

Regulation 2023

Program Structure



3020 Diploma in Mechanical Engineering (PT)

Program Outcomes (PO's)

POs are statements that describe what students are expected to know and be able to do upon graduating from the program. These relate to the skills, knowledge, analytical ability, attitude, and behavior that students acquire through the program.

The POs essentially indicate what the students can do from subject-wise knowledge acquired by them during the program. As such, POs define the professional profile of an engineering diploma graduate.

NBA has defined the following seven POs for an Engineering diploma graduate:

P01: Basic and Discipline-specific knowledge: Apply knowledge of basic mathematics, science and engineering fundamentals and an engineering specialization to solve the engineering problems.

P02: Problem analysis: Identify and analyse well-defined engineering problems using codified standard methods.

P03: Design/ development of solutions: Design solutions for well-defined technical problems and assist with the design of systems components or processes to meet specified needs.

P04: Engineering Tools, Experimentation, and Testing: Apply modern engineering tools and appropriate technique to conduct standard tests and measurements.

P05: Engineering practices for society, sustainability and environment: Apply appropriate technology in the context of society, sustainability, environment and ethical practices.

P06: Project Management: Use engineering management principles individually, as a team member or as a leader to manage projects and effectively communicate about well-defined engineering activities.

P07: Life-long learning: Ability to analyse individual needs and engage in updating in the context of technological changes.

Credit Distribution

Semester	No of Courses	Periods	Credits
Semester I	6	308	15
Semester II	6	300	15
Semester III	7	300	14
Semester IV	5	330	14
Semester V	5	300	14
Semester VI	5	300	13
Semester VII	6	330	17
Semester VIII	3	660^	18
Total			120

Note: ^In-house Project / Internship / Fellowship can be permitted to carry out in industry / Day time for the required periods.

For tests and Revisions - 15-30 periods can be added based on the requirement in every semester.

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Semester I								
#	Course Category	Course Type	Code	Course Title	L-T-P	Period	Credit	End Exam
1	Humanities & Social Science	Theory	1000231110	Tamil Marabu	2-0-0	30	2	Theory
2	Basic Science	Theory	1000231230	Basic Mathematics	3-1-0	60	4	Theory
3	Basic Science	Practicum	1000231430	Basic Chemistry	2-0-2	60	3	Theory
4	Engineering Science	Practical	1000231520	Digital Workplace Skills	0-0-4	60	2	Practical
5	Humanities & Social Science	Practicum	1000231640	Communicative English I	1-0-2	45	2	Practical
6	Open Elective	Advanced Skill Certification	1000231860	Basic English for Employability	0-0-4	45	2	Practical
7	Audit Course	Integrated Learning Experience	1000231881	Induction Program - I	-	8	0	-
Total						308	15	

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Semester II								
#	Course Category	Course Type	Code	Course Title	L-T-P	Period	Credit	End Exam
1	Humanities & Social Science	Theory	1000232110	Tamils and Technology	2-0-0	30	2	Theory
2	Basic Science	Practicum	1000231330	Basic Physics	2-0-2	60	3	Theory
3	Program Core	Theory	1020232210	Basics of Mechanical Engineering	3-0-0	45	3	Theory
4	Basic Science	Practicum	1000232440	Applied Mathematics – I	1-0-4	75	3	Practical
5	Engineering Science	Practicum	1000231740	Basic Workshop Practices	1-0-2	45	2	Practical
6	Humanities & Social Science	Practicum	1000232840	Communicative English – II	1-0-2	45	2	Practical
Total						300	15	

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Semester III								
#	Course Category	Course Type	Code	Course Title	L-T-P	Period	Credit	End Exam
1	Engineering Science	Lab	1000232320	Drafting Practices	0-0-4	60	2	Practical
2	Basic Science	Practicum	1000232540	Applied Physics – I	1-0-2	45	2	Practical
3	Basic Science	Practicum	1000232640	Applied Chemistry – I	1-0-2	45	2	Practical
4	Engineering Science	Practicum	1000232740	Basic Engineering Practices	1-0-2	45	2	Practical
5	Program Core	Theory	1020233110	Manufacturing Process	3-0-0	45	3	Theory
6	Open Elective	Advanced Skill Certification	1000232860	Advanced Skills Certification - II	1-0-2	45	2	NA
7	Audit Course	Integrated Learning Experience	1020233886	Health & Wellness	0-0-2	15	1	-
Total						300	14	

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Semester IV								
#	Course Category	Course Type	Code	Course Title	L-T-P	Period	Credit	End Exam
1	Program Core	Practicum	1020233230	Strength of Materials	3-0-2	75	4	Theory
2	Program Core	Practical/Lab	1020233320	Workshop Practices	0-0-4	60	2	Practical
3	Program Core	Practicum	1020233440	Industrial drives and control	1-0-4	75	3	Practical
4	Program Core	Practicum	1020233540	Production Drawing and Modeling	1-0-4	75	3	Practical
5	Open Elective	Advanced Skill Certification	1020233760	Advanced Skills Certification - III	1-0-2	45	2	NA
Total						330	14	

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Semester V								
#	Course Category	Course Type	Code	Course Title	L-T-P	Period	Credit	End Exam
1	Program Core	Practicum	1020233640	Machine Tool Technology	1-0-4	75	3	Practical
2	Program Core	Theory	1020234110	Advanced Manufacturing Technology	3-0-0	45	3	Theory
3	Program Core	Practicum	1020234230	Fluid Mechanics	2-0-2	60	3	Theory
4	Program Core	Practicum	1020234440	Sensors and Actuators	1-0-4	75	3	Practical
5	Open Elective	Advanced Skill Certification	1020234760	Advanced Skills Certification - IV	1-0-2	45	2	NA
Total						300	14	

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Semester VI								
#	Course Category	Course Type	Code	Course Title	L-T-P	Period	Credit	End Exam
1	Program Core	Practical/Lab	1020234320	Advanced Manufacturing Technology Practical	0-0-4	60	2	Practical
2	Program Core	Practicum	1020234540	Heat power engineering	1-0-4	75	3	Practical
3	Program Core	Practicum	1020234640	Metrology and Measurements	1-0-4	75	3	Practical
4	Program Core	Theory	1020235110	Elements of Machine Design	3-0-0	45	3	Theory
5	Open Elective	Advanced Skill Certification	1020235860	Advanced Skills Certification - V	1-0-2	45	2	NA
Total						300	13	

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Semester VII								
#	Course Category	Course Type	Code	Course Title	L-T-P	Period	Credit	End Exam
1	Program Core	Practicum	1020235230	Industrial Engineering and Management	3-0-2	75	4	Theory
2	Program Elective	Practicum		Elective - I	2-0-2	60	3	Theory
3	Program Core	Practicum	1020235440	Maintenance, Repairs & Service	1-0-4	75	3	Practical
4	Program Elective	Practicum		Elective -II	1-0-4	75	3	Practical
5	Humanities & Social Science	Practicum	1020235654	Innovation & Startup	1-0-2	45	2	Project
6	Project/Internship	Project/Internship	1020235773	Industrial Training* [Summer Vacation - 90 Hours]	0-0-4	-	2	Project
Total						330	17	

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Semester VIII								
#	Course Category	Course Type	Code	Course Title	L-T-P	Period	Credit	End Exam
1	Open Elective	Theory		Electives-3 (Pathway)	3-0-0	45	3	Theory
2	Open Elective	Practicum		Elective-4 (Specialisation)	1-0-4	75	3	Practical
3	Industrial Training / Project	Project/Internship		In-house Project / Internship / Fellowship *	-	540	12	Project
Total						660	18	

* Note: In-house Project / Internship / Fellowship can be permitted to carry out in industry / Day time for the required periods.

3	Industrial Training / Project	Project/Internship	1020236351	Internship	-	540	12	Project
3	Industrial Training / Project	Project/Internship	1020236353	Fellowship	-	540	12	Project
3	Industrial Training / Project	Project/Internship	1020236374	In-house Project	-	540	12	Project

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Elective - I

#	Course Category	Course Type	Code	Course Title	L-T-P	Period	Credit	End Exam
1	Program Elective	Practicum	1020235331	Modern QC Tools	2-0-2	60	3	Theory
2	Program Elective	Practicum	1020235332	Composite Materials	2-0-2	60	3	Theory
3	Program Elective	Practicum	1020235333	Refrigeration and Air-Conditioning	2-0-2	60	3	Theory
4	Program Elective	Practicum	1020235334	Value Engineering	2-0-2	60	3	Theory
5	Program Elective	Practicum	1020235335	Green Manufacturing	2-0-2	60	3	Theory
6	Program Elective	Practicum	1020235336	Lean Manufacturing	2-0-2	60	3	Theory
7	Program Elective	Practicum		Inter discipline course #	2-0-2	60	3	Theory

Courses from other programmes with the same credit can be considered after proper approval from the Chairman Board of Examinations.

Elective - II

#	Course Category	Course Type	Code	Course Title	L-T-P	Period	Credit	End Exam
1	Program Elective	Practicum	1020235541	CNC Programming	1-0-4	75	3	Practical
2	Program Elective	Practicum	1020235542	Systems Applications and Product (SAP)	1-0-4	75	3	Practical
3	Program Elective	Practicum	1020235543	Industrial IoT	1-0-4	75	3	Practical
4	Program Elective	Practicum	1020235544	Advanced Welding Technologies	1-0-4	75	3	Practical
5	Program Elective	Practicum	1020235545	Industrial Robotics	1-0-4	75	3	Practical
6	Program Elective	Practicum	1020235546	HVAC Systems and Components	1-0-4	75	3	Practical
7	Program Elective	Practicum	1020235547	Automobile Technology	1-0-4	75	3	Practical

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Elective - III (Pathway)

#	Course Category	Course Type	Code	Course Title	L-T-P	Period	Credit	End Exam
1	Elective Higher Education	Theory	6000236111	Advanced Engineering Mathematics	3-0-0	45	3	Theory
2	Elective Entrepreneurship	Theory	6000236112	Entrepreneurship	3-0-0	45	3	Theory
3	Elective Technocrats	Theory	6000236113	Project Management	3-0-0	45	3	Theory
4	Elective Technocrats	Theory	6000236114	Finance Fundamentals	3-0-0	45	3	Theory
5	Elective Technologists	Theory	1020236115	Industry 4.0	3-0-0	45	3	Theory
6	Elective Technologists	Theory	1020236116	Additive Manufacturing	3-0-0	45	3	Theory
7	Elective Technologists	Theory	1020236117	Power Plant Engineering	3-0-0	45	3	Theory
8	Elective Open elective	Theory		Online Elective Courses \$	3-0-0	45	3	Theory

\$ Online courses with the same credit available in AICTE, SWAYAM, NPTEL and reputed Institutions with the proper evaluation system and certification can be considered after proper approval from the Chairman Board of Examinations.

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Elective - IV (Specialization)								
#	Course Category	Course Type	Code	Course Title	L-T-P	Period	Credit	End Exam
1	Elective	Practicum	1020236241	MEP Equipment Servicing	1-0-4	75	3	Practical
2	Elective	Practicum	1020236242	Maintenance of Machine Tools	1-0-4	75	3	Practical
3	Elective	Practicum	1020236243	Non-Destructive Testing	1-0-4	75	3	Practical
4	Elective	Practicum	1020236244	Process Automation	1-0-4	75	3	Practical
5	Elective	Practicum	1020236245	Product Design & Development	1-0-4	75	3	Practical
6	Elective	Practicum	1020236246	Electric Vehicle Technology	1-0-4	75	3	Practical
7	Elective	Practicum	1020236247	Reverse Engineering	1-0-4	75	3	Practical
8	Elective	Practicum	1020236248	Green Energy & Engineering	1-0-4	75	3	Practical

Note: Test and Revisions - 15 -30 periods can be added as per the requirement in every semester.