

M.Tech Course Curriculum

for the following specializations

Bio-Environmental Systems Management, Bio-Systems Engineering, Biotechnology,
Construction Technology and Management, Design Engineering, Engineering Management,
Network Communications and Security, Product Design and Development, Quality Engineering and Management

For detailed Syllabus kindly refer www.diasindia.org

Subjects	Credits	1st Semester	2nd Semester	3rd Semester	4th Semester
Course Work	49	Six	Five	Three	---
Course	37	Six	Three	One	---
Electives	12	---	Two	Two	---
Practical	3	---	One	---	---
Seminars	2	One	One	---	---
Industrial Visit Report	2	---	---	Yes	---
Projects	(4+16=20)	---	Mini	Major-Part I	Major-Part II
Total Credits	76	22	26	16	12

STATE-OF-THE-ART CURRICULUM

The current curriculum at DIAS Off-Campus programmes are evolved by University by involving well experienced experts with the combination of Industry, R&D and Institute drawn from all over the country. University strongly feels that only the state-of-the-art curriculum will enhance the skills of education seekers. It is of no use to fully repeat the development process with respect to outdated and ill prepared curriculum that has already taken place elsewhere. Particular attention is given to the importance of maintaining a holistic view of curriculum and the need to integrate advanced knowledge, skills and values across specific learning areas. This curriculum attempts to facilitate fruitful use of these opportunities. The fundamental role of curriculum in the promotion of students' enjoyment of learning and excellence in learning is also emphasized. University describes learning and assessment strategies that are consistent with the Curriculum Framework and which promote achievement of the outcomes.

EXPERIENCED FACULTY

Our faculties are expert instructors with a Masters or PhD prepared in areas of research, practice and teaching. More importantly our faculty believes on continuous learning and overall development of students. Our faculty also specialised in take-up mentor activity.

M.Tech - Bio-Environmental Systems Management

	* L	T	P	C				
Semester 1					Industrial Project Report	-	-	4 2
Bio-mathematics	4	-	-	4	Main Project - Bio-environmental Systems - Part-I	-	-	8 4
Bio-process Engineering	4	-	-	4	Total			16
Ecology, Energy and Environment Systems	4	-	-	4	Semester 4			
Environmental Microbiology	3	-	-	3	Main Project - Bio-environmental Systems - Part-II	-	-	24 12
Environmental Toxicology and Protection	3	-	-	3	Total			12
Emerging Engineering Technologies	3	-	-	3	Electives: (Four)			
Seminar	-	-	2	1	Bioinformatics			
Total				22	Cleaner Production Techniques			
Semester 2					Pesticide Problems and Solutions			
Environmental Systems Modeling	4	-	-	4	Air and Water Quality Modelling			
Environmental Bio-technology	4	-	-	4	Solid and Hazardous Waste Management			
Environmental Impact Assessment	4	-	-	4	Environmental Management System			
Elective 1	3	-	-	3	Total Quality Management			
Elective 2	3	-	-	3	Knowledge Management			
Lab - Bio-environmental Engineering	-	-	6	3	Strategic Management			
Seminar	-	-	2	1	ERP, Logistics and Supply Chain Management			
Mini Project - Bio-environmental Analysis	-	-	8	4	Technical Entrepreneurship			
Total				26	Research Methodology			
Semester 3					Remote Sensing and GIS Applications in Environmental Engineering			
Environmental Legislation	4	-	-	4	Bio-conversion and Processing of Waste			
Elective 3	3	-	-	3	Biological Waste Treatment			
Elective 4	3	-	-	3	Environmental Research and Systems Analysis			

Eligibility : BE / BTech / AMIE (Any Branch), or Equivalent**, MSc (Any Relevant Branch) - Knowledge of Biology is essential

** Subject to the approval of University

* Abbreviations : L - Lecture hours T - Tutorial hours P - Practical hours C - Credit

M.Tech - Bio-Systems Engineering

	L	T	P	C				
Semester 1					Industrial Project Report	-	-	4 2
Bio-mathematics	3	1	-	4	Main Project - Bio-systems and Technologies - Part-I-	-	-	8 4
Bio-process Engineering	4	-	-	4				
Ecology, Energy and Environment Systems	4	-	-	4				
Bio-systems and Equipment	3	-	-	3				
Bio-thermodynamics	3	-	-	3				
Emerging Engineering Technologies	3	-	-	3				
Seminar	-	-	2	1				
	Total			22				
Semester 2					Semester 4			
Tissue Engineering	4	-	-	4	Main Project - Bio-systems and Technologies - Part-II-	-	-	24 12
Bio-sensor Technology	4	-	-	4				
Food Process Engineering	4	-	-	4				
Elective 1	3	-	-	3				
Elective 2	3	-	-	3				
Lab - Bio-systems	-	-	6	3				
Seminar	-	-	2	1				
Mini Project - Bio-systems Analysis	-	-	8	4				
	Total			26				
Semester 3					Electives: (Four)			
Bioinformatics	4	-	-	4	Biotechnology Basics			
Elective 3	3	-	-	3	Immunology			
Elective 4	3	-	-	3	Biological Waste Treatment			
					Environmental Microbiology			
					Cleaner Production Techniques			
					Pesticide Problems and Solutions			
					Genetic Engineering			
					Protein Engineering			
					Environmental Management System			
					Total Quality Management			
					Knowledge Management			
					Strategic Management			
					Research Methodology			
					Environmental Impact Assessment			
					Environmental Systems Analysis			

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M.Tech – Biotechnology

	L	T	P	C				
Semester 1					Industrial Project Report	-	-	4 2
Bio-mathematics	3	1	-	4	Main Project - Part-I	-	-	8 4
Bio-process Engineering	4	-	-	4				
Biotechnology Basics	3	-	-	3				
Bio-systems and Equipment	3	-	-	3				
Bio-thermodynamics	3	-	-	3				
Biochemical Technology	4	-	-	4				
Seminar	-	-	2	1				
	Total			22				
Semester 2					Semester 4			
Tissue Engineering	4	-	-	4	Main Project - Part-II	-	-	24 12
Genetic Engineering	4	-	-	4				
Molecular Biotechnology	4	-	-	4				
Elective 1	3	-	-	3				
Elective 2	3	-	-	3				
Lab - Biotechnology	-	-	6	3				
Seminar	-	-	2	1				
Mini Project - Biotechnology	-	-	8	4				
	Total			26				
Semester 3					Electives: (Four)			
Bioinformatics	4	-	-	4	Food Process Engineering			
Elective 3	3	-	-	3	Immunology			
Elective 4	3	-	-	3	Microbial Technology			
					Enzyme Technology			
					Biological Waste Treatment			
					Environmental Microbiology			
					Protein Engineering			
					Pesticide Problems and Solutions			
					Environmental Management System			
					Cleaner Production Techniques			
					Bio-conversion and Processing of Waste			
					Total Quality Management			
					Knowledge Management			
					Research Methodology			
					Emerging Engineering Technologies			
					Technical Entrepreneurship			

Eligibility : BE / BTech / AMIE (Any Branch), or Equivalent**, MSc (Any Relevant Branch) - Knowledge of Biology is essential

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M.Tech - Construction Technology and Management

	L	T	P	C				
Semester 1					Industrial Project Report	-	-	4 2
Applied Statistics and Queuing Theory	3	1	-	4	Main Project			
Construction Methods and Equipment	3	-	-	3	Construction Analysis and Management - Part -I	-	-	8 4
Smart Materials for Construction	3	-	-	3	Total			16
Project Formulation and Appraisal	3	1	-	4	Semester 4			
Construction Laws and Regulations	4	-	-	4	Main Project			
Emerging Engineering Technologies	3	-	-	3	Construction Analysis and Management - Part-II	-	-	24 12
Seminar	-	-	2	1	Total			12
Total				22	Electives: (Four)			
Semester 2					Maintenance and Rehabilitation of Structures			
Advanced Construction Techniques	3	1	-	4	Construction Economics and Finance Management			
Computer Applications in Construction Engineering and Planning	3	1	-	4	Management of Quality and Safety in Construction			
Construction Planning, Scheduling and Control	3	1	-	4	Environmental Impact Assessment			
Elective 1	3	-	-	3	Energy Conservation Techniques in Building Construction			
Elective 2	3	-	-	3	Quality Control and Assurance in Construction			
Lab - Computer Aided Management	-	-	6	3	Knowledge Management			
Seminar	-	-	2	1	Strategic Management			
Mini Project - Construction Audits	-	-	8	4	ERP, Logistics and Supply Chain Management			
Total				26	Environmental Management Systems			
Semester 3					Technical Entrepreneurship			
Construction Project Management	3	1	-	4	Total Quality Management			
Elective 3	3	-	-	3	Research Methodology			
Elective 4	3	-	-	3				

Eligibility : BE / BTech / AMIE (Civil), or Equivalent** or BArch

** Subject to the approval of University

M.Tech - Design Engineering

	L	T	P	C				
Semester 1					Industrial Project Report	-	-	4 2
Quantitative Techniques and Quality Tools	3	1	-	4	Main Project - Design and Development - Part-I	-	-	8 4
Concepts of Engineering Design	3	-	-	3	Total			16
Design for Manufacture and Assembly	4	-	-	4	Semester 4			
Materials, Manufacturing and Design	4	-	-	4	Main Project - Design and Development - Part-II	-	-	24 12
Computer Aided Design and Manufacturing	3	-	-	3	Total			12
Emerging Engineering Technologies	3	-	-	3	Electives: (Four)			
Seminar	-	-	2	1	Multi Optimization in Engineering Design			
Total				22	Engineering Design for Safety			
Semester 2					Tribology in Design			
Finite Element Analysis	4	-	-	4	Productivity Management and Re-engineering			
Product Life Cycle Management	4	-	-	4	Reverse Engineering			
Concurrent Engineering	4	-	-	4	Creativity and Innovation Management			
Elective 1	3	-	-	3	Product Design and Development Strategies			
Elective 2	3	-	-	3	Optimization Techniques			
Lab - FEA	-	-	6	3	Cleaner Production Techniques			
Seminar	-	-	2	1	Computational Fluid Dynamics			
Mini Project - Design Concepts	-	-	8	4	Rapid Prototyping and Development			
Total				26	Micro Fabrication			
Semester 3					Design Management			
Advanced Finite Element Analysis	3	1	-	4	ERP, Logistics and Supply Chain Management			
Elective 3	3	-	-	3	Total Quality Management			
Elective 4	3	-	-	3	Research Methodology			

Eligibility : BE / BTech / AMIE (Any Branch), or Equivalent**, MSc (Any Relevant Branch) - Knowledge of Mathematics Essential

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M.Tech - Engineering Management

	L	T	P	C					
Semester 1					Industrial Project Report	-	-	4	2
Quantitative Techniques and Quality Tools	3	1	-	4	Main Project - Design and Development - Part-I	-	-	8	4
Statistical Process Control	3	1	-	4	Total				16
Emerging Engineering Technologies	3	-	-	3	Semester 4				
Knowledge Management	3	-	-	3	Main Project - Design and Development - Part-II	-	-	24	12
Organizational Behavior and Leadership	3	-	-	3	Total				12
Engineering Economics and Financial Management	3	1	-	4	Electives: (Four)				
Seminar	-	-	2	1	Total Quality Management				
Total				22	Strategic Management				
Semester 2					Plant Engineering Management				
Optimization Techniques	3	1	-	4	ERP, Logistics and Supply Chain Management				
Product Life Cycle Management	3	1	-	4	Technical Entrepreneurship				
Concurrent Management	4	-	-	4	Reverse Engineering				
Elective 1	3	-	-	3	Lean Manufacturing				
Elective 2	3	-	-	3	E-commerce – Technology and Management				
Lab - Engineering Business	-	-	6	3	Infrastructure Management				
Seminar	-	-	2	1	Purchasing and Materials Management				
Mini Project - Survey and Analysis	-	-	8	4	Accounting for Management				
Total				26	Human Resource Management				
Semester 3					Project Management				
Marketing Research and Management	4	-	-	4	Research Methodology				
Elective 3	3	-	-	3	Production and Operations Management				
Elective 4	3	-	-	3	Product Design and Development Strategies				

Eligibility : BE / BTech / AMIE (Any Branch), or Equivalent**, MSc (Any Relevant Branch) - Knowledge of Mathematics Essential

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M.Tech - Network Communications and Security

	L	T	P	C					
Semester 1					Elective 4	3	-	-	3
Graph Theory and Queuing Theory	3	1	-	4	Industrial Project Report – Security Systems	-	-	4	2
Wireless Network Communications	3	-	-	3	Main Project - Network / Security - Design - Part - I	-	-	8	4
Software Engineering and Methodologies	3	-	-	3	Total				16
Computer Networks Engineering & Management	3	1	-	4	Semester 4				
Advanced Networks	4	-	-	4	Main Project - Network / Security - Design - Part - II	-	-	24	12
Emerging Engineering Technologies	3	-	-	3	Total				22
Seminar	-	-	2	1	Electives: (Four)				
Total				22	Advanced Data Bases				
Semester 2					Software Project Management				
Cryptography and Communication Network Security	3	1	-	4	Object Oriented System Analysis and Design				
Advanced Mobile Computing	3	1	-	4	Advanced Operating Systems				
Cyber Laws and Network Security Legislation	3	1	-	4	Telecom Network Management				
Elective 1	3	-	-	3	Advanced Digital Communication Techniques				
Elective 2	3	-	-	3	Advanced Digital Signal Processing				
Lab - Computer Networking & Security	-	-	6	3	Network Routing Algorithms				
Seminar	-	-	2	1	High Speed Switching Architecture				
Mini Project - Analysis of Networks	-	-	8	4	Simulation of Communication of Systems and Networks				
Total				26	Knowledge Management				
Semester 3					Total Quality Management				
Performance Evaluation of Computer Systems and Networks	3	1	-	4	Research Methodology				
Elective 3	3	-	-	3					

Eligibility : BE / BTech / AMIE (EEE, ECE, ICE, E&I, CSE), or Equivalent**, MCA, MSc (IT / CSc)

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M.Tech - Product Design and Development

	L	T	P	C					
Semester 1					Industrial Project Report	-	-	4	2
Quantitative Techniques and Quality Tools	3	1	-	4	Main Project - Design and Development - Part-I	-	-	8	4
Concepts of Engineering Design	3	1	-	4	Total			16	
Design for Manufacture and Assembly	4	-	-	4	Semester 4				
Materials, Manufacturing and Design	3	-	-	3	Main Project - Design and Development - Part-II	-	-	24	12
Computer Aided Design and Manufacturing	3	-	-	3	Total			12	
Emerging Engineering Technologies	3	-	-	3	Electives: (Four)				
Seminar	-	-	2	1	Elements of Design and Product Modeling				
Total				22	Product Design and Development Strategies				
Semester 2					Creativity and Innovation Management				
Finite Element Analysis	3	1	-	4	Applied Ergonomics				
Product Life Cycle Management	3	1	-	4	Micro Fabrication				
Rapid Prototyping and Development	3	1	-	4	Reverse Engineering				
Elective 1	3	-	-	3	Smart Materials and Manufacturing				
Elective 2	3	-	-	3	Methodology for Design Research				
Lab - Product Design Tools	1	1	2	3	Design and Analysis of Experiments				
Seminar	-	-	2	1	Design Management				
Mini Project - Design Projects	-	-	8	4	Computational Fluid Dynamics				
Total				26	Engineering Design for Safety				
Semester 3					Mechatronics				
Product visualization, Communication and Presentation	3	1	-	4	Lean Manufacturing				
Elective 3	3	-	-	3	Total Quality Management				
Elective 4	3	-	-	3	Knowledge Management				
					Research Methodology				

Eligibility : BE / BTech / AMIE (Any Branch), or Equivalent**, MSc (Any Relevant Branch), MBA, MCA* - Knowledge of Maths required

** Subject to the approval of University

M.Tech - Quality Engineering and Management

	L	T	P	C					
Semester 1					Industrial Project Report	-	-	4	2
Quantitative Techniques and Quality Tools	3	1	-	4	Main Project - Design and Analysis - Part-I	-	-	8	4
Statistical Process Control	3	1	-	4	Total			16	
Emerging Engineering Technologies	3	-	-	3	Semester 4				
Quality Engineering and Management	3	1	-	4	Main Project - Design and Analysis- Part-II	-	-	24	12
Total Productive Maintenance	3	-	-	3	Total			12	
Reliability Engineering	3	-	-	3	Electives: (Four)				
Seminar	-	-	2	1	Design and Analysis of Experiments				
Total				22	Human Aspects of Quality				
Semester 2					Software Quality Engineering and Management				
Quality by Design	3	1	-	4	Total Quality Management				
Optimization Techniques	3	1	-	4	Environmental Management System				
Quality Certification Systems	3	1	-	4	Knowledge Management				
Elective 1	2	1	-	3	Strategic Management				
Elective 2	2	1	-	3	ERP, Logistics and Supply Chain Management				
Lab - Quality Engineering	-	-	6	3	Quality Planning and Assurance Systems				
Seminar	-	-	2	1	Facilities Planning and Design				
Mini Project - Quality Audit	-	-	8	4	Advanced Manufacturing Systems and Modeling				
Total				26	Lean Manufacturing				
Semester 3					Six Sigma Concepts				
Systems and Simulation	3	1	-	4	Research Methodology				
Elective 3	2	1	-	3	Product Life Cycle Management				
Elective 4	2	1	-	3					

Eligibility : BE / BTech / AMIE (Any Branch), or Equivalent**, MSc (Any Relevant Branch), MBA, MCA* - Knowledge of Statistics required

** Subject to the approval of University

MS (By Research) Course Curriculum

MS (By Research) Programme is equivalent to ME / MTech Programmes

A BRIEF DISCUSSION OF THE PROGRAMME

Students will need to take six courses to earn minimum 20 credits. It is expected that the students will take their core courses within the first six months of their stay at the Off-Campus Study Centre. Students will be encouraged to select a research area as soon as possible, normally within the first year as per the advice of their Supervisor (Guide) who will guide the student through this area. It is expected that the research will be of substantial quality, leading to a good quality publication / patent / product. It is expected that the student will be able to finish all the requirements of course work and research within two years.

SPECIALISATION

- 1) Bioinformatics
- 2) Genetic Engineering
- 3) Protein Engineering
- 4) Tissue Engineering
- 5) Software Engineering
- 6) Power System
- 7) Industrial Engineering

SEMESTER - 1

Course Work from Core or Electives relevant to the specialisation
(subject to the approval of University)

**Six Course Work (Subjects)
20 Credits**

SEMESTER - 2

Practical / Seminars / Industrial Visit Report / Progress Review /
Research Problem formulation etc.

20 Credits

SEMESTER - 3

Thesis - 35 Credits

SEMESTER - 4

TOTAL 75 Credits (Equivalent to M.Tech Programme)

Course Work(s) can be chosen from the following list - (Appropriately to the MS(By Research) Specialisation)

LIST OF COURSES (CORE / ELECTIVES) from M.TECH Curriculum of the following Specialisations

Bio-Environmental Systems Management
Bio-Systems Engineering
Biotechnology
Construction Technology and Management
Design Engineering
Engineering Management
Network Communications and Security
Product Design and Development
Quality Engineering and Management

LIST OF COURSES (CORE / ELECTIVES) from MBA Curriculum

Business Process Re-engineering
Computer Aided Production Management
Computer Applications in Business
Decision Support Systems
ERP for Manager
Human Resource Management
Management Control Systems
Management Information System
Materials Management
Modeling & Simulation
Organisational Behaviour

Principles of Management
Project Management
Production and Operations Management
Project Management for Software Development
Quantitative Technologies
Relational & Object Oriented DBMS
Software Quality Management
System Analysis & Design
Value Engineering
Web Enabled Marketing Management
Special Elective (Need Based)

MBA Course Curriculum

For detailed Syllabus kindly refer www.diasindia.org

Subjects	Credits	1st Semester	2nd Semester	3rd Semester	4th Semester
Course Work	82	Eight	Eight	Eight	---
Core	64	Eight	Eight	Two	---
Electives	18	---	---	Six	---
Practical	3	---	One	---	---
Seminars	4	One	One	---	---
Industrial Visit Report	2	---	---	Yes	---
Projects	12	---	---	---	Major
Total Credits	103	29	32	28	16

		L	T	P	C
Semester 1					
Principles of Management		3	-	-	3
Organisational Behaviour		3	-	-	3
Financial Accounting		3	1	-	4
Economics Analysis for Business Decisions		3	1	-	4
Quantitative Technologies		3	1	-	4
Management Information System		3	1	-	4
Human Resource Management		3	-	-	3
Communication Skills		1	-	4	3
Seminar		-	-	4	2
Total					30
Semester 2					
Legal Systems for Business		3	-	-	3
Quantitative Methods in Business		3	1	-	4
Financial Management		3	1	-	4
Marketing Management		4	-	-	4
Management Accounting and Control		4	-	-	4
Managerial Behaviour and Effectiveness		3	-	-	3
Project Management		3	-	-	3
Computer Applications in Business		3	-	-	3
Lab - Computer Lab		-	-	6	3
Seminar		-	-	4	2
Total					33
Semester 3					
Business Policy and Strategic Management		3	1	-	4
International Business Management		3	1	-	4
Elective 1		3	-	-	3
Elective 2		3	-	-	3
Elective 3		3	-	-	3
Elective 4		3	-	-	3
Elective 5		3	-	-	3
Elective 6		3	-	-	3
Business / Industrial Project Report		-	-	4	2
Total					28
Semester 4					
Main Project - Based on the Specialisation		-	-	-	24
Total					12
Grand Total					103

Electives: (Six) - Specialisation

International Business

- International Accounting and Multinational Enterprises
- Global Marketing
- Global Trade Financing
- Brand Management
- International Economics
- Export Marketing Strategies
- Infrastructure Management
- Web Enabled Marketing Management

Tourism

- Tourism : Principles, Practices, Philosophies
- Tourism Management
- International Travel and Tourism
- Tourism Economics
- Hospitality and Marketing Management
- Eco Tourism
- Special Elective (Need Based)

Marketing

- Strategic Marketing
- Relationship Marketing
- Service Marketing
- Advertising & Sales Promotion Management
- Industrial Marketing
- Rural Marketing
- Marketing Research
- Export Marketing Strategies
- Consumer Behaviour

Finance

- Security Analysis & Portfolio Management
- Advanced Financial Management
- Industrial Finance
- Merchant Banking & Financial Services
- Investment Management
- Financing for Export & Import

Systems

- Management Control Systems
- Decision Support Systems
- Project Mgt. for Software Development
- Relational & Object Oriented DBMS
- Web Enabled Marketing Management
- ERP for Manager
- Software Quality Management
- System Analysis & Design

Human Resource Management

- Industrial Relations & Labour Welfare
- Labour Legislation
- Risk Management
- Infrastructure Management
- Technical Entrepreneurship
- Total Quality Management
- Research Methodology

Production

- Production and Operations Management
- Computer Aided Production Management
- Materials Management
- Value Engineering
- Modeling & Simulation
- Business Process Re-engineering
- Special Elective (Need Based)