."
* **PO3: Critical Thinking & Problem-Solving Ability:** Apply "critical thinking skills to design problem solving strategies... and implement innovative solutions."
* **PO4: Analytical & Decision-making Ability:** "Access the business environment using techniques of data analytics and other decision support tools."
* **PO5: Research Aptitude & Inquiry:** Exhibit "research acumen and research aptitude to provide innovative solutions."
* **PO6: Multicultural Competence & Global Outlook:** Demonstrate "competence in cross-cultural environments, work in diverse groups."
* **PO7: Leadership readiness & Behavioral Skills:** Demonstrate "leadership skills and work effectively with diverse teams."
* **PO8: Effective Business Communication & Social Networking:** "Engage effectively, develop interpersonal relationships through their ability to listen, read, write ,interact, influence & negotiate."
* **PO9: Social Networking Skills & Emotional Intelligence:** Acquire "social and emotional skills to work effectively with diverse groups."
* **PO10: Creativity, Empathy & community Engagement:** Demonstrate "ability to identify with other or understand others perspectives, innovate or perform tasks in a better manner for the well-being of the society."
* **Environment & Sustainability:** "Analyze the implications of managerial decisions in the context of environmental, social and corporate governance(ESG)."
* **Information /Digital literacy:** Demonstrate "the ability to access, evaluate and use ICT in various work situations and access relevant information sources."

5. Career Prospects & Industry Linkages

The BBA in Finance & Accounts offers diverse career paths:

* Financial Analyst, Financial Planning & Consultancy
* Financial Risk Manager
* Corporate Finance (M&A, IPO, Equity and Debt)
* Management & Cost Accountant
* Investment Analyst
* Auditor
* Sales & Marketing of Financial Services
* Relationship managers in Banking and NBFCs
* Portfolio Manager

**Industry Exposure:** The programme is "Industry Aligned Programs- in association with National Entrepreneurship Network(NEN) - NIESBUD and various industry experts." The association with BFSISSC provides a "practical and market-ready curriculum" and opportunities to "pursue careers in the areas of finance, accounts, insurance, financial markets, banking etc."

**Top Recruiters & Placement Opportunities:** The programme lists a range of top recruiters for placements and internships, including: "Cognizant, TCS, Accenture, Niti Ayog, HDFC, Wipro, GC Media Pvt Ltd, Kamdhenu Cement, Amrita Hospital, Sarvodya, Intellipaat, Policy Bazaar, Hike Edu."

6. Facilities & Campus Life

* **Residential Facilities:** Both on-campus and off-campus hostel accommodation are available for boys and girls, with various room categories (AC/Non-AC, single to five-seater). Hostel fees include "Medical facilities, medical insurance, library facilities and laundry facilities," and a mess plan.
* **Sports:** World-class facilities for various indoor and outdoor games (basketball, volleyball, cricket, shooting, table tennis, squash, billiards, soccer, chess, carom). Highlights include a 25m and 10m indoor shooting range, indoor badminton and table tennis stadia, a Sports Fitness Centre, Soccer Academy, and a Semi Olympic-sized swimming pool.
* **Transport:** A "well-organized transport facility ensures a safe, reliable, and hassle-free commute for students traveling from Delhi and Gurugram," with GPS-enabled buses and trained staff.
* **Innovation & Startups:** Manav Rachna Business Incubator fosters innovation, providing "pre-incubation support, IPR guidance (50+ patents filed), and E-Cell mentorship for student ventures." The university has "50+ global partnerships" and "90+ Corporate Tie-Ups" which "ensure 100% industry exposure, translating research into placements (Google, Samsung, Tata Motors) and scalable startups."
* **Cultural Societies:** A wide array of cultural societies are available, including:
* **Khalbali - The Dramatics Society**
* **Moksh - The Music Society**
* **Rudra - The Dance Society**
* **Noora - The Fashion Society**
* **Drishti - The Media Society**
* **Rehnuma - The Literary Society**
* **Karisma - The Personality Development Society**
* **Felicia - The Art Society**
* **GAMENIX - The Gaming Society**
* **TechSoul - The Personality Development Society** (listed twice with similar descriptions)

7. Financial Information

* **Course Fee (Annual):** INR 2,21,200/ US $3,500.
* **Scholarships:** Information available via a dedicated link: https://manavrachna.edu.in/mru/admissions/financial-aid-and-scholarships.
* **Modes of Payment:**Online Payment (net banking, debit/credit card, UPI)
* Bank Transfer (NEFT/RTGS)
* Demand Draft (DD)
* Cash Payment (subject to government limits)
* Education Loan (tie-ups with PNB, SBI, HDFC, ICICI).

8. Best Practices (Mentioned within the provided source, though possibly from a different programme context)

The source also briefly mentions "Best Practices" which appear to be from the ECE Department, but highlight the university's overall approach to innovation and sustainability:

* **National Innovation and Startup Policy:** "Encourages tech-driven startups through incubation support and industry collaboration," "academic flexibility for student entrepreneurs," and "patent filing and IPR protection."
* **E-Waste Management for Sustainability:** "Regular E-Waste Collection Drives," "eco-friendly electronics design," and "collaborates with certified recyclers."

While these specifically refer to the ECE Department, they underscore the university's broader commitment to fostering an innovative and sustainable environment, which would indirectly benefit all students.

**22.This briefing document outlines the key features and benefits of the Master of Business Administration (MBA) in Business Analytics program offered by the Department of Electronics and Communication Engineering at Manav Rachna University (MRU), in association with The Institute of Analytics (IoA), UK.**

1. Programme Overview and Core Focus

The MBA in Business Analytics is a "skill-oriented program specially designed to equip our students with future-oriented data handling and decision-making skills." It is a two-year (four-semester) postgraduate programme.

* **Data Management and Strategic Positioning:** The programme "caters to the specialized learning and training needs in data management through new software to reach the strategic positions of any organization."
* **Industry Relevance:** The curriculum is designed to prepare students with "necessary skills and knowledge in the area of data analysis so that they can meet the challenges of a changing business environment."
* **Key Analytical Tools:** Students gain exposure to "state-of-the-art data analysis/ visualization tools such as R, Python and Tableau; and also to Excel-based modeling."
* **Core and Specialised Courses:** The programme imparts knowledge of "core courses embedded with specialized courses like Business Analytics, Spreadsheet Modeling, Marketing & HR Analytics, Supply-Chain Analytics, Data Visualization, R programming, Business Intelligence & Data Mining etc."

2. Collaboration with The Institute of Analytics (IoA), UK

A significant highlight of the programme is its association with The Institute of Analytics (IoA), "The Global Body of Analytics, UK."

* **Worldwide Recognition and Job Opportunities:** This collaboration will "help our students to get worldwide recognition and help them to access job opportunities at global scale."
* **Dual Qualification:** Students enrolling in this course receive "a degree from University and an affiliate membership from IoA, UK." Additionally, upon completion of two years of their post-graduation, students "get an affiliate membership from IoA, UK and a diploma certificate from ISDC."
* **Professional Development:** IoA is a "professional body for Analytics and Data" that promotes "greater awareness, understanding, and innovation in analytics," providing members with networking opportunities, career development, knowledge sharing, and access to Continuous Professional Development programmes.

3. Unique Selling Propositions (USPs)

The programme offers several distinctive advantages:

* **Hands-on Training:** Includes "Hands-on Training on Analytics modules from IoA."
* **Blended Learning:** Provides "blended learning from Industry and Professional Trainers from ISDC and IoA."
* **Practitioner-Oriented Insights:** Students benefit from "Practitioner-oriented insights from industry experts [that] will help you develop solutions to real-world problems using cutting-edge analytical techniques."
* **Continuous Evaluation System:** Utilises a "Continuous Evaluation System that assesses the learners over convenient and regular intervals," providing timely feedback.
* **Experiential Learning:** The "education delivery methodology is a blend of classroom and experiential learning," incorporating "lab exercises, assignments, case studies, research projects, and work-integrated activities."

4. Admission and Fees

* **Eligibility:** "50% in Graduation in any Discipline."
* **Admission Criteria/Selection:** Through merit in "MRNAT, CAT, MAT, GMAT."
* **Annual Course Fee:** INR 3,71,100 / US $4,900.
* **Scholarships:** Available (details via https://manavrachna.edu.in/mru/admissions/financial-aid-and-scholarships).
* **Application Process:** A five-step online process involving website visit, online form completion, document upload, fee payment, and appearing for MRNAT or submitting JEE score.
* **Payment Modes:** Online payment, bank transfer (NEFT/RTGS), Demand Draft (DD), cash payment (subject to limits), and education loan options through tie-ups with banks like PNB, SBI, HDFC, and ICICI.

5. Career Pathways and Industry Exposure

The programme prepares students for a variety of roles in the growing field of analytics.

* **Career Paths:** Graduates can pursue roles such as "Financial/HR/ Operations/Service Data Analyst, Marketing Analytics Manager, Fraud Analyst, Data Visualization Analyst, Entrepreneur, Big Data Analytics."
* **Industry Demand:** "Analytics is the new buzzword for any business," and there is "a massive shortfall of trained analytics professionals in India and abroad." The field offers a "Competitive average salary higher than that of any IT domain."
* **Real-world Application:** The curriculum incorporates "Practitioner-oriented insights from industry experts" and focuses on applying "analytic tools and techniques to solve business analytic problems."
* **Top Recruiters:** Include major companies like "Cognizant, TCS, Accenture, Niti Ayog, HDFC, Wipro, Policy Bazaar," and many more, offering "100% industry exposure, translating research into placements."

6. Programme Outcomes

The programme aims to develop well-rounded professionals with strong analytical and soft skills.

* **Key Skills Developed:** Students will develop "critical thinking, analytical, and problem-solving skills," "communicate professionally and effectively," acquire "core business knowledge," gain "global awareness and appreciation for diverse perspectives," learn "ethical behavior and social responsibility," and develop "effective teamwork and leadership skills."
* **Relevance to Modern Business:** The programme addresses the high demand for individuals who can "leverage the data for the betterment of the world." Predictive analytics is increasingly used by firms to "anticipate maintenance and operational issues before they become a more significant problem," as highlighted in a KPMG report.

7. Campus Facilities and Student Life

MRU offers a comprehensive environment supporting academic and personal growth.

* **Residential Facilities:** Both on-campus and off-campus hostel accommodation for boys and girls, with various room categories (AC/Non-AC, single/double/triple/five-seater) and amenities such as medical facilities, medical insurance, library, and laundry. Mess plan is included in hostel fees.
* **Sports Facilities:** World-class facilities for a wide range of outdoor and indoor games, including a 25m Shooting Range, 10m air-conditioned Indoor Shooting Range, indoor badminton and table tennis stadia, a Soccer Academy, and a Semi Olympic-sized swimming pool. A Sports Fitness Centre is also available.
* **Transport:** Well-organized transport facility for students commuting from Delhi and Gurugram, featuring GPS-enabled buses and trained staff.
* **Innovation & Startups:** Manav Rachna Business Incubator nurtures "innovative instinct of the students, alumni and faculty," providing design, fabrication, manufacturing facilities, and "a good path to capital from angel investors, state governments, economic-development coalitions and other investors." MRU has "50+ global partnerships" and "90+ Corporate Tie-Ups" to drive industry-led innovation and startup incubation.
* **Cultural and Co-curricular Activities:** A vibrant student life with numerous cultural societies (Dramatics, Music, Dance, Fashion, Media, Literary, Art, Gaming) and personality development societies (Karisma, TechSoul). Emphasis is placed on "experiential, participative and problem-based learning methodologies."
* **Alumni Network:** Supports alumni seminars, prominent alumni recognition, and alumni speak events.

**23.Detailed Briefing: LLM Programme at Manav Rachna University**

This briefing provides a detailed overview of the LLM (Master of Laws) programme offered by the Department of Law, Manav Rachna University, based on the provided source document.

1. Programme Overview

The LLM is a one-year (two-semester) postgraduate degree in Law, designed for individuals who already hold a law degree and seek "advanced legal education and specialisation in particular field of law." The curriculum integrates "core subjects, electives, and research work," with an emphasis on "in-depth analysis, research, and writing" to develop expertise in a chosen area. The programme has a rating of ⭐4.3 based on 18 reviews.

**Key Facts:**

* **Course Level:** Postgraduate
* **Duration:** 1 Year (2 Semesters)
* **Annual Fee:** INR 1,88,000 / US $ 3,500
* **Approval:** Approved by the University Grants Commission (UGC) and the Bar Council of India (BCI).

2. Specialisations Offered

The LLM programme offers five distinct specialisations, allowing students to focus their studies:

* Alternate Dispute Resolution (ADR)
* Constitutional Law
* Corporate Law
* Criminal Law
* Cyber Security and Law

The curriculum structure shows that students will take 3 compulsory papers in Semester 1, followed by 6 optional/specialisation papers and a 4-credit dissertation in Semester 2. For a named specialisation, students must take a minimum of four papers from that specific group/cluster.

3. Admission Requirements and Selection Criteria

**Eligibility:**

* A pass in LLB or a 5-Year Integrated Law course with 50% or more marks in aggregate.
* "Preference shall be given to the law graduates with experience of 3 years or more."

**Merit Preparation/Selection:**

* Based on scores in the MRNAT (Manav Rachna National Aptitude Test) or the Graduation Qualifying Examination.

**Nationality:**

* Open to Indian, NRI, PIO, and Foreign candidates.

**Specific Board Requirements:**

* **IB Board:** Minimum of 26 points/credits with at least three subjects passed at Higher Level (HL) and three at Standard Level (SL).
* **Cambridge International Examinations (IGCSE):** Minimum percentage same as CBSE candidates, with a pass in at least 5 subjects at 'O' Level and 2 subjects at 'A' Level. Equivalence certificate from AIU is mandatory.

**Reservation Policy:**

* "A minimum of 25% seats for admission in the University shall be reserved for the students of State of Haryana, out of which 10% seats will be reserved for students belonging to Scheduled Caste of the State of Haryana."

4. Scholarships

The university has a robust scholarship policy, encouraging "consistent performance." In the last three years, "a substantial sum of more than five crores was awarded in the form of various scholarship policies." Students can avail "up to 100% Scholarships on Tuition Fees under Utkarsh and Uttam Scheme" based on their MRNAT and graduation scores.

5. Key Educational Benefits and Programme Highlights

The programme aims to provide "advanced legal education and specialisation," leading to a "Strong Foundation for a Lucrative Career" and "Multiple Career Options."

**Key Highlights include:**

* **Faculty:** From "top-notch institutions such as NLUs, JNU and foreign Universities."
* **Advisory Council:** Headed by "Hon’ble Former Chief Justice Uday Umesh Lalit, the Supreme Court of India, with former High Court Judges, Senior Advocates and Bureaucrats as members."
* **Learning Pedagogy:** Emphasises "Experiential Learning, ‘Learning by Doing’," "inclusive pedagogies," and an "Inter-disciplinary approach."
* **Centres of Excellence and Research Groups:** Numerous centres focused on specific legal areas (e.g., Corporate Law and ADR, Legislative Studies, Environmental Laws, AI and Technology Laws, Sports and Media Laws).
* **Industry Linkages:** "Strong linkages with industry, corporates, law firms, senior advocates... and regulatory bodies which helps to facilitate internships and placements."
* **Student Engagement:** Encourages participation in "International and National Moot Court Competitions, Client Counselling and Mediation Competitions, Judgment Writing, International and National Conferences and Seminars."
* **Clinical Legal Education:** Strong emphasis on practical legal training.
* **Holistic Development:** Strong emphasis on "professional training and holistic personality development."
* **Locational Advantage:** Situated "10 mins from the Badkhal Lake or NHPC Metro Station."

6. Curriculum Structure and Course Outcomes

The 1-year programme consists of 10 courses with a total of 25 credits.

* **Semester 1 (13 Credits):** Includes three compulsory papers ("Research Methods and Legal Writing," "Comparative Systems of Governance," "Law and Justice in a Globalizing World") and two specialisation-specific papers.
* **Semester 2 (12 Credits):** Includes four specialisation-specific papers and a 4-credit "DISSERTATION" (LWH604).

Each course has specific Course Outcomes (COs) designed to develop practical and theoretical skills, such as:

* **Research Methods and Legal Writing (LWH601):** "Apply the techniques of legal research to legal communication and writings."
* **Alternate Dispute Resolution: Theory & Practice (LWH 617):** "Identify the most appropriate ADR method based on the merits of the client’s case."
* **Corporate Governance and Principles of Companies Act (LWH631):** "Counsel and advice the clients on rights of shareholders under companies Act and other laws?"
* **Information Privacy and Data Protection (LWH 663):** "To describe the concept, evolution of privacy, philosophical, legal and technological perspectives."
* **Dissertation (LWH604):** "Students will learn the execution of research methodology and research techniques to complete the dissertation in a chosen area of research."

7. Career Pathways and Placement Support

The LLM programme prepares graduates for diverse career opportunities, including:

* Judicial Services & Judicial Clerkship
* Law firms & In-house counsels
* NGOs
* Legal Editor, Legal Journalist, Legal Advisor for MNCs
* Legal officers for Banks and Insurance Companies, LPOs, KPOs
* Teaching & Research

The university provides "100% internship and placement assistance through dedicated Department of Training and Placements." Notable recruiters mentioned include **Amazon, Nokia, Infosys, Apple, Boeing, Capital One, Cisco, Federal Reserve Bank of New York, General Motors, Intel, Lockheed Martin, Northrop Grumman, Patient First, and Pinkerton.**

A student testimonial from Vibhanshu Singhal (LL.M. batch 2021-2022) highlights the practical application of their studies: "I am currently working in the Legal department of Engineers India Limited, a Central Government PSU, where arbitration is the most sought after dispute resolution process. As a result of my study at MRU, I have gained a better understanding and a better grasp of practical aspects of arbitration law from a global perspective."

8. Residential Facilities, Transport, and Campus Life

**Hostel Accommodation:**

* Both on-campus and off-campus options for boys and girls.
* Variety of rooms: Air-conditioned/Non-air-conditioned, single/double/triple/five-seater, with attached/common bathrooms.
* Hostel fees include medical facilities, medical insurance, library access, and laundry. Mess plan is also included.

**Sports Facilities:**

* "World class sports facilities" for both outdoor and indoor games (basketball, volleyball, cricket, shooting, table tennis, squash, billiards, soccer, chess, carom).
* Features a 25m Shooting Range and a 10m air-conditioned Indoor Shooting Range with Olympic standards.
* Indoor badminton and table tennis stadia with synthetic courts (in association with Yonex and Stag).
* Sports Fitness Centre (for psychological, physiotherapy, health-related issues).
* Soccer Academy and Semi Olympic-sized swimming pool.

**Transport:**

* Well-organised transport facility for students from Delhi and Gurugram, featuring "well-maintained, GPS-enabled buses, trained drivers, and onboard support staff."

**Cultural and Co-curricular Activities:**

* Strong emphasis on "experiential, participative and problem-based learning methodologies."
* A wide array of cultural societies: Khalbali (Dramatics), Moksh (Music), Rudra (Dance), Noora (Fashion), Drishti (Media), Rehnuma (Literary), Karisma & TechSoul (Personality Development), Felicia (Art), GAMENIX (Gaming).
* "Legal Aid Camps/Activities" in collaboration with District Legal Service Authority (DLSA) and Haryana Legal Service Authority (HLSA).
* "MR Radio Session Legal Awareness Program" to disseminate legal information in neighbourhood villages.

9. Global Exposure and Innovation

**International Tie-ups:**

* Facilitate "a global perspective on legal education, promote cross-cultural understanding, and facilitate international research and exchange programs."
* Collaboration with **The University of Waikato, New Zealand**, allows MRU UG students to progress to PG study options at Waikato, including LLM, Master of Legal Studies (MLS), and Magister Juris (MJur).

**Innovation & Startups:**

* Manav Rachna Business Incubator nurtures "innovative instinct of the students, alumni and faculty."
* Provides "design, fabrication, manufacturing facilities" and assists with "capital from angel investors, state governments, economic-development coalitions and other investors."
* Offers mentorship, expertise, networking, and regulatory, financial, and administrative support for startups.

10. Application Process

The application process is a 5-step online procedure:

1. **Visit the Official Website:** Go to www.manavrachna.edu.in and navigate to the Admissions section.
2. **Fill Out the Online Application Form:** Click "Apply Now," create login credentials, and complete the form with personal, academic, and contact details.
3. **Upload Required Documents:** Submit scanned copies of Class 10 & 12, UG mark sheets, Aadhaar card, and passport-size photographs.
4. **Pay the Application Fee:** Online payment via net banking, debit/credit card, or UPI.
5. **Merit Preparation/Shortlisting:** Based on MRNAT 2024/Graduation Qualifying Examination scores.

**Modes of Fee Payment:** Online payment, Bank Transfer (NEFT/RTGS), Demand Draft (DD), Cash Payment (at Accounts Office), Education Loan (through tie-ups with PNB, SBI, HDFC, ICICI).

**24.riefing Document: M.Tech in Computer Engineering at Manav Rachna University**

This document provides a detailed review of the M.Tech in Computer Engineering programme offered by Manav Rachna University (MRU), drawing information from the provided source.

1. Programme Overview

The M.Tech in Computer Engineering at Manav Rachna University is a **two-year postgraduate level programme (6 Semesters)** designed to provide "knowledge and practical skills-based programme that imparts students with job ready computer science knowledge and also helps in understanding concepts of the research." The annual course fee is **INR 1,37,200/-**.

2. Key Educational Benefits and USPs

The programme focuses on delivering an "Industry Oriented Curriculum mapping knowledge & skill, as per Industry demands" and offering "Exposure to the cutting-edge Tools & Techniques." Key benefits highlighted include:

* **In-depth knowledge of advanced computing concepts.**
* **Better job opportunities with higher salaries, especially in roles requiring specialized skills.**
* **Opportunity to specialize in high-demand fields like AI, Machine Learning, and Data Science.**
* **Research experience** as "a gateway to higher studies (like Ph.D.) or roles in R&D departments."

The programme also emphasizes:

* **Flexibility for working professionals** through "Coursework, Research Project and practical training."
* **Project and experiential-based learning.**
* **09 fully equipped state-of-the-art laboratories.**
* **AICTE model curriculum and industry-oriented choice-based courses.**
* **Opportunity of patents, copyrights, funded projects, consultancy, and student start-ups.**
* **Provision of up to 100% scholarship.**

3. Career Prospects and Outcomes

The M.Tech programme is designed to prepare students for a range of high-demand roles in the computer engineering sector. Potential job roles after completion include:

* Software Developer/Engineer
* Data Scientist/Engineer
* Machine Learning Engineer
* Cyber Security Analyst
* Cloud Solutions Architect
* IT Consultant
* Research Scientist in Computer Science.
* Frontend/Backend Developer
* Data Analyst
* DevOps Engineer
* UX/UI Designer
* Product Manager

The programme aims to enable students to "design and develop computer programs and possess acquaintance with emerging technologies and open-source platforms" and to "Acquire technical competency to deliver computer based innovative and effective solutions to tackle business and societal challenges, for pursuing a successful career, entrepreneurship, research and higher studies."

The document also explicitly states five reasons to pursue the M.Tech:

1. Advance technical based knowledge
2. High Salaried Job Prospects
3. Academic Career
4. Eligibility for Doctoral Programs
5. Entrepreneurship Opportunities

4. Admission Requirements and Scholarships

**Eligibility:** A minimum of **50% marks or equivalent CGPA in B.E./B.Tech in Computer Science & Engineering/ Computer Technology/ Information Technology/ MCA or equivalent.**

**Admission Criteria:** Selection is based on scores in **MRNAT/ Qualifying Examination/Gate** or **JEE Mains/ SAT / MRNAT/Graduation Qualifying Examination.**

**Scholarships:**

* **Teaching Assistantship:** "Rs. 10000/- per month for 12 teaching months during 2 years duration of the M.Tech program is available to eligible candidates."
* **Merit-based Scholarship:** Candidates have the option to choose between the merit scholarship and the teaching assistantship.

5. Programme Highlights and Industry Integration

MRU's M.Tech programme boasts several distinguishing features:

* **Accreditation:** NBA Accreditation (2023) and NAAC A.
* **Outcome-Based Education.**
* **Industry-Centric Curriculum:** "Co-designed, co-delivered and co-certified course Curriculum" with "Continuous guidance and mentorship from industry leaders."
* **Strong Industry Associations:** Partnerships with "Google Cloud, L& T Edutech, Xebia, LinkedIn Acadview, and more."
* **Access to LinkedIn Learning licenses and GitHub accounts.**
* **Alumni Connect initiative** for networking and placement support.
* **Focus on project-based and experiential learning.**
* **Active associations with professional bodies like IEEE, ICT Academy etc.**
* **Promotes Design Thinking & Innovation and acts as a Research & Innovation Catalyst.**

**Industry Exposure** is facilitated through:

* Live and Capstone projects.
* Industry mentors.
* MoUs and research collaborations.
* Expert lectures, workshops, short-term trainings, and hackathons.

6. Curriculum Structure

The two-year programme is structured across four semesters, with a strong emphasis on both theoretical knowledge and practical application (Theory & Lab components).

**Semester 1 Courses include:**

* Advanced Algorithms
* Mathematical Foundation in Computer Science
* Soft Computing and Fuzzy Logic
* Advanced Wireless & Mobile Networks
* NoSQL Database Model
* Research Methodology & IPR
* Python Programming
* R Programming (Workshop)
* Agile Technologies (Workshop)
* Pedagogical Skills

**Semester 2 Courses include:**

* Data Science
* Business Intelligence
* Optimization Techniques
* Wireless Sensor Network
* Data Preparation and Analysis
* Cloud Computing
* User Experience
* Data Visualization and Tableau
* Mini Project with Seminar
* Professional & Ethical Issues

**Semester 3 Courses include:**

* Internet of Things (IoT)
* Big Data
* Mobile Application and Services
* Operations Research
* Non-Conventional Energy Sources
* Machine Learning

**Semester 4 is dedicated to a Dissertation Project.**

The curriculum demonstrates a comprehensive approach covering fundamental computer science concepts, emerging technologies, data science, and research methodologies.

7. Facilities and Support Services

MRU offers extensive support for its M.Tech students:

* **Research Facilities:** "Students are encouraged to carry original research under the guidance of highly qualified professors in various fileds like machine Learning, Cyber security, Networking, NLP, HCI etc." There is access to "National and International online journals of repute including from IEEE, Springer, DELNET, and CSI" and an e-library. "Research Cluster labs are available for research."
* **Placement Support:** Includes "Student grooming for placement readiness through Career Development Cell (CDC) experts," on-campus recruitment, and assistance from the CRC Department for placements.
* **Innovation & Startups:** The "MRU-Innovation & Incubation Centre, established in 2018," provides a "comprehensive support system that includes workshops and training sessions on the latest technological trends," industry visits, mentorship, assistance with company registration and fundraising, and seed funding.
* **Residential Services:** On-campus and off-campus hostel accommodation with various room categories (AC/Non-AC, single/double/triple/five-seater). Includes medical facilities, medical insurance, library, and laundry.
* **Transport:** "Well-organized transport facility ensures a safe, reliable, and hassle-free commute for students traveling from Delhi and Gurugram."
* **Sports:** "World class sports facilities for outdoor and indoor games," including a 25m Shooting Range, indoor badminton and table tennis stadia, a Sports Fitness Centre, Soccer Academy, and Semi Olympic-sized swimming pool.
* **Cultural Societies:** A wide range of societies are available, including Art (Felicia), Literary (Rehnuma), Music (Moksh), Media (Drishti), Drama (Khalbali), Fashion (Noora), Tech (Tech Soul), Gaming (Gamenics), Dance (Rudra), CSR, and Sports (AthElites).

8. Unique Features of Google Cloud Tie-up

A significant highlight is the partnership with Google Cloud, offering:

* **ChromeOS & Gemini AI lab** for hands-on practice, research, and learning.
* **Certified Digital Campus on Google Cloud (DCGC 2.0)** "with advanced digital tools and Generative AI capabilities modernizing teaching and learning in classroom."
* **Google Workspace for Education (Plus).**
* **Free access to Google certification courses and badges** and subsidized prices for paid certifications (e.g., Associate Cloud Engineer, Cloud Digital Leader, Cyber Security Certificate, Data Analytics Certificate).
* Access to **Google Cloud Skill Boost Platform (Google LMS).**
* Exclusive **12-hour hackathons** with Google experts.

9. Best Practices

The programme incorporates several best practices:

* Project Based Learning
* Direct delivery through industry experts
* Flexibility of student learning through National Internship & Startup Policy
* Online Courses (NPTEL, Infosys, UIpath, MongoDB, LinkedIn learning)
* Earn While Learn under MR IMPACT Internship opportunities
* Problem/Inquiry/Research-Based Education
* Well-Planned and Well-Designed Rubrics (Formative Assessment)
* Virtual Labs from IIT Delhi
* Content Beyond Syllabus: Value-added courses to meet current industry trends
* Roadmap designed for students to be a Successful Developer/Software

10. Faculty and Research Opportunities

The faculty comprises "distinguished academicians (PhD, GATE, NET qualified) from the best institutions and leading professionals from the corporate world with rich industry and research experience." They utilise "STEP (Simulated Teaching Enabled Programmes) methodology," which includes "teaching through demonstration, analogies, case based learning, scenario playing, depicting the concepts through flash movies, role plays etc."

Research opportunities are available, with "Area specific research groups & clusters" in fields such as:

* Data Analytics And Big Data Architecture
* Architecture And Analysis Of Communication Network
* Artificial Intelligence
* Emerging Web Technologies And Applications
* Data Mining
* Network Securities
* Speech Processing, Machine Learning, Computer Vision, Pattern Recognition, Image Processing, Soft Computing, Big Data, Software Engineering, Data Mining, Robotics, Cloud Computing, Open Source Technologies.

11. Student Testimonials

A student named Mohit (2k21-2k23) shared: "Pursuing M.Tech from Manav Rachna University proved to be a life changing phase in my journey. The 2 years spent at Manav Rachna University is totally unforgettable. The rich academic curriculum enabled me to enhance my technical skills as well as capability to improve critical thinking."

Conclusion

The M.Tech in Computer Engineering at Manav Rachna University presents itself as a robust, industry-aligned, and research-focused postgraduate programme. It offers a comprehensive curriculum, strong industry partnerships (notably with Google Cloud), extensive facilities, and diverse student support, all aimed at preparing graduates for successful careers in the evolving field of computer science. The emphasis on practical skills, research, and entrepreneurial development makes it a compelling option for aspiring computer engineers.

**25.Briefing Document: M.Tech in Mechanical Engineering at Manav Rachna University (Production & Automation Specialization)**

This briefing document provides a comprehensive overview of the M.Tech in Mechanical Engineering program with a specialization in Production & Automation offered by Manav Rachna University. It highlights key program features, academic structure, industry integration, and career prospects, drawing directly from the provided source material.

1. Program Overview and Key Features

The M.Tech in Mechanical Engineering at Manav Rachna University is a **2-year (4 Semesters) postgraduate program** focused on "Manufacturing and Production Engineering." It aims to equip students with "advanced knowledge in manufacturing systems, industrial automation, and operations management," blending "theoretical foundations with practical applications." The program is highly rated with a **5-star rating** and positive student reviews.

**Key Educational Benefits (USPs):**

* **In-depth understanding of advanced manufacturing processes and technologies.**
* **Hands-on experience** with tools like "CAD/CAM, CNC machines, and industrial automation."
* Training in "lean manufacturing, quality control, and production planning."
* "Exposure to real-time industry problems through projects and internships."
* Emphasis on "enhanced research and analytical skills for innovation and problem-solving."
* Provides a "strong foundation for careers in manufacturing, R&D, or further doctoral studies."

**Program Highlights:**

* "Curriculum aligned with the latest trends in smart manufacturing and Industry 4.0."
* Offers "specialized electives in automation, supply chain and quality engineering."
* Features "project-based learning and lab-intensive training on modern tools and software."
* Includes "guest lectures, seminars, and workshops by industry experts and researchers."
* Strong focus on "research and innovation" with opportunities to "publish research and present in national/international conferences."

2. Admission and Fee Structure

**Eligibility Criteria:** Candidates must have "Minimum 50% marks or equivalent CGPA in B.E./B.Tech in relevant discipline."

**Selection Criteria:** Admission is based on "Merit preparation / short listing of candidates shall be on the basis of score in GATE/Graduation Qualifying Examination." Scholarships like "Utkarsh and Uttam" are available for candidates with "JEE Scores- 100% Scholarships."

**Application Process:** The application process involves five steps:

1. **Visit the Official Website**: Navigate to the Admissions section on www.manavrachna.edu.in.
2. **Fill Out the Online Application Form**: Create login credentials and complete personal, academic, and contact details.
3. **Upload Required Documents**: Submit scanned copies of Class 10 & 12 mark sheets, Aadhaar card, and passport-size photographs.
4. **Pay the Application Fee**: Online payment through net banking, debit/credit card, or UPI.
5. **Appear for MRNAT or Submit JEE Score**: Qualify through Manav Rachna National Aptitude Test (MRNAT) or submit a valid JEE Main score.

**Course Fee:** The annual course fee is **INR 137,200 / US $4000**. **Modes of Payment:** "Online Payment, Bank Transfer, Demand Draft (DD), Cash Payment, Education Loan" (through tie-ups with banks like PNB, SBI, HDFC, and ICICI).

3. Academic Structure and Curriculum

The 2-year program is structured across four semesters, with a strong emphasis on practical and lab-based learning. The curriculum is "designed by Experts from Industry and Academia" and incorporates the "Choice Based Credit System (CBCS)," allowing students to "Design your own Degree." Personality development and aptitude training are "an integral part of the syllabus."

**Key Course Themes across Semesters:**

* **Semester 1:** Focuses on foundational advanced manufacturing concepts, including "Modern Manufacturing Processes," "Production System & Management," "Metal Forming Analysis," "Advanced Metrology," and "Work Measurement Techniques." It also includes a crucial course in "Research Methodology."
* **Semester 2:** Delves into specialized areas like "Production Ergonomics and Workplace Design," "Advanced Welding Techniques," "Computer Integrated Manufacturing," "Industrial Automation," "Rapid Prototyping," and "Advanced Foundry Technology." It also includes "Technical Research Paper Seminar Writing" and "Pedagogical Skills."
* **Semester 3:** Covers "Theory of Metal Cutting," "Advanced Optimization Techniques," "Global Logistics System," "Advanced Material Science," "CAD/CAM FOR ENGINEERS," and "MACHINE TOOL DESIGN."
* **Semester 4:** Concludes with core subjects in "Lean Manufacturing" and "STATISTICAL QUALITY CONTROL."

The curriculum highlights the use of "modern labs, and tools like ANSYS, CATIA, and 3D printing."

4. Industry Exposure and Career Prospects

The program boasts significant industry integration, aiming to prepare graduates for leadership roles in modern manufacturing and process industries.

**Industry Exposure Highlights:**

* "Regular industrial visits to top manufacturing and automation companies."
* "Live projects and internships with industry partners for real-world experience."
* "Collaboration with industries for problem-solving and case studies."
* "Participation in industry-driven training programs, and certifications."
* "Networking opportunities with professionals through seminars and industry meets."
* The university runs "several industrial interaction programmes with numerous industries namely NTPC, NHPC, SHRIRAM PISTON, MARUTI SUZUKI, WHIRLPOOL, YAMAHA, JCB, TATA MOTORS, SONALIKA TRACTORS, INDIGO, HCL and many more."

**Internship & Placement Opportunities:**

* **Industrial Visits** and **Guest Speakers/Networking Events** frequently lead to internship opportunities.
* The university has a dedicated "CRC DEPARTMENT FOR PLACEMENTS" and a "Career Development Cell (CDC)" collectively known as CRCDC, providing extensive placement support.
* **Placement Statistics:** "Batch:2022-23: 100%" and "Batch:2023-24: 100%".

**Career Pathway & Future Career Prospects:** Graduates can pursue diverse roles such as:

* "design engineers"
* "production/manufacturing engineers"
* "R&D specialists"
* "quality control professionals"
* "Smart Manufacturing Engineer"
* "Robotics engineer/technician"
* "Control system design/engineer"
* "Data scientist/big data analyst"
* "CNC Programmer Engineer"
* "Software/Hardware engineer"

They can work in "automotive, aerospace, energy, or consumer goods" industries, "government jobs (e.g., PSUs, IES)," or explore "teaching, research, or entrepreneurship."

**Top Recruiters:** Prominent recruiters include: "Honda, Krishna Maruti, TCS, IndiGo, LG, Maruti Suzuki, Tata Motors, Google Deep mind, Deloitte, Sagacious IP." A student testimonial from Himanshu Jha mentions successful placement at **LG**.

5. Research, Innovation, and Student Support

Manav Rachna University strongly emphasizes research and innovation, fostering an environment for students to excel beyond academics.

**Capstone Project & Research:**

* "Design Thinking, Research & Innovation has been added to the curriculum to enhance the research capabilities of students."
* Students have access to "National and International online journals of repute including from IEEE, Springer, DELNET, and CSI," and an "e-library facility."
* Guidance is provided on "how to write research papers, file patents etc."
* The university has an "e-cell" and "Pre-incubation centre" on campus to facilitate research and provide "Mentorship support."

**Innovation & Startups:** The "Manav Rachna Business Incubator" nurtures innovation, providing "design, fabrication, manufacturing facilities," "path to capital from angel investors," and "intangible benefits including mentorship, expertise and networking."

**Student Achievements and Co-curricular Activities:** The university supports student research and provides platforms for presenting papers, as evidenced by student publications and awards in conferences like Anveshan. Students also excel in sports and cultural activities, including a "25m Shooting Range and 10m air-conditioned Indoor Shooting Range," and various cultural societies like "Manav Rachna Music Society : SURTARANG," "Manav Rachna Dance Society – MRIDAKSH," and "Manav Rachna Theatrical Society PAIGAM."

**Residential Facilities & Transport:**

* Both on-campus and off-campus hostel accommodation are available with various room categories (AC/Non-AC, single/double/triple/five-seater) with attached/common bathrooms.
* Hostel fees include "Medical facilities, medical insurance, library facilities and laundry facilities," and "Mess Plan."
* **World-class sports facilities** are available, including basketball, volleyball, cricket, shooting, table tennis, squash, billiards, soccer, chess, and carom.
* **Transport facility** ensures a "safe, reliable, and hassle-free commute for students traveling from Delhi and Gurugram," with "GPS-enabled buses."

**Best Practices:** The program adheres to "Industry-Aligned Curriculum," "Hands-On Learning Approach," "Industry Collaboration & MoUs," "Research & Innovation Focus," "Project-Based Learning," "Soft Skills & Career Development," and "Continuous Assessment and Feedback."

This briefing document provides a comprehensive overview of the M.Tech in Mechanical Engineering (Production & Automation) program at Manav Rachna University, highlighting its strong academic foundation, industry relevance, and robust student support systems.

**26.Briefing Document: M.Sc. Chemistry Programme AY 2025-26**

This document provides a detailed overview of the M.Sc. Chemistry programme for the academic year 2025-26, highlighting its key features, curriculum, career prospects, and facilities.

1. Programme Overview and Structure

The M.Sc. Chemistry is a **2-year (4 Semesters)** postgraduate programme designed for "thorough preparation to work across diverse sectors through a well-rounded blend of academic rigor, hands-on experience, and industry exposure." The curriculum covers major branches of chemistry, including "organic, inorganic, physical, analytical, environmental, and materials science," along with elective and interdisciplinary subjects.

**Key Features:**

* **Duration:** 2 Years (4 Semesters), with an internship in the 4th semester.
* **Course Fee:** INR 1,05,000 / US $ annually.
* **Specialisations:** Students can specialise in Organic Chemistry, Inorganic Chemistry, or Physical Chemistry.
* **Curriculum Design:** The curriculum is "developed by leading professionals from industry and academia" and integrates the "Choice Based Credit System (CBCS)," offering academic flexibility and relevance.
* **Credit Structure:** The programme comprises 83 credits.

**Curriculum Breakdown (Core Subjects & Labs):**

The programme is structured to provide a strong foundation in both theoretical and practical chemistry, with progressive learning across semesters.

* **Semester 1:** Focuses on foundational aspects of Physical Chemistry-I, Inorganic Chemistry-I, Organic Chemistry-I, and Analytical Chemistry, alongside dedicated laboratory courses for each. Professional Competency PG is also included.
* **Examples of Course Outcomes:** "Understand the basics of Quantum mechanics" (Physical Chemistry-I), "Understand the theories of bonding in coordination compounds" (Inorganic Chemistry-I), "To understand and enhance the knowledge of the students towards reaction intermediates and its use in synthesis" (Organic Chemistry-I).
* **Semester 2:** Builds upon Semester 1 with Physical Chemistry-II, Inorganic Chemistry-II, Organic Chemistry-II, and Molecular Spectroscopy. It continues with laboratory work and introduces "SCIENTIFIC RESEARCH-I" from this semester, fostering "critical thinking, collaboration, and innovation."
* **Examples of Course Outcomes:** "Explain the connection between classical statistical mechanics and quantum statistical mechanics" (Physical Chemistry-II), "Distinguish between the mechanism of nucleophilic addition reactions, elimination reactions" (Organic Chemistry-II), "To learn the interpretation of NMR spectra for identification of compounds" (Molecular Spectroscopy).
* **Semester 3:** Introduces more advanced and specialised topics. Students delve into "Symmetry & Group Theory" and choose from specialisation tracks (Physical Special I/II, Inorganic Special I/II, Organic Special I/II). Elective courses further deepen their knowledge in areas like "Advanced Spectroscopy," "Solid State Materials," "Modern Organic Synthetic Techniques," and "Bioorganic Chemistry." Laboratory work continues, as does "Scientific Research-II."
* **Examples of Course Outcomes:** "Apply basics of group theory to identify the symmetry operations and symmetry elements in various molecules" (Symmetry & Group Theory), "Understand the concept of nomenclature in organometallic compounds and identify the specific characteristics of ligands" (Inorganic Special-I), "To learn the application of various methodologies used in asymmetric synthesis" (Organic Special-I).
* **Semester 4:** Culminates in a "Major Project (Industrial or Research Lab Training)." This six-month internship is a cornerstone of the programme, allowing students to "apply theoretical knowledge and practical skills to a research project and on the collection and analysis of scientific data."

2. Unique Selling Propositions (USPs) and Educational Benefits

The M.Sc. Chemistry programme emphasises a holistic learning experience, combining academic excellence with practical exposure and career development.

**Key Educational Benefits highlighted include:**

* **State-of-the-Art Laboratories & University Instrumentation Centre (UIC):** Providing "advanced practical exposure across disciplines" and equipped with "modern, sophisticated instruments to support research in frontier areas of Science & Technology; serves as a central facility for sample characterization." Instruments include "NMR, HPLC, and UV-Vis spectrophotometers."
* **Strong Industry Associations & Skill-Based Training:** Collaborations with "tech leaders like Google, MongoDB, and UiPath" ensure curriculum alignment, training, internships, and placement. MOUs with leading organisations facilitate "Skill-Based Training Programs" to enhance employability.
* **Integrated Career Development:** A dedicated "Career Development Cell (CDC)" offers "personalized grooming and placement readiness support from industry experts." The curriculum also embeds "comprehensive career skill development modules."
* **Research Focus:** "Introduction to Research" through a structured sequence of courses starting from the second semester, culminating in a research-based dissertation (Major Project). Opportunities to "publish your research in Journals and conferences, and navigate IPR."
* **Scholarship Opportunities:** Provision for "up to 100% tuition waiver based on merit and need."
* **E-Learning Resources:** Access to MOOC platforms such as "NPTEL, Coursera, LinkedIn Learning, and more."
* **Academic Enrichment:** Activities like "conferences, workshops, webinars, short-term training programs, and industry internships."
* **Global Exposure:** "International Faculty engagement sessions and robust international collaborations" aim to keep students updated with global research trends.

3. Admission Requirements and Process

* **Eligibility:** Pass in B.Sc. with Chemistry or B.Sc. (Hons.) Chemistry with 50% or more marks in relevant subjects.
* **Admission Criteria:** Merit in MRNAT (Manav Rachna National Aptitude Test), Graduation Qualifying Examination, or CUET (Common University Entrance Test).
* **Nationality:** Indian/NRI/PIO/Foreign.
* **Scholarships:** Up to 100% scholarships are available based on MRNAT, CUET, and graduation marks.

**Application Process:**

1. **Visit Official Website:** www.manavrachna.edu.in, navigate to the Admissions section.
2. **Fill Online Application Form:** Create login credentials and complete the form with personal, academic, and contact details.
3. **Upload Required Documents:** Scanned copies of Class 10 & 12 mark sheets, Graduation Marksheets, Aadhaar card, and passport-size photographs.
4. **Pay Application Fee:** Online payment via net banking, debit/credit card, or UPI.
5. **Appear for MRNAT or Submit CUET Score:** Qualify through MRNAT or submit a valid CUET score.

4. Internships and Placements

The programme places a strong emphasis on practical exposure and career readiness.

* **Internship Opportunities:** Students benefit from **"6-month internships"** at prestigious institutions such as "CSIR labs (NPL), IUAC and PSUs in India (DRDO, IOCL, Reddy’s etc)" and "reputed pharmaceutical companies." This provides "hands-on exposure to advanced research, industry-specific applications, and valuable insights into real-world chemistry challenges."
* **Placement Assistance:** "Robust placement assistance, connecting students with leading companies in pharmaceuticals, chemical industries, research organizations, and public sector undertakings including Jubilant, Sun Pharma, Wipro etc."
* **Top Recruiters:** Karnatka Bank, Jubilant FoodWorks, Agilent Technologies, Wipro, BYJU’s, Lido learning, Federal Bank, Insight alpha research solutions, IOCL, Kantech Research Solutions.
* **Placement Statistics:** 80%.

**Student Testimonials highlight successful placements:**

* **Ms. Monika Sharma, Customer Service Associate, Karnataka Bank:** "The focus on hands-on learning and research prepared me well for real-world challenges and helped me build the skills I now apply in my role as a Customer Service Associate at Karnataka Bank."
* **Ms. Ritika Dhankar, Research Trainee at Kantech Research Solutions:** "Today, I am working as a Research Trainee at Kantech Research Solutions—a role I was well-prepared for thanks to the rigorous academic training and continuous support I received at Manav Rachna."
* **Mr. Bhavesh Munjal, Executive, Sun Pharma:** "Currently, I’m working as an Executive at Sun Pharma—a role I could step into with confidence thanks to the knowledge, hands-on experience, and personal growth I gained during my time at Manav Rachna."

5. Career Pathways

An M.Sc. in Chemistry opens up a wide array of career opportunities across various sectors.

* **Research Scientist:** In academia or industry (pharmaceuticals, chemicals, biotechnology).
* **Pharmaceutical Industry:** Drug discovery, development, quality control, synthesizing new compounds.
* **Chemical Industry:** Developing new materials, improving processes, quality control (petrochemicals, agrochemicals).
* **Environmental Chemistry:** Pollution control, waste management, sustainable practices, environmental consulting.
* **Analytical Chemistry:** Quality control, forensic analysis, instrumentation research.
* **Materials Science:** Developing new materials for electronics, aerospace, medicine.
* **Academia and Teaching:** High school or university level (with further Ph.D.).
* **Government and Regulatory Agencies:** Food and drug safety, environmental monitoring, setting regulations.
* **Science Communication and Journalism:** Translating complex scientific concepts.
* **Consulting:** Expertise in environmental consulting, product development.
* **Patent Examiner:** Evaluating patent applications for chemical inventions.
* **Healthcare and Medical Research:** Drug design, diagnostic technology.
* **Ph.D. and Academic Research:** Advanced research and professorship.
* **Entrepreneurship:** Starting businesses focused on chemical products or services.

The programme aims to produce graduates who can "participate and succeed in competitive examinations" like "CSIR-NET, GATE and other exams."

6. Facilities and Campus Life

* **Location:** Situated in the "serene and inspiring Aravalli Hills," providing "a conducive environment for focused academic growth and personal development."
* **Residential Services:** On-campus and off-campus hostel accommodation with various room categories (AC/Non-AC, single/double/triple/five-seater) and attached/common bathrooms. Hostel fees include medical facilities, medical insurance, library access, and laundry.
* **Mess Plan:** Included in Hostel Fees.
* **Sports Facilities:** World-class facilities for both indoor and outdoor games (basketball, volleyball, cricket, shooting, table tennis, squash, billiards, soccer, chess, carom), including a 25m Shooting Range, 10m air-conditioned Indoor Shooting Range, indoor badminton and table tennis stadia, a Sports Fitness Centre, Soccer Academy, and a Semi Olympic-sized swimming pool.
* **Transport:** Well-organized transport facility for students from Delhi and Gurugram, with GPS-enabled buses, trained drivers, and onboard support staff.
* **Innovation & Startups:** Manav Rachna Business Incubator supports "innovative instinct of the students, alumni and faculty," providing "design, fabrication, manufacturing facilities" and access to "capital from angel investors, state governments, economic-development coalitions and other investors."
* **Cultural Societies:** A wide range of cultural societies cater to various interests, including Music (SURTARANG), Dance (MRIDAKSH), Literary Forum, Arts (AAREKH), Theatrical (PAIGAM), Fashion (AAIRA), Photography Club, and National Service Scheme (NSS).

7. Student Achievements

The programme highlights several student achievements, demonstrating the quality of education and support provided:

* **Internships:** M.Sc. Chemistry students completed 6-month internships at "CSIR labs (NPL), IUAC and PSUs in India (DRDO, IOCL, Reddy’s etc)."
* **Competitive Exam Success:Sakshi Gupta (M.Sc. Chemistry, 2017-19 batch):** "CSIR-JRF (AIR-47), CSIR- NET (Rank-26)," pursuing Ph.D from National Physical Laboratory, New Delhi.
* **Dixita Sharma and Anjali Garg (BSc (H) Chemistry, 2017-2020):** "qualified IIT-JAM" and gained admission to M.Sc. Chemistry at IIT BHU.
* **International Recognition:** **Vinika Tyagi (BSc (H) Chemistry, 2017-2020):** received a "fellowship of Rs 3 Lakh for Pursuing M.Sc. Pharmaceutical, University of Strathclyde, United Kingdom."
* **Presentations & Publications:** Students have "presented papers at various national and international conferences/webinars/symposiums/seminars" and "published papers in reputed national and international journals" such as *International Nano Letters* and *Environmental Applications*.

**27.Briefing Document: LLB Programme Overview**

This document provides a detailed overview of the LLB (Bachelor of Legislative Law) programme, highlighting its key features, admission requirements, curriculum, career prospects, and student support services.

I. Programme Overview

The LLB is a three-year undergraduate programme designed for graduates from any discipline who wish to pursue a career in law. It offers an interdisciplinary study approach, combining theoretical knowledge with experiential learning. The programme prepares students for the 'All India Bar' (AIB) Examination, enabling them to practice as advocates in India.

**Key Facts:**

* **Course Level:** Undergraduate
* **Duration:** 3 Years (6 Semesters)
* **Course Fee (Annual):** INR 1,74,000 / US $ 3500
* **Rating:** ⭐ 4.3 (based on 18 reviews)

**Core Features:**

* **Interdisciplinary Study:** The programme offers an "interdisciplinary study of the law which combines theoretical knowledge with experiential learning."
* **Target Audience:** "specifically designed for graduates from any discipline wanting to pursue a career in law."
* **Comprehensive Legal Knowledge:** Provides "in-depth knowledge of the core legal subjects such as constitutional law, company law, criminal law, property law, international law, contract law etc."
* **Fundamental Legal Skills:** Enables students to "acquire fundamental legal skills such as legal research and analysis."
* **AIB Examination Preparation:** Prepares students to "appear for the ‘All India Bar’ (AIB) Examination and practice as advocates."
* **Career Transition:** "It is preferred for individuals seeking to transition into law with prior educational qualifications."

II. Unique Selling Propositions (USPs)

The LLB programme offers several distinct advantages:

* **Professional Degree:** It provides a "professional degree that makes a person eligible to appear for AIB exam and practice law in any court of India."
* **Career Flexibility:** Allows students to "make transition into the field of law by doing LLB after pursuing graduation in any subject."
* **Multiple Career Options:** Offers "Multiple Career Options."
* **Holistic Development:** Emphasises "Strong emphasis on professional training and holistic personality development."
* **Practical Learning:** Incorporates "experiential, participative and problem-based learning methodologies to create a more engaging and relevant learning experience."

III. Admission Requirements

**Eligibility:**

* "Pass with 50% or more marks in aggregate in the Bachelor’s degree in the qualifying 3 or 4 year bachelor degree."

**Admission Criteria:**

* "Merit preparation/ short listing of candidates shall be on the basis of score in MRNAT or Graduation Qualifying Examination."

**Scholarship Programme:**

* "Based on MRNAT and graduation score, a student can avail up to 100% Scholarships on Tuition Fees under Utkarsh and Uttam Scheme."

**Application Process:**

1. **Visit the Official Website:** Go to www.manavrachna.edu.in and navigate to the Admissions section.
2. **Fill Out the Online Application Form:** Click on "Apply Now", create login credentials, and complete the form with personal, academic, and contact details.
3. **Upload Required Documents:** Submit scanned copies of essential documents, including Class 10 & 12 mark sheets, Graduation, Aadhaar card, and passport-size photographs.
4. **Pay the Application Fee:** Complete the application by making an online payment.
5. **Appear for MRNAT or Submit Graduation Score:** Qualify through MRNAT (Manav Rachna National Aptitude Test) or submit graduation marksheet for merit-based admission.

**Modes of Payment:**

* Online Payment (net banking, debit/credit card, UPI)
* Bank Transfer (NEFT/RTGS)
* Demand Draft (DD)
* Cash Payment (at the Accounts Office on campus, subject to limits)
* Education Loan (through tie-ups with banks like PNB, SBI, HDFC, and ICICI)

IV. Curriculum Structure

The LLB is a three-year programme with a structured curriculum covering a wide range of legal subjects.

**Semester 1 Courses Include:**

* Law of Torts
* Law of Contract-I
* Family Law-I
* Law of Crimes-I
* Constitutional Law-I
* Environmental Law

**Semester 2 Courses Include:**

* Law of Contract-II
* Constitutional Law-II
* Family Law-II
* Property Law
* Jurisprudence
* Law of Crimes-II

**Semester 3 Courses Include:**

* Administrative Law
* Company Law
* Law of Criminal Procedure
* Law of Evidence
* Public International Law and Human Rights
* Intellectual Property Rights Law
* Internship Viva I

**Semester 4 Courses Include:**

* Civil Procedure Code and Limitation Act
* Labour Laws
* Alternate Dispute Resolution
* Cyber Laws
* Private International Laws
* Principles of Taxation

**Semester 5 Courses Include:**

* Drafting, Pleading and Conveyancing
* Land Laws
* Interpretation of Statutes
* Banking and Insurance Laws
* Criminology, Penology & Victimology
* Internship Viva II

**Semester 6 Courses Include:**

* Moot Court Exercise and Internship
* Professional Ethics and Professional Accounting System
* Artificial Intelligence and Law
* Competition Law

**Program Highlights:**

* "offers interdisciplinary study of the law which combines theoretical knowledge with experiential learning."
* "offers strong linkages with industry, corporates, law firms, Senior Advocates of the various High Courts and the Supreme Court of India, and regulatory bodies which helps to facilitate internships and placements."
* "provide students with participation in International and National Moot Court Competitions, Client Counselling and Mediation Competitions, Judgment Writing, International and National Conferences and Seminars."
* "Students participation and emphasis on Clinical Legal Education."

V. Internship & Placement

The programme provides robust internship and placement assistance, with strong industry linkages.

* **Internship & Placement Opportunities:** "100% internship and placement assistance through dedicated Department of Training and Placements."
* **Industry Exposure:** Connects students with "industry experts" through various "Centers of Excellence and Research Groups" and "Legal aid clinics."
* **Top Recruiters & Placement Opportunities:** Areness-Law Firm, Moolchand Health Care, Lawrato etc.

VI. Career Pathways

The LLB programme opens diverse career avenues for graduates:

* **Litigation:** Practicing in District Courts, High Courts, and the Supreme Court of India.
* **Government & Judiciary:** UPSC, Judicial Services, Armed Forces (Judge Advocate General), Judicial Clerkship.
* **Corporate & Legal Firms:** Law firms, In-house counsels for companies, Legal Advisor for MNCs, Legal officers for Banks and Insurance Companies, LPOs, KPOs.
* **Non-Traditional Roles:** NGOs, Legal Editor, Legal Journalist, Academia as industry experts.
* **Complementary to Other Degrees:** "Aids many other degreeS such as CA, CS, CMA etc."
* **UPSC Exam Aid:** "Aids in UPSC exam."

VII. Programme Outcomes

The programme aims to equip law graduates with a comprehensive set of skills and knowledge:

* **PO1: Knowledge Of Law:** Fundamental principles, legislations, and leading cases.
* **PO2: Communication Skills:** Effective oral and written communication, analytical reading and writing.
* **PO3: Critical Thinking:** Analysing and evaluating evidence, arguments, and formulating coherent arguments.
* **PO4: Problem Solving:** Applying competencies to solve various legal problems and real-life situations.
* **PO5: Analytical Reasoning:** Evaluating evidence, identifying logical flaws, and drawing valid conclusions.
* **PO6: Research-related Skills:** Inquiry, cause-and-effect relationships, and conducting investigations.
* **PO7: Moral and Ethical Awareness/Reasoning:** Embracing moral/ethical values, identifying ethical issues, and avoiding unethical behaviour.
* **PO8: Professional Advocacy and Consultancy:** Performing advocacy and consultancy work professionally.
* **PO9: Digital Literacy:** Utilizing ICT, accessing information, and using relevant software for data analysis.
* **PO10: Self-directed Learning:** Working independently, identifying resources, and managing projects to completion.

VIII. Facilities and Student Life

* **Residential Services:** On-campus and off-campus hostel accommodation for boys and girls, with various room categories (AC/Non-AC, single/double/triple/five-seater) and attached/common bathrooms. Includes medical facilities, medical insurance, library, and laundry.
* **Mess Plan:** Included in Hostel Fees.
* **Sports:** World-class facilities for outdoor and indoor games (basketball, volleyball, cricket, shooting, table tennis, squash, billiards, soccer, chess, carom), including a 25m Shooting Range, 10m air-conditioned Indoor Shooting Range, indoor badminton and table tennis stadia, a Sports Fitness Centre, Soccer Academy, and Semi Olympic-sized swimming pool.
* **Parking:** Ample parking space available for students.
* **Transport:** Well-organised GPS-enabled bus fleet for commuting from Delhi and Gurugram.
* **Extra-Curricular Activities:** Strong emphasis on experiential learning.
* **Innovation & Startups:** Manav Rachna Business Incubator supports innovative instincts, provides design, fabrication, manufacturing facilities, and offers access to capital, mentorship, expertise, and networking.
* **Cultural Societies:** A wide range of societies including:
* Khalbali - The Dramatics Society
* Moksh - The Music Society
* Rudra - The Dance Society
* Noora - The Fashion Society
* Drishti - The Media Society
* Rehnuma - The Literary Society
* Karisma - The Personality Development Society
* Felicia - The Art Society
* GAMENIX - The Gaming Society
* TechSoul - The Personality Development Society
* **Co-curricular Activities & Research:** National Moot court competition, Youth Parliament, Client Counselling, debate, judgment writing competition, poster making etc.
* **Best Practices:** Legal aid camps, projects, internship and placement.

**28.Briefing Document: BCA in FinTech Programme at Manav Rachna University**

This document provides a detailed overview of the Bachelor of Computer Applications (BCA) in FinTech programme offered by Manav Rachna University (MRU), highlighting its key features, academic structure, industry partnerships, and career prospects.

1. Programme Overview

The BCA in FinTech is a "3+1 year undergraduate program designed to equip students with a strong foundation in computer science while specializing Financial Technologies." This programme aims to meet the demands of the "rapidly evolving IT sector" by blending "computer science expertise and financial technology knowledge," focusing on "developing technical and analytical skills to address the needs of the rapidly evolving fintech industry, where technology innovation is transforming traditional financial services."

* **Course Name:** BCA (Bachelor of Computer Applications)
* **Specialisation:** FinTech
* **Duration:** 3/4 Years (6/8 Semesters)
* **Course Level:** Undergraduate
* **Annual Fee:** INR 2,28,000 / US $
* **Rating:** ⭐ 5 (2 Reviews)

2. Unique Selling Proposition (USPs) and Key Educational Benefits

The programme distinguishes itself through several unique features and benefits:

* **Exclusive Partnership with KPMG:** MRU is highlighted as "The sole institution in INDIA offering a BCA program in FinTech in partnership with KPMG." This collaboration ensures the curriculum is "aligned with KPMG FinTech Modules" and "Specialized Subjects are taught by KPMG Trainers," providing "immediately applicable skills to meet real-world challenges."
* **Industry-Oriented Curriculum:** The programme boasts "Industry-oriented curriculum development, teaching, attainment of industry-relevant certifications, and practical hands-on live projects." It incorporates "Project and experiential-based learning" and offers "choice-based credit structure allowing students to pursue interdisciplinary minors."
* **Advanced Digital Campus:** MRU operates as a "Certified Digital campus on Google Cloud with advanced digital tools and generative AI capabilities modernizing teaching and learning in the classroom." This includes access to a "Google Gemini AI Lab."
* **Comprehensive Student Support:** Students benefit from "Dedicated student mentoring throughout the program, offering career guidance and support," "Skill-based training for enhancing employability skills through MOUs," and "Student grooming for placement readiness through Career Development Cell(CDC) experts."
* **Research and Innovation Focus:** The curriculum includes "Introduction to Research" sequence courses and encourages "Opportunity of patents, copyrights, funded projects, consultancy, and student start-ups." The "MRU-Innovation & Incubation Centre" established in 2018, provides "end-to-end mentorship," "seed funding," and assistance with "Company registration and fundraising."
* **Extensive Industry Collaborations:** Beyond KPMG, MRU has strong associations with "GoogleCloud, Xebia, LinkedIn Learning, MongoDB, UIPath, Infosys SpringBoard."
* **Google Tie-Ups:** MRU is "First in Haryana and Second in India to offer B.Tech. Generative-AI and BCA Cloud Computing with Google." This partnership provides "ChromeOS & Gemini AI lab," "Google Workspace for Education (Plus)," "Free access to Google certification courses and badges," and "Access to Placement Fairs by Google for students with various Google certifications."

3. Admission Requirements and Criteria

* **Eligibility:** Pass in 10+2 examination with at least 50% marks in aggregate in 5 subjects. Students from all streams are eligible, and English is compulsory.
* **Admission/Selection Criteria:** MRNAT (Manav Rachna National Aptitude Test), XII Qualifying Examination, or CUET (Common University Entrance Test).
* **Nationality:** Indian/NRI/PIO/Foreign.
* **Scholarships:** Up to 100% scholarships are available through MRNAT's Utkarsh and Uttam programmes, as well as other university norms.

4. Curriculum Structure and Highlights

The programme is a 3+1 year structure, integrating core computer science with financial technology specialisation.

* **Core Subjects:** Covers foundational areas like Mathematical Foundation of Computer Science, C Programming, Object-Oriented Concepts using Java, Data Structures, Operating System Fundamentals, and Web Technologies.
* **FinTech Specialisation:** Dedicated courses include "Foundation of FinTech," "ESG & Sustainable Finance" (with KPMG consultation), "Python for Financial Analytics," "AI for Financial Modeling," "Cloud Computing for FinTech," "Python for FinTech & Data Viz," and "Generative AI in Finance."
* **Soft Skills and Ethics:** Includes "Professional Communication-I & II," "Indian Constitution," "Environmental Science," and "Ethics."
* **Internships:** Mandatory internships are integrated after the 2nd (Social Internship), 4th (Industry Immersion), and 6th semesters (Industry Internship), "ensuring hands-on experience and practical learning."
* **Projects:** Students undertake a "Minor Project" and a "Major Project," with "Interdisciplinary projects" also being a focus.
* **Research Integration:** "Introduction to Research" is included in Semesters 3 to 5, "emphasizing originality, feasibility for start-ups, and documentation of outcomes."

5. Career Pathways and Industry Exposure

Graduates are "well-prepared for a wide range of exciting career opportunities within the rapidly expanding Fintech landscape."

* **Potential Career Paths:**Blockchain Developer
* Financial Software Developer
* Data Analyst
* AI/ML Specialist in Finance
* Product Manager (Fintech Products)
* Mobile App Developer for Payment System
* Fintech Entrepreneur
* Fintech Consultant
* **Industry Exposure:** Achieved through "Co-Designed, Co-Delivered and Co-Certified Programs," "Industrial Visits," "Industry mentors support for project building and networking," and multiple internships.
* **Top Recruiters:** Includes leading companies like Google, HCL, Nokia, KPMG, Accenture, IBM, Coforge, and Tech Mahindra.
* **Placement Support:** Includes "Student grooming for placement readiness through Career Development Cell (CDC) experts," "Super 40 batches for placement support," and "Integration of Employability questions in the tutorial sheets."

6. Campus Facilities and Student Life

MRU offers a comprehensive student experience:

* **Residential Services:** On-campus and off-campus hostel accommodation with various room categories (AC/Non-AC, single/double/triple/five-seater) and included amenities (medical facilities, insurance, library access, laundry, mess plan).
* **Sports Facilities:** World-class facilities for both indoor and outdoor games, including a 25m Shooting Range, 10m air-conditioned Indoor Shooting Range, indoor badminton and table tennis stadia, a Soccer Academy, and a Semi Olympic-sized swimming pool. A Sports Fitness Centre is also available.
* **Transport:** A "well-organized transport facility ensures a safe, reliable, and hassle-free commute for students traveling from Delhi and Gurugram."
* **Clubs and Societies:** A wide range of cultural (Music, Dance, Literary, Arts, Theatrical, Fashion, Photography) and technical clubs (Cybersecurity Squad, Coding Club, IEEE, NPTEL) are available, along with the National Service Scheme (NSS).

7. Student Achievements and Best Practices

The document highlights numerous student achievements, including success in hackathons (JPMorgan Chase Code for Good, Spark 3 Hackathon, HealthTech Innovations Fest), competitive programming (ICPC Kanpur Regionals), NPTEL toppers, and securing fellowships and internships with prestigious organisations like IIT Bhilai and Google. Alumni success stories, such as a co-founder of Kibo appearing on Shark Tank, are also noted.

MRU employs several "Best Practices," including:

* Project-Based Learning
* Direct delivery by industry experts
* Flexibility of student learning through National Internship & Startup Policy
* Integration of Online Courses (NPTEL, Infosys, UIPath, MongoDB, LinkedIn Learning)
* "Earn While Learn" under MR IMPACT Internship opportunities
* Problem/Inquiry/Research-Based Education
* Well-Planned and Well-Designed Rubrics (Formative Assessment)
* Major Focus on Preparing Students for Product-Based Companies from Super-40 Batch
* Specialized Technical Training for Placement Perspectives
* Emphasis on Coding Culture through competitions
* Roadmap designed for students to be a Successful Developer/Software

In conclusion, the BCA in FinTech programme at Manav Rachna University, with its strong KPMG partnership, industry-aligned curriculum, focus on practical skills, and robust support system, positions itself as a compelling choice for students aspiring to careers at the intersection of technology and finance.

29.Briefing Document: B.Tech Mechanical Engineering with Specialisation in Electric Vehicle Technology

1. Programme Overview

The B.Tech in Mechanical Engineering with a specialisation in Electric Vehicle (EV) Technology is a four-year undergraduate programme designed to meet the growing demands of the sustainable transportation sector. It offers a "comprehensive understanding of the principles of EV systems, electric powertrains, battery management systems, and green mobility solutions, along with core mechanical engineering subjects." The curriculum is aligned with both national and international EV trends to ensure graduates are "industry-ready for the evolving automotive landscape."

**Key features include:**

* **Duration:** 4 Years (8 Semesters).
* **Course Fee (Annual):** INR 2,44,000 / US $4,000.
* **Rating:** ⭐ 5.
* **Brochure:** Available as PDF.

2. Unique Selling Propositions (USPs) and Educational Benefits

The programme aims to "nurture the next generation of engineers to drive the electric mobility revolution." Students will acquire "critical insights into EV ecosystems and sustainable engineering practices," preparing them for diverse roles in the EV and clean energy sectors.

**Key educational benefits highlighted are:**

* Specialised knowledge of electric mobility and battery technologies.
* Exposure to EV design, simulation, and testing tools.
* Hands-on experience with EV components and systems.
* Strong industry linkages for internships and projects.
* Career opportunities in the booming EV and clean energy sectors.

3. Admission Requirements

**Eligibility Criteria:** Applicants must have passed the 10+2 examination with at least 55% marks in aggregate across five subjects. Eligibility is determined by the percentage of aggregate marks in English, Physics, Chemistry, Mathematics, and one subject with the highest score from the remaining subjects.

**Admission Criteria:** Merit-based selection through scores in JEE Mains, SAT, Pearson, MRNAT, or XII Qualifying Examination.

**Nationality:** Open to Indian, NRI, PIO, and Foreign candidates.

**Scholarships:** "Utkarsh and Uttam along with JEE Scores- 100% Scholarships" are available.

4. Programme Highlights

The curriculum boasts several distinguishing features:

* **L&T Collaboration:** "L&T Collaboration as knowledge partner for specialised learning." This includes "Learn live from L&T Experts and SMEs on industry-application," "Industry immersive learning opportunity," and "Placement opportunities will be facilitated by L&T EduTech."
* **Core Technical Modules:** Focus on Electric vehicle design, dynamics, and Energy Storage Systems.
* **Emerging Technologies:** Understanding of AI/ML, Smart charging and grid integration, autonomous and connected vehicles.
* **Interdisciplinary Learning:** Subjects like thermal management systems, material science for EV, and renewable energy integration.
* **Entrepreneurship:** Key knowledge of entrepreneurship and business skills in the EV ecosystem.
* **Industry Exposure:** Co-Designed, Co-Delivered, and Co-Certified Programmes, Industrial Visits, Industry mentors support for project building, and Internships.

5. Curriculum Structure (Selected Highlights by Semester)

The 4-year programme integrates core mechanical engineering with specialised EV subjects.

* **Semester 1:** Introduces foundational concepts such as Green Chemistry & Sustainable Technology, Mathematics-I (Linear Algebra), Basics of Electrical and Electronics Engineering, Computer Aided Drafting, Thermodynamics, and Digital Enablement Basics for Engineers.
* **Semester 2:** Builds on fundamentals with Mathematics-II (Differential Equations), Engineering Physics, Engineering Mechanics, and Programming for Problem Solving using C.
* **Semester 3:** Deepens specialisation with Applied Thermodynamics, Fundamentals of Electric and Hybrid Electric Vehicle Technology (covering battery technologies, electric drive systems, powertrain components, energy management, charging infrastructure, and V2G technology), and Strength of Materials -I.
* **Semester 4:** Focuses on practical applications with Theory of Machines, Electric Vehicle Dynamics (including vehicle and tyre dynamics, stability control, aerodynamic designs, and modelling/simulation of EVs), Mechatronics & Measurement Systems, and Entrepreneurship.
* **Semester 5:** Advanced topics include Machine Design-I, Multiphysics based product development for BEV and FCEV (utilising FEA and CFD for vehicle design, crashworthiness, aerodynamics, and thermal management), and Batteries, Power Trains and Transmissions for EV.
* **Semester 6:** Covers Product Design and Development, EV Charging Infrastructure and Guideline (including market trends, design, regulatory guidelines, advanced technologies, and network management), Heat Transfer, and Systems Engineering Approach to EV Design.
* **Semester 7:** Includes Refrigeration and Air Conditioning, AI&ML, Industrial Engineering and Operations Research, and Project Management for Professionals.
* **Semester 8:** Dedicated to Elective Baskets and a "Major Project/Industrial Internship," allowing students to "participate in the projects in industries during his or her industrial training."

6. Career Pathways and Prospects

Graduates are prepared for a wide range of roles in the burgeoning EV sector, both in India and internationally.

**Specific Career Roles:**

* EV Design Engineers
* Battery Systems Engineers
* Powertrain Engineers
* Charging Infrastructure Engineers
* R&D Associates in electric mobility
* Vehicle diagnostics experts
* Power electronics specialists

**Industry Sectors:**

* EV manufacturing companies (e.g., Tata Motors, Mahindra Electric, Tesla)
* Automotive R&D centres
* Energy startups
* Government initiatives promoting clean and green transportation
* Renewable energy firms
* Smart city projects
* Higher education, entrepreneurship, and consulting.

The programme also prepares students for "higher studies in sustainable mobility and energy systems." The "future career prospects" are "highly promising, as the global transition to sustainable and electric mobility continues to accelerate."

7. Campus Facilities and Support

* **Residential Services:** On-campus and off-campus hostel accommodation for boys and girls, with various room categories (AC, Non-AC, single/double/triple/five-seater) and attached/common bathrooms. Includes "Medical facilities, medical insurance, library facilities and laundry facilities."
* **Mess Plan:** Included in Hostel Fees.
* **Sports:** "World class sports facilities for outdoor and indoor games," including a 25m and 10m air-conditioned indoor shooting range, indoor badminton and table tennis stadia, a Sports Fitness Centre, a Soccer Academy, and a Semi Olympic-sized swimming pool.
* **Transport:** Well-organised, GPS-enabled bus facility for students commuting from Delhi and Gurugram.
* **Placement Support:** Dedicated CRC (Corporate Resource Centre) and Career Development Cell (CDC) (collectively known as CRCDC) for inviting industries, arranging campus placements, and preparing students for various companies.
* **Research & Innovation:** Curriculum includes Design Thinking, Research & Innovation. MRU has subscriptions to national and international online journals (IEEE, Springer, DELNET, CSI), an e-library, guidance on research paper writing and patent filing, an e-cell, and a Pre-incubation centre. "Manav Rachna Business Incubator" provides "integrated, customised Innovation-Based Incubation support services" and "mentorship, expertise and networking" for startups.

8. Application Process

1. **Visit the Official Website:** Go to www.manavrachna.edu.in and navigate to the Admissions section.
2. **Fill Out the Online Application Form:** Click "Apply Now," create login credentials, and complete the form with personal, academic, and contact details.
3. **Upload Required Documents:** Submit scanned copies of Class 10 & 12 mark sheets, Aadhaar card, and passport-size photographs.
4. **Pay the Application Fee:** Complete payment online via net banking, debit/credit card, or UPI.
5. **Appear for MRNAT or Submit JEE Score:** Qualify through MRNAT or submit a valid JEE Main score for merit-based admission.

9. Key Themes

* **Industry-aligned Education:** Strong emphasis on curriculum co-designed, co-delivered, and co-certified with industry partners like L&T, ensuring graduates meet current and future industry demands.
* **Sustainable Mobility Focus:** Core mission to "nurture the next generation of engineers to drive the electric mobility revolution" and contribute to "decarbonisation and green energy solutions."
* **Hands-on and Practical Learning:** Integration of "hands-on experience with EV components and systems," "state-of-the-art labs, EV prototypes," simulation tools, industrial visits, and capstone projects.
* **Holistic Development:** Beyond technical skills, the programme cultivates soft skills, critical thinking, leadership, teamwork, professional communication, and entrepreneurial acumen.
* **Strong Career Prospects:** Explicitly highlights the "booming EV and clean energy sectors" and "high futuristic demand" for graduates, leading to "lucrative roles" and "global career pathways."
* **Research and Innovation Culture:** Encourages research capabilities, provides guidance on research papers and patents, and supports student startups through incubators and mentorship.

**30.Briefing Document: B.Tech Mechanical Engineering with Specialisation in Smart Manufacturing & Automation**

This document provides a detailed overview of the B.Tech Mechanical Engineering program with a specialisation in Smart Manufacturing & Automation, drawing from the provided source. It highlights the program's core themes, key features, and outcomes.

**1. Program Overview and Core Philosophy**

The B.Tech in Mechanical Engineering with specialization in Smart Manufacturing & Automation is a 4-year (8 semesters) undergraduate program rated 5 stars. It is explicitly designed to address the demands of **Industry 4.0**, aiming to produce professionals capable of leading the **"digital transformation of manufacturing."**

The program's core philosophy is to integrate traditional mechanical engineering fundamentals with "cutting-edge technologies such as IoT, robotics, artificial intelligence, data analytics, and cyber-physical systems." This multidisciplinary approach ensures students are prepared for "intelligent manufacturing systems that enhance productivity, quality, and efficiency in modern industrial environments."

**Key Educational Benefits (USPs):**

* "In-depth understanding of Industry 4.0 technologies"
* "Exposure to advanced manufacturing systems and automation tools"
* "Practical learning through real-time industrial projects"
* "Strong interdisciplinary knowledge base"
* "Enhanced employability in future-ready manufacturing sectors"

**2. Curriculum Structure and Key Subject Areas**

The curriculum is co-designed, co-delivered, and co-certified with industry experts, notably with **L&T Edutech**, ensuring its relevance to current industry trends. It follows a Choice Based Credit System (CBCS), allowing for elective subjects.

**Key subjects and technological integrations include:**

* **Mechanical Engineering Fundamentals:** Fluid Mechanics, Thermodynamics, Materials Science, Theory of Machines, Machine Design, Heat Transfer, Refrigeration and Air Conditioning, Strength of Materials.
* **Automation and Digital Technologies:** Mechatronics, Industrial Automation, Robotics, CNC Programming, Smart Sensors and Actuators, PLC and SCADA Systems, Cyber-Physical Systems (CPS), Data Analytics for Manufacturing.
* **Industry 4.0 Focus:Artificial Intelligence & Machine Learning (AI/ML):** Integrated into various courses, including "Collaborative robotics in Manufacturing with AI,ML and IIOT" and "Cognitive Manufacturing - Artificial Intelligence and Machine Vision."
* **Internet of Things (IoT) & Industrial IoT (IIoT):** Explored in depth, with a specific focus on "Digital Technologies with CPS, IIOT & Cloud in Manufacturing." The program explicitly states, "IoT enabled technologies will give manufacturers the chance to have full visibility of operations."
* **Robotics:** Covered comprehensively, including collaborative robotics and kinematic/dynamics analysis.
* **Cyber-Physical Systems (CPS):** A core component, emphasising the integration of computing and physical processes.
* **Data Analytics:** Underpins decision-making in smart manufacturing, as highlighted in the FAQ section: "this philosophy of smart manufacturing is going to help immensely in taking quick and accurate decisions so as to save time as well as money because it involves interactive approach of different disciplines like data analytics, artificial intelligence, machine learning, cloud computing etc."
* **Additive Manufacturing (3D Printing):** Included in "Advanced Manufacturing" and mentioned as a key technology for "Industry 5.0."

**Practical and Experiential Learning:**

* **Hands-on Training:** Utilising "laboratories, simulation tools, and industry internships."
* **Project-Based Learning:** Integrated throughout the curriculum, culminating in "Major Project/Industrial Internship" in the final semester. Students are prepared to "develop live projects independently."
* **Industry Collaborations:** MoUs with **L&T**, **Altair-DesignTech** (for FEA, CFD, Additive Manufacturing), and **Air-conditioning India Pvt. Ltd (DAIKIN)** (for a Centre of Excellence on HVAC Systems) provide state-of-the-art lab facilities and practical skill training.
* **Software Proficiency:** Students gain experience with "SOLIDWORKS, AUTOCAD, ANSYS."
* **Certifications:** Collaboration with **Trans Neuron Technologies** for Industrial Automation certification and **Hitachi Vantara** for Industry Connect module certification.

**3. Admissions and Fees**

* **Eligibility:** Pass in 10+2 examination with at least 55% aggregate marks in English, Physics, Chemistry, Mathematics, and one subject with the highest score from the remaining.
* **Admission Criteria:** Merit-based on scores from JEE Mains/ SAT / Pearson / MRNAT/XII Qualifying Examination.
* **Fees:** Annual fee is INR 2,44,000 / US $4,000.
* **Scholarships:** "Utkarsh and Uttam along with JEE Scores- 100% Scholarships" are available.

**4. Career Prospects and Outcomes**

The program boasts "strong graduate prospects with high futuristic demand for Robotics & AI professionals and excellent campus placement support."

**Placement Statistics:** The program demonstrates consistent strong placement rates:

* Batch: 2019-20 - 90%
* Batch: 2020-21 - 95%
* Batch: 2022-23 - 95%
* Batch: 2023-24 - 92%

**Potential Career Roles:** Graduates are prepared for diverse roles including:

* Smart Manufacturing Engineer
* Automation Engineer
* Robotics Engineer/Technician
* Industrial Engineer
* Process Analyst
* Manufacturing Systems Engineer
* Design Engineer
* Data Scientist/Big Data Analyst
* Control System Design/Engineer
* Startup/Entrepreneur

The program also provides a "strong foundation for higher studies and research."

**Program Specific Outcomes (PSOs):**

* **PSO 1:** Students "will be equipped with Industrial Management Skills and Interdisciplinary Technologies."
* **PSO 2:** Students "shall be conscious of sustainable use of resources in professional work."

**Program Outcomes (POs):** The program aligns with standard engineering graduate attributes, including:

* Engineering Knowledge, Problem Analysis, Design/Development of Solutions
* Conduct Investigations of Complex Problems, Engineering Tool Usage
* The Engineer and the World (societal, health, safety, legal, cultural considerations)
* Ethics, Individual and Collaborative Team Work
* Communication, Project Management and Finance, Life-long Learning

**5. Facilities and Campus Life**

* **Laboratories:** "State of art lab facilities" including Refrigeration and Air Conditioning Lab, Manufacturing workshop, Robotics lab, Fluid Mechanics Lab, Automobile and ICGT Lab, 3-D Printing, Heat Transfer, Hydraulic and Pneumatics Lab.
* **Research & Innovation:** Emphasis on enhancing research capabilities with subscriptions to national and international online journals, guidance on paper writing and patent filing, and an e-cell/Pre-incubation centre for research and entrepreneurship support. "Manav Rachna Business Incubator" nurtures innovative ideas.
* **Residential Services:** On-campus and off-campus hostel accommodation (AC/Non-AC, single/double/triple/five-seater rooms) with medical facilities, insurance, library, mess plan, and laundry included.
* **Sports Facilities:** World-class facilities for outdoor and indoor games, including a 25m Shooting Range, badminton and table tennis stadia, Soccer Academy, and a semi-Olympic sized swimming pool. A Sports Fitness Centre is also available.
* **Transport:** Well-organised GPS-enabled bus service from Delhi and Gurugram.
* **Cultural Societies:** A wide range of societies including Music (Surtarang), Dance (Mridaksh), Literary Forum, Arts (Aarekh), Theatrical (Paigam), Fashionistas (Aaira), Photography Club, NSS, and SPIC MACAY Chapter.
* **Student Achievements:** Notable student achievements in research paper publications, national sports tournaments, and technical competitions.

**6. Industry Collaboration and Unique Features**

* **L&T Collaboration:** A major highlight, described as a "knowledge partner for specialized learning." This partnership offers "industry-application" training from L&T experts, "industry recognized certification," "industry immersive learning opportunity," and "placement opportunities will be facilitated by L&T EduTech for students."
* **Co-Designed, Co-Delivered and Co-Certified Programs:** Ensures industry relevance and expertise.
* **Industry Mentors:** Support for project building and networking.
* **Industrial Visits:** Regular visits to connect students with professionals and potential internship opportunities.
* **"Industry-ready" Students:** The curriculum specifically incorporates areas like "Cyber Physical systems, Data Analytics, Artificial intelligence and Machine Learning, Internet of Things, Cloud Computing, Robotics, Mechatronics and 3D Printing etc." to develop "industry ready" students.

**31.Detailed Briefing: B.Tech Mechanical Engineering with Specialisation in Smart Manufacturing & Automation (Lateral Entry)**

This briefing provides a comprehensive overview of the B.Tech Mechanical Engineering with Specialisation in Smart Manufacturing & Automation (Lateral Entry) program, highlighting its key features, benefits, and career prospects.

1. Programme Overview & Focus

The B.Tech in Mechanical Engineering with specialization in Smart Manufacturing and Automation is a 3-year (6 semesters) undergraduate lateral entry program designed to meet the demands of Industry 4.0. It integrates fundamental mechanical engineering principles with cutting-edge technologies.

**Key Themes:**

* **Industry 4.0 Readiness:** The program's core objective is to "equip students with the knowledge and skills required to meet the demands of Industry 4.0." This is a recurring theme, emphasised through its focus on "intelligent manufacturing systems that enhance productivity, quality, and efficiency."
* **Interdisciplinary Approach:** The curriculum adopts a "multidisciplinary approach, integrating concepts from mechanical engineering, electronics, computer science, and automation."
* **Practical & Hands-on Learning:** A strong emphasis is placed on "hands-on training through laboratories, simulation tools, and industry internships," ensuring a robust foundation in practical skills.

**Key Technologies Covered:**

The program extensively covers modern technologies crucial for smart manufacturing, including:

* IoT (Internet of Things)
* Robotics
* Artificial Intelligence (AI)
* Data Analytics
* Cyber-Physical Systems (CPS)
* Machine Learning (ML)
* Cloud Computing
* 3D Printing/Additive Manufacturing
* CNC Programming
* Sensors, Actuators, PLCs, and SCADA Systems

2. Unique Selling Propositions (USPs)

The program distinguishes itself through several key educational benefits and unique features designed to produce industry-ready professionals.

**Key Educational Benefits:**

* **In-depth understanding of Industry 4.0 technologies:** Students gain comprehensive knowledge in areas critical to the future of manufacturing.
* **Exposure to advanced manufacturing systems and automation tools:** Practical application of theoretical knowledge is prioritised.
* **Practical learning through real-time industrial projects:** Fosters innovation and problem-solving skills.
* **Strong interdisciplinary knowledge base:** Prepares students for diverse roles in modern industrial environments.
* **Enhanced employability in future-ready manufacturing sectors:** Directly addresses the high demand for skilled professionals in this evolving field.

**Programme Highlights & Best Practices:**

* **State-of-the-art Lab Facilities:** The department boasts facilities such as "Refrigeration and Air Conditioning Lab, Manufacturing workshop, Robotics lab, Fluid Mechanics Lab, Automobile and ICGT Lab, 3-D Printing, Heat Transfer, Hydraulic and Pneumatics Lab etc."
* **Industry Collaborations & MoUs:**MoU with **Altair-DesignTech** for enhanced knowledge in FEA, Structural Analysis, CFD, Manufacturability, Additive Manufacturing, and Industrial Projects.
* MoU with **Air-conditioning India Pvt. Ltd (DAIKIN)** to establish a "Centre of Excellence (CoE) on HVAC Systems," providing practical skill training and industrial exposure.
* Collaboration with **Trans Neuron Technologies** for an "Industrial Automation certification Program (120 hrs teaching modules)."
* **Hitachi Vantara** providing "Industry Connect module certification course to final yr students."
* **Industry-Relevant Software:** Students are trained on "industry required design and analysis software such as SOLIDWORKS, AUTOCAD, ANSYS."
* **Experiential Learning:** Emphasises "Problem/Inquiry/Research-Based Education," "Projects: Preparation of students to develop live projects independently," and "Content Beyond Syllabus: Value-added courses to meet current industry trends."
* **Industry Expert Involvement:** "Involvement of industry experts to deliver specific course modules."
* **Dedicated Placement Support:** "There is a dedicated department CRC, which extends all types of support in inviting the industries and arranging campus placements for the students. Apart from this, Career Development Cell (CDC) prepares students for various companies throughout the year as an extended feature."

3. Admissions & Fees

**Eligibility Criteria (Lateral Entry):**

* "50% marks in their diploma in the relevant field."
* Alternatively, "B.Sc. Degree from a recognized University as defined by UGC with at least 50% marks and passed XII standard with Mathematics as a subject."

**Selection Criteria:** Based on marks in Diploma in Engineering or B.Sc. Degree with Mathematics.

**Application Process:** A 5-step online process involving website visit, form filling, document upload, fee payment, and appearing for **MRNAT (Manav Rachna National Aptitude Test)** or submitting a valid **JEE Main score**.

**Annual Course Fee:** INR 2,03,300 / US $4,000 (though later a fee of 2,44,000 is mentioned, requiring clarification).

**Modes of Payment:** Online (net banking, debit/credit card, UPI), Bank Transfer (NEFT/RTGS), Demand Draft, Cash Payment (subject to limits), and Education Loan (tie-ups with PNB, SBI, HDFC, ICICI).

4. Curriculum Structure & Key Learning Outcomes

The 3-year program is structured across 6 semesters, building progressively from foundational mechanical engineering to advanced smart manufacturing concepts.

**Key Curriculum Highlights:**

* "The curriculum blends mechanical engineering fundamentals with modern automation and digital technologies."
* "Key subjects include Mechatronics, Industrial Automation, Robotics, CNC Programming, Smart Sensors and Actuators, PLC and SCADA Systems, Cyber-Physical Systems, and Data Analytics for Manufacturing."
* Emphasis on "project-based learning, industrial training, workshops, and live case studies."
* "Industry 4.0-focused electives and hands-on labs using simulation and automation tools form a vital part of the program."
* **Choice Based Credit System (CBCS)** with elective subjects allows for a "Design your own Degree" culture.
* Includes "Personality development and Aptitude development training."

**Notable Courses & Outcomes by Semester:**

* **Semester 3:** Fluid Mechanics and Machines, Graphics, Geometric Tolerances & Drawings in Manufacturing, Thermodynamics, Materials Science & Engineering, Manufacturing Processes-I, Professional Competency Enhancement-I, Foreign Language-I. Focus on foundational mechanical concepts and practical manufacturing skills.
* **Semester 4:** Theory of Machines, Technology and Processes in Heavy Manufacturing, Critical Thinking, Design Thinking, Leadership & Teamwork, Entrepreneurship, Strength of Materials -I, Introduction to Research, Professional Competency Enhancement-II, Foreign Language-II. Introduces design thinking, heavy manufacturing, and research fundamentals.
* **Semester 5:** Machine Design-I, Mechatronics & Measurement Systems, **Collaborative robotics in Manufacturing with AI, ML and IIOT**, **Digital Technologies with CPS, IIOT & Cloud in Manufacturing**, Elective Basket-I, Research & Innovation-I, Interdisciplinary Projects, Professional Competency Enhancement-III. This semester significantly deepens the specialisation in smart manufacturing technologies.
* **Semester 6:** Advanced Manufacturing (including Additive Manufacturing), Product Design and Development, Heat Transfer, Elective Basket-II, **Cognitive Manufacturing - Artificial Intelligence and Machine Vision**, Mini Project, Professional Competency Enhancement-IV, Research and Innovation-II, Dynamic Paradigm, Career readiness in the Digital era, Essence of India Traditional Knowledge. This semester focuses on advanced manufacturing processes, AI/ML applications, and career preparedness.
* **Semester 7:** Refrigeration and Air Conditioning, Industrial Engineering and Operations Research, Elective Basket-III, Project Management for Professionals. Focuses on broader industrial applications and project management.
* **Semester 8:** Elective Basket-IV, Elective Basket-V, **Major Project/Industrial Internship**. Culminates in significant industrial exposure and practical application of learned skills.

5. Career Pathways & Opportunities

The program prepares graduates for a wide range of roles in the evolving manufacturing sector, particularly within Industry 4.0.

**Future Career Prospects:**

* Smart Manufacturing Engineer
* Mechanical Engineer
* Automobile Engineer
* Robotics engineer/technician
* Design Engineer
* Electrical Engineer
* Control system design/engineer
* Electronics design engineer
* Artificial Engineer
* Data scientist/big data analyst
* Instrumentation engineer
* Mechatronics Engineer
* CNC Programmer Engineer
* Software/Hardware engineer
* Startup/Entrepreneur

**Why Pursue this Program?**

* "Strong graduate prospects with high futuristic demand for Robotics & AI professionals and excellent campus placement support."
* "High earning potential with lucrative roles in smart Manufacturing, Industry 4.0."
* "Diverse job opportunities across industries such as automotive, aerospace, electronics, FMCG, and smart manufacturing industries."
* "Global career pathways with international recognition and opportunities to work in global markets."
* "Remote work flexibility with access to global roles and entrepreneurial ventures."
* "Potential to make a meaningful social impact through contributions to medicine, science, and technology."

**Top Recruiters:** Honda, Krishna Maruti, TCS, IndiGo, LG, Maruti Suzuki, Tata Motors, Google Deepmind, Deloitte, Sagacious IP.

**Placement Statistics:** Consistently high, with "Batch:2019-20-90%", "Batch:2020-21: 95%", "Batch:2022-23: 95%", and "Batch:2023-24: 92%."

6. Research, Innovation & Student Life

The institution strongly promotes research, innovation, and holistic student development.

**Research & Innovation:**

* Curriculum includes "Design Thinking, Research & Innovation" to enhance research capabilities.
* Access to "National and International online journals of repute including from IEEE, Springer, DELNET, and CSI."
* Guidance on "how to write research papers, file patents etc."
* Presence of an "e-cell, Pre-incubation centre set up in the campus" and "Manav Rachna Business Incubator" to nurture innovative instincts and support startups.
* Students have demonstrated research success with published papers and project grants (e.g., Electric Tractor project sanctioned by AICTE New gen IEDC with a grant of 2.5 Lakhs).

**Residential & Campus Facilities:**

* On-campus and off-campus hostel accommodation (AC/Non-AC, various seating options) including medical facilities, medical insurance, library, and laundry.
* World-class sports facilities for both outdoor and indoor games, including a 25m Shooting Range and an indoor badminton and table tennis stadia.
* Well-organised transport facility from Delhi and Gurugram.
* Ample parking space.

**Extra-Curricular Activities & Student Achievements:**

* A vibrant campus life with various cultural societies: Music (Surtarang), Dance (Mridaksh), Literary Forum, Arts (Aarekh), Theatrical (Paigam), Fashionistas (Aaira), Photography Club, NSS, and SPIC MACAY Chapter.
* Students have excelled in various fields, including winning prizes in national research conventions (Anveshan), publishing papers in international journals, and achieving success in sports tournaments.

In summary, the B.Tech Mechanical Engineering with Specialisation in Smart Manufacturing & Automation (Lateral Entry) program is a well-rounded and forward-looking offering, designed to equip students with the necessary skills and knowledge for a successful career in the rapidly advancing field of Industry 4.0, supported by strong industry ties, comprehensive curriculum, and robust campus infrastructure.

**32.Briefing Document: BCA in Cloud Computing at Manav Rachna University**

This briefing document provides a comprehensive overview of the Bachelor of Computer Applications (BCA) in Cloud Computing programme offered by Manav Rachna University (MRU), highlighting its key features, curriculum, industry collaborations, and career prospects.

1. Programme Overview

The BCA in Cloud Computing is a **3+1 year undergraduate programme** (6 or 8 semesters) designed to provide students with a strong foundation in computer science while specialising in cloud technologies. The programme is structured to meet the demands of the rapidly evolving IT sector, with cloud computing identified as "a key driver of digital transformation."

* **Course Level:** Undergraduate
* **Duration:** 3/4 Years (6/8 Semesters)
* **Annual Fee:** INR 2,28,000 (approx. US $2,730)
* **Rating:** ⭐ 5 (based on 2 Reviews)
* **Accreditation:** NBA (2023), NAAC A
* **Eligibility:** Pass in 10+2 examination with at least 50% marks in aggregate in 5 subjects. Students from all streams are eligible, with English being compulsory.
* **Admission Criteria:** XII Qualifying Examination / CUET / MRNAT (Manav Rachna National Aptitude Test). Scholarships up to 100% are available through MRNAT (Utkarsh and Uttam schemes).

2. Unique Selling Propositions (USPs) and Key Benefits

MRU positions its BCA in Cloud Computing as a unique offering, particularly due to its strong industry partnerships and a focus on practical, industry-relevant skills.

* **Google Partnership:** MRU claims to be "The sole institution in INDIA offering a BCA program in Cloud Computing in partnership with Google." This collaboration offers significant advantages, including:
* **Co-designed and industry-ready curriculum with Google.**
* **Certified Digital Campus on Google Cloud** with advanced digital tools and generative AI capabilities.
* Free access to **Google certification courses and badges** (e.g., Google Cloud Gen AI Skill Badge Pathways, Associate Cloud Engineer, Cloud Digital Leader) and subsidised prices for paid certifications.
* Access to **Google Cloud Skill Boost Platform (Google LMS)** and **Placement Fairs by Google**.
* "ChromeOS & Gemini AI lab for hands on practice, research and learning."
* Google Certified Faculty for Curriculum Delivery.
* **Industry Associations:** Beyond Google, the programme boasts "Association with industry giants like Google, AWS, MONGODB etc. for ensuring industry readiness of our students through curriculum designing, delivery, training, internships/Placements etc." Other strong industry associations include Xebia, LinkedIn Learning, UIPath, Infosys SpringBoard.
* **Practical & Experiential Learning:**Emphasis on "practical hands-on live projects."
* "Project and experiential-based learning" is a core pedagogical approach.
* Internships are mandatory after the 2nd, 4th, and 6th semesters, providing "hands-on experience and practical learning."
* "Hands-on lab workshops, programming tools, and languages covered."
* State-of-the-art infrastructure including "09 fully equipped state-of-the-art laboratories," Research Cluster of Computing Lab (RCC), and Agile Classrooms.
* **Holistic Student Development:**"Dedicated student mentoring throughout the program, offering career guidance and support, while also fostering the development of moral and ethical values."
* "Encouraging innovative and creative thinking to foster lifelong growth and development."
* "Student grooming for placement readiness through Career Development Cell(CDC) experts."
* Opportunities for "patents, copyrights, funded projects, consultancy, and student start-ups."
* Provision of various clubs and chapters (IEEE, NPTEL, Cybersecurity Squad, Coding Club, Poetry and Literary Clubs).

3. Curriculum Structure and Highlights

The BCA is a 3+1 year programme, offering a blend of core computer science fundamentals and specialized cloud computing topics.

* **Curriculum Design:** "Co-designed and co-certified course Curriculum" with an "Industry-Centric" approach. It includes "core subjects, skill enhancement electives, multidisciplinary electives, and domain-specific courses, with a strong focus on Cloud Technology specialization."
* **Key Cloud-focused subjects include:**Fundamentals of Cloud Computing (Semester 1)
* Networking Administration with Cloud Essentials (Semester 2)
* BIG DATA AND CLOUD ANALYTICS (Semester 3)
* Cloud Infrastructure and services (Semester 3)
* Advanced Cloud Architectures (Semester 4)
* Cloud Automation and Orchestration (Terraform, Kubernetes) (Semester 5)
* Cloud Deployment (Semester 5)
* Cybersecurity in Cloud Environments (Semester 6)
* CLOUD COST MANAGEMENT AND OPTIMIZATIONS (Semester 6)
* **Emerging Technologies:** The curriculum integrates modern topics such as "Artificial Intelligence And Machine Learning" (Semester 4) and "Gen AI" (Semester 6).
* **Research Focus:** "Introduction to Research" sequence courses from 3rd to 5th semester "emphasizing originality, feasibility for start-ups, and documentation of outcomes (research paper, patent, product, start-up, copyright)."

4. Career Pathways and Placement Support

The programme explicitly aims to prepare graduates for high-demand roles in the IT sector, particularly within cloud computing.

* **Target Career Roles:**Cloud Experts
* DevOps Experts
* Cloud Security Specialist
* Solution Architect
* System Administrator
* Cloud Engineer
* Cloud Application Developer
* Cloud Administrator
* Cloud Consultant
* Cloud Specialist in data analytics or AI/ML
* **Demand:** "the cloud computing sector is experiencing exponential growth, which is resulting in a high demand for professionals with expertise in cloud technology and infrastructure."
* **Top Recruiters:** A diverse list of companies is provided, including Google, HCL, Nokia, KPMG, Accenture, IBM, Coforge, British Telecom, UI Path, Tech Mahindra, Capgemini, and Xebia.
* **Placement Assistance:** The university's "placement cell provides job search assistance, internship opportunities and career guidance." This includes "Super 40 batches for placement support" and "Integration of Employability questions in the tutorial sheets."
* **Higher Education & Entrepreneurship:** Graduates have strong foundations for "masters' degrees in cloud computing, data science, software engineering, and other relevant fields" and opportunities for startups through the "MRU-Innovation & Incubation Centre," which offers mentorship, workshops, and seed funding.

5. Student Support and Campus Life

MRU provides extensive support services and a vibrant campus environment.

* **Residential Facilities:** On-campus and off-campus hostel accommodation with various room categories, including AC and non-AC options. Hostel fees include medical facilities, medical insurance, library access, and laundry.
* **Transport:** "Well-organized transport facility" from Delhi and Gurugram, with GPS-enabled buses.
* **Sports:** World-class facilities for both outdoor and indoor games, including a 25m Shooting Range, indoor badminton and table tennis stadia, a Soccer Academy, and a semi-Olympic sized swimming pool. A Sports Fitness Centre is also available.
* **Cultural Societies:** A wide array of clubs covering music, dance, literature, arts, theatre, fashion, photography, and social responsibility (NSS, SPIC MACAY).
* **Mentorship:** A "Mentor-Mentee" system is in place, along with continuous guidance from industry leaders.
* **Innovation & Research:** The MRU-Innovation & Incubation Centre supports students from "ideation to successful ventures" through workshops, industry visits, mentorship, assistance with company registration and fundraising, and participation in hackathons. Student research is actively promoted, with numerous papers presented and projects funded (e.g., "Detection of Unidentified Garbage Vulnerable Points using Drones and AI - India" project).
* **Student Achievements:** The document highlights numerous student successes in hackathons, coding competitions, research paper presentations, NPTEL topper lists, national sports competitions, and securing prestigious internships (e.g., Google with a stipend of 1.23 Lakhs per month, National Instrument). One alumnus even appeared on "Shark Tank season 3."

6. Unique Features of Google Tie-Ups

The Google partnership is a core differentiator, offering substantial benefits:

* **Pioneer Status:** "First in Haryana and Second in India to offer B.Tech. Generative-AI and BCA Cloud Computing with Google."
* **Dedicated Infrastructure:** ChromeOS & Gemini AI lab for hands-on practice, research, and learning.
* **Curriculum & Certifications:** Co-designed curriculum, free access to Google Cloud Gen AI Skill Badge Pathways and other certifications (Associate Cloud Engineer, Cloud Digital Leader, Cybersecurity, Data Analytics, Cloud Computing Foundations, Cloud Engineer), and access to the Google Cloud Skill Boost Platform.
* **Career Opportunities:** Access to Placement Fairs by Google for certified students.
* **Advanced Learning Tools:** Virtual tutors, automated content generation and summarization, and exclusive hackathons with Google experts.
* **Faculty Expertise:** Google Certified Faculty for curriculum delivery.

In conclusion, the BCA in Cloud Computing at Manav Rachna University presents a robust, industry-aligned programme with a strong emphasis on practical skills, supported by significant collaborations with leading technology companies like Google. The comprehensive curriculum, state-of-the-art facilities, dedicated student support, and a proven track record of student achievements position it as an attractive option for aspiring cloud professionals.

**33.Briefing Document: B.Tech Robotics & AI Programme**

This document provides a detailed overview of the B.Tech Robotics & AI programme offered by Manav Rachna University (MRU), highlighting its key features, curriculum, career prospects, and unique selling points.

1. Programme Overview

The B.Tech Computer Science & Engineering (Robotics & AI) programme at Manav Rachna University is a 4-year (8 Semesters) undergraduate course designed to prepare students for the rapidly evolving and challenging technological landscape of the robotics and artificial intelligence industry. The programme aims to equip "budding engineers for the technology, management, implementation and design of software and hardware information systems."

* **Course Name:** B.Tech Robotics & AI
* **Rating:** ⭐ 5
* **Course Level:** Undergraduate
* **Duration:** 4 Years (8 Semesters)
* **Annual Fee:** INR 2,44,000 / US $4,000
* **Accreditations:** NBA and NAAC 'A' Accredited. The School of Engineering holds a prestigious Platinum Badge in QS I-GAUGE Engineering.

2. Key Educational Benefits & Unique Selling Proposition (USPs)

The programme strongly emphasises industry readiness, practical experience, and a holistic approach to student development.

* **Strong Industry Associations:** The curriculum is "co-designed, co-delivered and co-certified by industry experts and reputed academicians" through associations with "industry giants like Google Cloud, MongoDB, Xebia and UI Path." This ensures graduates are "industry-ready."
* **State-of-the-Art Facilities:** The programme boasts "nine state-of-the-art laboratories," including a specialized robotics lab with PLC-controlled robotic arms, industrial automation setups (e.g., with Dobot), drones with LiDAR, and a dedicated AICTE-setup AeroVision Drone Lab (worth INR 50 Lakhs) for "hands-on learning, drone design and development, aerial data analytics, and real-world applications."
* **Industry-Oriented Curriculum:** The curriculum follows an AICTE model and offers "industry-oriented choice-based courses." It focuses on "skill enhancement and employability" and promotes "project-based and experiential learning," including "interdisciplinary projects, electives, and internships."
* **E-learning and Professional Development:** Students benefit from "e-learning platforms like MOOC, NPTEL, LinkedIn learning, and Infosys Springboard." The Career Development Cell (CDC) provides "specialized grooming for placement readiness," including "Super 40 batches for placement support."
* **Innovation and Research Focus:** The programme encourages "opportunity of patents, copyrights, funded projects, consultancy, and student start-ups." Research sequence courses are introduced from the 3rd to 5th semester, emphasizing "originality, feasibility for start-ups, and documentation of outcomes (research paper, patent, product, start-up, copyright)."
* **Global Opportunities:** The programme provides "global opportunities for higher studies and research" and pathways for "global career pathways with international recognition and opportunities to work in global markets."
* **Scholarships:** Provision of "up to 100% scholarship" is available.

3. Admissions Requirements

* **Eligibility:** Pass in 10+2 examination with at least 55% marks in aggregate across 5 subjects, including English, Physics & Mathematics, one subject from a specified list, and one subject with the highest score from the remaining.
* **Admission Criteria:** Merit-based selection determined by scores in JEE Mains/ SAT / Pearson / MRNAT/XII Qualifying Examination.
* **Nationality:** Indian/NRI/PIO/Foreign.

4. Curriculum Structure and Key Learning Outcomes

The 4-year programme offers a comprehensive curriculum, progressively building knowledge and skills in robotics and AI.

**Key Themes Across Semesters:**

* **Foundational Sciences & Engineering (Semesters 1-2):** Strong emphasis on Physics, Mathematics, Electrical, Electronics, Digital Electronics, and C Programming. Introduction to "Fundamentals of Robotics and AI" in Semester 2.
* **Core Robotics & AI Concepts (Semesters 3-5):Semester 3:** Data Structures & Algorithms, Python Programming (L&T certified), Electrical Machines and Drives, Analog Electronics, Engineering Mechanics, Introduction to Research.
* **Semester 4:** Digital Signal Processing, Embedded Computing Principles, Computer Architecture & Organization, "Advances in Robotics and AI," Kinematics and Dynamics of Robotics.
* **Semester 5:** Wireless Communication & Networking, Machine Learning, Additive Manufacturing, Drone Technology & its transformative Applications, Mobile & Micro Robotics, Intelligent Manufacturing, Mechatronics.
* **Advanced & Specialised Topics (Semesters 6-7):Semester 6:** "Collaborative Robotics in manufacturing with AI, ML and IIOT," Control Systems, Image Processing & Computer Vision, Digital Technologies for Manufacturing, Natural Language Processing, Micro Electromechanical Systems (MEMS), Drone Operations & Security, Autonomous Robotics & Telecherics.
* **Semester 7:** Robot Operating System and Simulation, Industrial Internet of Things (IIoT), Data Analysis with Pandas & Python, Cognitive Manufacturing, Dynamics and Trajectory Planning, Deep Learning, AI & Emerging Technology, Augmented Reality & Virtual Reality, Robot Dynamics & Control, Biomedical Robotics.
* **Capstone Project & Industrial Training (Semester 8):** Culminates in a "Capstone Project-II/Industrial Training" to apply critical thinking and solve real-world problems.

**Noteworthy Course Outcomes:**

* **Fundamentals of Robotics and AI (Sem 2):** "Understand the fundamentals of robotics, classification, specifications, and industrial applications."
* **Advances in Robotics and AI (Sem 4):** "Understand the technologies used in advanced robots," including "Natural Language processing."
* **Machine Learning (Sem 5):** "Develop solutions to real life problems using ML Techniques."
* **Collaborative Robotics in manufacturing with AI, ML and IIOT (Sem 6):** Focus on "Design and evaluate smart manufacturing solutions using collaborative robotics, AI/ML, and IIoT for improved productivity, flexibility, and safety."
* **Robot Operating System and Simulation (Sem 7):** Ability to "Program robots that perform an increasingly complex set of behaviors, using the powerful packages in ROS."

5. Career Pathways & Prospects

The programme aims to produce graduates with strong career prospects due to the "high futuristic demand for Robotics & AI professionals."

* **Initial Roles:** Robotics Engineer, AI/ML Developer, Automation Engineer, AI Research Scientist, Robotics System Architect.
* **Advanced/Leadership Roles:** Lead Robotics Engineer, AI Product Manager, Robotics Program Manager, Robotics Engineering Manager / AI Engineering Manager, Senior AI/Robotics Product Manager, AI/Robotics Consultant, Research and Development (R&D) Director, Robotics and AI Innovation Leader, AI/Robotics Policy Advisor or Specialist, Robotics Architect / Senior AI Architect.
* **Diverse Sectors:** Graduates can find opportunities in private sector companies (e.g., IBM, TCS, Microsoft, HCL, Infosys), government/PSUs (e.g., Banking, BSNL, DRDO, ISRO), Defence services, or pursue "Higher studies options" (Master's, MBA) or become entrepreneurs.
* **Entrepreneurship:** Strong support for student start-ups through the "Manav Rachna Business Incubator" and "NewGen IEDC," providing "technical/infrastructural /financial support" and "mentorship, expertise and networking."

6. Industry Collaborations & Placement Support

MRU maintains significant industry collaborations to enhance student skills and employability.

* **Industry Partnerships:** MOUs with "Larsen &Toubro Edutech, AeroVision, Infosys Springboard, Google Cloud, Coding Ninja."
* **L&T Tie-Up:** Offers a unique "Industry Endorsed Degree Program" with curriculum "co-designed, co-delivered, and co-certified by L&T experts." Students gain "hands on learning experience" and "industry recognized certification from a Global conglomerate." Placement opportunities are "facilitated by L&T EduTech."
* **Recruiters:** Top recruiters include HCL, Wipro, Capgemini, TCS, IndiGo, LG, Maruti Suzuki, Tata Motors, Google Deepmind, Deloitte, Palo Alto, Amazon, KPMG, Newgen, Genpact, Accenture, Polymed.
* **Placement Support:** A dedicated "CRC (Corporate Relations Centre) Department" and "Career Development Cell (CDC)" provide comprehensive support, including on-campus recruitment, interview preparation, and facilitating industrial visits and networking events.

7. Student Life & Facilities

MRU offers a well-rounded student experience with various facilities and activities.

* **Residential Services:** On-campus and off-campus hostel accommodation with various room categories (AC/Non-AC, single/double/triple/five-seater) and amenities (medical facilities, insurance, library, laundry).
* **Sports Facilities:** World-class infrastructure for indoor and outdoor games, including a 25m Shooting Range, a Soccer Academy, and a Semi Olympic-sized swimming pool.
* **Transport:** GPS-enabled bus fleet for commuting from Delhi and Gurugram.
* **Extracurricular Activities:** Opportunities in music, dance, literary arts, visual arts, theatre, fashion, and photography societies. Students also participate in "Institutional Social Responsibility (ISR) activities."
* **Co-curricular Activities:** Regular coding contests, workshops (e.g., Brain-Computer Interfacing, Line Follower Robot, Industry 4.0, Embedded Systems and IoT, Visual Studio, AI-ArmBot EDU), and expert sessions.
* **Student Achievements:** Notable achievements include students securing funding for projects like "Detection of Unidentified Garbage Vulnerable Points using Drones and AI," winning prizes in innovation competitions, qualifying for the ISRO Drone challenge, and successful patent filings.

8. Research & Innovation Ecosystem

MRU fosters a strong research and innovation culture.

* **Research-Oriented Courses:** The curriculum integrates research opportunities through courses like "Fundamentals of Robotics and AI," "Digital Signal Processing," "AI&ML," "Deep Learning," and "Biomedical Robotics."
* **Infrastructure for Research:** "Subscription to National and International online journals," e-library facilities, and an "e-cell, Pre-incubation centre" on campus.
* **Mentorship:** Faculty members, all PhDs with extensive research and industry experience, act as mentors, guiding students in "writing research papers, innovative projects, patents, copyrights."
* **Multidisciplinary Projects:** Encouragement for interdisciplinary projects and focus on "Design Thinking, Research & Innovation."

**34.Briefing Document: B.Tech Robotics & AI Programme**

This briefing document provides a comprehensive overview of the B.Tech Robotics & AI programme offered by Manav Rachna University, drawing key themes and facts from the provided source.

1. Programme Overview

The B.Tech Computer Science & Engineering (Robotics & AI) is an undergraduate programme designed to prepare students for the "booming industry needs and challenging technological landscape." It is a 3-year (6 Semesters) programme with an annual fee of INR 2,45,700 for AY 2025-26. The programme boasts a 5-star rating and offers a brochure for more details.

**Key Programme Attributes:**

* **Duration:** 3 Years (6 Semesters)
* **Annual Fee (AY 2025-26):** INR 2,45,700
* **Course Level:** Undergraduate
* **Accreditations:** NBA and NAAC 'A' Accredited. The School of Engineering holds a "prestigious Platinum Badge in QS I-GAUGE Engineering."

2. Unique Selling Propositions (USPs) & Strengths

The programme distinguishes itself through a strong emphasis on industry readiness, practical learning, and a supportive academic environment.

**2.1. Industry Integration & Employability Focus:**

* **Strong Industry Associations:** The programme has "strong industry associations with giants like Google Cloud, MongoDB, Xebia and UI Path, ensuring industry-ready graduates through curriculum design, training, internships, and placements." Other notable associations include LinkedIn Learning, Infosys SpringBoard, and AeroVision.
* **Industry-Oriented Curriculum:** Features an "AICTE model curriculum and industry-oriented choice-based courses."
* **Skill-Based Training:** MOUs for skill enhancement, and access to e-learning platforms like "MOOC, NPTEL, Coursera, Infosys Springboard, LinkedIn Learning, UI Path, MongoDB, Google Cloud."
* **Placement Support:** Dedicated "Career Development Cell (CDC) experts" provide student grooming for placement readiness. "Super 40 batches offer focused placement support." The "CRC DEPARTMENT FOR PLACEMENTS" provides extensive support in inviting industries and arranging campus placements.
* **Internship Opportunities:** Facilitated through "Industrial Visits," "Guest Speakers/Networking Events," "Online Internship Portals," and "Alumni Networks."
* **Career Pathways:** Graduates are prepared for diverse roles such as Robotics Engineer, AI/ML Developer, Automation Engineer, AI Research Scientist, Robotics System Architect, and AI/Robotics Consultant, across private (IBM, TCS, Microsoft, Amazon, Google, Flipkart) and government sectors (Banking, PSUs like BSNL, DRDO, ISRO).

**2.2. Practical Learning & Research Opportunities:**

* **State-of-the-art Laboratories:** The programme boasts "nine state-of-the-art laboratories," including specialised robotics labs with equipment like PLC-controlled robotic arms, industrial automation setups with conveyor belts and Dobot robots, drones with LiDAR modules, and an AICTE-setup "AeroVision Drone Lab" worth 50 Lakhs.
* **Hands-on Workshops:** Emphasises "hands-on lab workshops, programming tools, and languages covered." Recent workshops include "Brain-Computer Interfacing (BCI)," "Line Follower Robot," "Industry 4.0," "Visual Studio with Hands On," and "Embedded Systems and the Internet of Things (IoT)."
* **Project and Experiential-Based Learning:** A core part of the curriculum, with "interdisciplinary projects, electives, and internships." "Capstone Project-II/ Industrial Training" in the final semester allows students to "recognize the challenges of a real-world working environment," "apply critical thinking to evaluate solutions," and "solve complex problems in internship-related projects."
* **Research Focus:** "Introduction to Research sequence courses from 3rd to 5th semester, emphasizing originality, feasibility for start-ups, and documentation of outcomes (research paper, patent, product, start-up, copyright)." Students have opportunities for "patents, copyrights, funded projects, consultancy, and student start-ups." The department actively guides students in writing research papers and filing patents.
* **Innovation & Startups:** Manav Rachna Business Incubator nurtures "innovative instinct" of students, alumni, and faculty, offering "technical/infrastructural /financial support" for ventures and access to "angel investors."

**2.3. Holistic Development:**

* **Choice-Based Credit System (CBCS):** Allows students to "Design your own Degree" by choosing elective subjects and pursuing "interdisciplinary minors."
* **Professional Competency Enhancement:** Dedicated courses (PCE I-IV) focus on "analytical reasoning," "numerical skills," "personality & communication skill," and "career planning."
* **Foreign Language Options:** Students can choose between French, German, and Spanish in Semesters 3 and 4, fostering global exposure.
* **Career Readiness in Digital Era:** A course designed to help students "choose appropriate career opportunities," "build an inclusive Corporate Etiquette Culture," and "Develop impactful Resume, Aptitude enhancement, and Interview Success Strategies."
* **Faculty Mentorship:** All faculty members are PhDs with "vast research, academic and industry experience," acting as mentors to groups of 20 students, guiding them and interacting with parents.

3. Admission Requirements

* **Eligibility:** 50% marks in Diploma in Engineering (3 years duration) or B.Sc. degree (from a UGC recognised university) with at least 50% marks, and XII standard with Mathematics as a subject.
* **Admission Criteria:** Merit-based on "MRNAT 2025/Diploma qualifying examination" score.
* **Nationality:** Indian/NRI/PIO/Foreign.
* **Scholarship:** Provision of "up to 100% scholarship."

4. Curriculum Structure (Selected Highlights)

The curriculum is designed by "Experts from Industry and Academia" and focuses on a blend of theoretical knowledge and practical application, with a strong emphasis on emerging technologies.

**Key Course Themes across Semesters:**

* **Semester 3:** Fundamentals of Electrical Machines, Analog Electronics, Data Structures & Algorithms, Python Programming, Engineering Mechanics, Introduction to Research, Professional Competency Enhancement, Foreign Language.
* **Semester 4:** Digital Signal Processing, Embedded Computing Principles, Computer Architecture & Organization, **Advances in Robotics and AI**, Kinematics and Dynamics of Robotics, Professional Competency Enhancement, Foreign Language.
* **Semester 5:** Wireless Communication & Networking, **Machine Learning**, Additive Manufacturing, **Drone Technology & its transformative Applications**, **Mobile & Micro Robotics**, **Intelligent Manufacturing**, Mechatronics, Career Readiness in Digital Era, Professional Competency Enhancement.
* **Semester 6:** **Collaborative Robotics in manufacturing with AI, ML and IIOT**, Control System, Professional Competency Enhancement, **Image Processing & Computer Vision**, **Digital Technologies for Manufacturing**, **Natural Language Processing**, Micro Electromechanical Systems (MEMS), **Drone Operations & Security**, **Autonomous Robotics & Telecherics**.
* **Semester 7:** **Robot Operating System and Simulation**, Industrial Internet of Things (IIoT), Data Analysis with Pandas & Python, **Cognitive Manufacturing**, Dynamics and Trajectory Planning, **Deep Learning**, **AI & Emerging Technology**, **Augmented Reality & Virtual Reality**, **Robot Dynamics & Control**, **Biomedical Robotics**.
* **Semester 8:** Capstone Project-II/Industrial Training.

**Noteworthy Specialised/Research-Oriented Courses:** Fundamentals of Robotics and AI, Digital Signal Processing, Wireless Communication & Networking, AI&ML, Mobile and Micro Robotics, Collaborative robots in manufacturing with AI, ML and IIOT, Deep Learning, Image Processing and Computer Vision, Natural Language Processing, Data Analysis with Pandas & Python, AI and emerging technologies, Augmented Reality and Virtual Reality, Biomedical robots.

5. Campus Life & Support

* **Residential Facilities:** On-campus and off-campus hostel accommodation (AC/Non-AC, single/double/triple/five-seater) with medical facilities, medical insurance, library access, and laundry services included in the hostel fee. Mess plan is also included.
* **Transport:** Well-organised GPS-enabled bus fleet for commuting from Delhi and Gurugram.
* **Sports:** World-class facilities for various indoor and outdoor games, including a 25m Shooting Range and a 10m air-conditioned Indoor Shooting Range of Olympic standards, soccer academy, and semi-Olympic-sized swimming pool.
* **Extra-Curricular Activities:** Opportunities in music, dance, literary arts, visual arts, theatre, fashion, and photography societies. Students also participate in "Institutional Social Responsibility (ISR) activities such as Blood Donation, Ek Muthhi Daan, Tree Plantation, Swachh Bharat Abhiyaan etc."
* **Student Support Services:** Includes a dedicated "CRC Department for Placements," Career Development Cell (CDC), and an e-library with subscriptions to national and international online journals (IEEE, Springer, DELNET, CSI). Mentorship support and parent-teacher meetings are regular features.

6. Departmental Achievements & Events

The department actively fosters innovation and practical application, evidenced by:

* **Funded Projects:** Students received funding for "Detection of Unidentified Garbage Vulnerable Points using Drones and AI- India under EPICS in IEEE."
* **Awards:** Students won prizes for projects like "Automated Stair Climbing Wheelchair Base" and "Women safety."
* **Patents:** Students have successfully patented projects like "Gesture and Voice controlled system for safer driving," with "6 of the projects under review for the process of patent."
* **Research Papers:** Numerous research papers presented in reputed conferences.
* **Expert Sessions & Workshops:** Regular events with industry professionals (e.g., Program Manager from Accenture Gurgaon) and hands-on workshops on cutting-edge technologies.

7. Future Career Prospects

The programme highlights "strong graduate prospects with high futuristic demand for Robotics & AI professionals and excellent campus placement support." Graduates can expect "high earning potential with lucrative roles" and "diverse job opportunities across industries such as education, healthcare, manufacturing, and hotels." The programme also opens "global career pathways" and offers "remote work flexibility" and entrepreneurial ventures. Furthermore, it emphasises the "potential to make a meaningful social impact through contributions to medicine, science, and technology." Students also have options for higher studies (Master's, MBA) and competitive examinations (UPSC).

8. Application Process

The application process is a 5-step online procedure:

1. Visit the official website: www.manavrachna.edu.in and navigate to the Admissions section.
2. Fill out the online application form with personal, academic, and contact details.
3. Upload required documents: Class 10 & 12 mark sheets, Aadhaar card, and passport-size photographs.
4. Pay the application fee online.
5. Appear for MRNAT (Manav Rachna National Aptitude Test) or submit a valid JEE Main score for merit-based admission.

**35.This briefing document outlines the key features and benefits of the Master of Business Administration (MBA) in Business Analytics program offered by the Department of Electronics and Communication Engineering at Manav Rachna University (MRU), in association with The Institute of Analytics (IoA), UK.**

1. Programme Overview and Core Focus

The MBA in Business Analytics is a "skill-oriented program specially designed to equip our students with future-oriented data handling and decision-making skills." It is a two-year (four-semester) postgraduate programme.

* **Data Management and Strategic Positioning:** The programme "caters to the specialized learning and training needs in data management through new software to reach the strategic positions of any organization."
* **Industry Relevance:** The curriculum is designed to prepare students with "necessary skills and knowledge in the area of data analysis so that they can meet the challenges of a changing business environment."
* **Key Analytical Tools:** Students gain exposure to "state-of-the-art data analysis/ visualization tools such as R, Python and Tableau; and also to Excel-based modeling."
* **Core and Specialised Courses:** The programme imparts knowledge of "core courses embedded with specialized courses like Business Analytics, Spreadsheet Modeling, Marketing & HR Analytics, Supply-Chain Analytics, Data Visualization, R programming, Business Intelligence & Data Mining etc."

2. Collaboration with The Institute of Analytics (IoA), UK

A significant highlight of the programme is its association with The Institute of Analytics (IoA), "The Global Body of Analytics, UK."

* **Worldwide Recognition and Job Opportunities:** This collaboration will "help our students to get worldwide recognition and help them to access job opportunities at global scale."
* **Dual Qualification:** Students enrolling in this course receive "a degree from University and an affiliate membership from IoA, UK." Additionally, upon completion of two years of their post-graduation, students "get an affiliate membership from IoA, UK and a diploma certificate from ISDC."
* **Professional Development:** IoA is a "professional body for Analytics and Data" that promotes "greater awareness, understanding, and innovation in analytics," providing members with networking opportunities, career development, knowledge sharing, and access to Continuous Professional Development programmes.

3. Unique Selling Propositions (USPs)

The programme offers several distinctive advantages:

* **Hands-on Training:** Includes "Hands-on Training on Analytics modules from IoA."
* **Blended Learning:** Provides "blended learning from Industry and Professional Trainers from ISDC and IoA."
* **Practitioner-Oriented Insights:** Students benefit from "Practitioner-oriented insights from industry experts [that] will help you develop solutions to real-world problems using cutting-edge analytical techniques."
* **Continuous Evaluation System:** Utilises a "Continuous Evaluation System that assesses the learners over convenient and regular intervals," providing timely feedback.
* **Experiential Learning:** The "education delivery methodology is a blend of classroom and experiential learning," incorporating "lab exercises, assignments, case studies, research projects, and work-integrated activities."

4. Admission and Fees

* **Eligibility:** "50% in Graduation in any Discipline."
* **Admission Criteria/Selection:** Through merit in "MRNAT, CAT, MAT, GMAT."
* **Annual Course Fee:** INR 3,71,100 / US $4,900.
* **Scholarships:** Available (details via https://manavrachna.edu.in/mru/admissions/financial-aid-and-scholarships).
* **Application Process:** A five-step online process involving website visit, online form completion, document upload, fee payment, and appearing for MRNAT or submitting JEE score.
* **Payment Modes:** Online payment, bank transfer (NEFT/RTGS), Demand Draft (DD), cash payment (subject to limits), and education loan options through tie-ups with banks like PNB, SBI, HDFC, and ICICI.

5. Career Pathways and Industry Exposure

The programme prepares students for a variety of roles in the growing field of analytics.

* **Career Paths:** Graduates can pursue roles such as "Financial/HR/ Operations/Service Data Analyst, Marketing Analytics Manager, Fraud Analyst, Data Visualization Analyst, Entrepreneur, Big Data Analytics."
* **Industry Demand:** "Analytics is the new buzzword for any business," and there is "a massive shortfall of trained analytics professionals in India and abroad." The field offers a "Competitive average salary higher than that of any IT domain."
* **Real-world Application:** The curriculum incorporates "Practitioner-oriented insights from industry experts" and focuses on applying "analytic tools and techniques to solve business analytic problems."
* **Top Recruiters:** Include major companies like "Cognizant, TCS, Accenture, Niti Ayog, HDFC, Wipro, Policy Bazaar," and many more, offering "100% industry exposure, translating research into placements."

6. Programme Outcomes

The programme aims to develop well-rounded professionals with strong analytical and soft skills.

* **Key Skills Developed:** Students will develop "critical thinking, analytical, and problem-solving skills," "communicate professionally and effectively," acquire "core business knowledge," gain "global awareness and appreciation for diverse perspectives," learn "ethical behavior and social responsibility," and develop "effective teamwork and leadership skills."
* **Relevance to Modern Business:** The programme addresses the high demand for individuals who can "leverage the data for the betterment of the world." Predictive analytics is increasingly used by firms to "anticipate maintenance and operational issues before they become a more significant problem," as highlighted in a KPMG report.

7. Campus Facilities and Student Life

MRU offers a comprehensive environment supporting academic and personal growth.

* **Residential Facilities:** Both on-campus and off-campus hostel accommodation for boys and girls, with various room categories (AC/Non-AC, single/double/triple/five-seater) and amenities such as medical facilities, medical insurance, library, and laundry. Mess plan is included in hostel fees.
* **Sports Facilities:** World-class facilities for a wide range of outdoor and indoor games, including a 25m Shooting Range, 10m air-conditioned Indoor Shooting Range, indoor badminton and table tennis stadia, a Soccer Academy, and a Semi Olympic-sized swimming pool. A Sports Fitness Centre is also available.
* **Transport:** Well-organized transport facility for students commuting from Delhi and Gurugram, featuring GPS-enabled buses and trained staff.
* **Innovation & Startups:** Manav Rachna Business Incubator nurtures "innovative instinct of the students, alumni and faculty," providing design, fabrication, manufacturing facilities, and "a good path to capital from angel investors, state governments, economic-development coalitions and other investors." MRU has "50+ global partnerships" and "90+ Corporate Tie-Ups" to drive industry-led innovation and startup incubation.
* **Cultural and Co-curricular Activities:** A vibrant student life with numerous cultural societies (Dramatics, Music, Dance, Fashion, Media, Literary, Art, Gaming) and personality development societies (Karisma, TechSoul). Emphasis is placed on "experiential, participative and problem-based learning methodologies."
* **Alumni Network:** Supports alumni seminars, prominent alumni recognition, and alumni speak events.