

B.Tech (Mechanical Engineering) Syllabus from Admission Batch 2018-19 *4<sup>th</sup> Semester*

**BIJU PATNAIK UNIVERSITY OF TECHNOLOGY, ODISHA  
ROURKELA**



**Tentative Curriculum and Syllabus**

**of**

**B.Tech (Mechanical Engineering) from the Batch 2018-19**

**Semester (4<sup>th</sup>)**

  
Principal  
Radhakrishna Institute of Technology  
and Engineering, Bhubaneswar

<b>Fourth Semester</b>							
<b>Theory</b>							
Sl No	Category	Course Code	Course Title	L-T-P	Credit	University Marks	Internal Evaluation
1	PC	RME4C001	Kinematics & Dynamics of Machines	3-0-0	3	100	50
2	PC	RME4C002	Engineering Thermodynamics	3-0-0	3	100	50
3	HS	REN4E001 / ROB4E002	Engineering Economics / Organisational Behaviour	3-0-0	3	100	50
4	PC	RME4C003	Introduction to Physical Metallurgy and Engineering Materials	3-0-0	3	100	50
5	PE	RME4D001	Internal Combustion Engines and Gas Turbines	3-0-0	3	100	50
		RME4D002	Mechanical Measurement, Metrology & Reliability				
		RME4D003	Advanced Mechanics of Solids				
6	OE	RME4G001	Digital Systems Design	3-0-0	3	100	50
		RME4G002	Microprocessor and Microcontroller				
		RME4G003	Data Structure				
6	MC*	RCN4F001	Constitution of India	3-0-0	0	—	100 (Pass mark is 37)
<b>Total Credit (Theory)</b>					<b>18</b>		
<b>Total Marks</b>						<b>600</b>	<b>300</b>
<b>Practical</b>							
1	PC	RME4C201	Kinematics & Dynamics of Machines Laboratory	0-0-3	2		100
2	PC	RME4C202	Engineering Thermodynamics Laboratory	0-0-3	2		100
3	PC	RME4C203	Introduction to Physical Metallurgy and Engineering Materials Laboratory	0-0-3	2		100
<b>Total Credit (Practical)</b>					<b>6</b>		
<b>Total Semester Credit</b>					<b>24</b>		
<b>Total Marks</b>							<b>300</b>

\*Mandatory Non-Credit Courses (MC) result will be reflected with Pass (P) / Fail (F) grade. Thus the grade obtained will not be affecting the grade point average. However it shall appear on the grade sheet as per AICTE rule.

4 <sup>th</sup> Semester	ROB4E002	ORGANISATIONAL BEHAVIOUR	L-T-P 3-0-0	3 CREDITS
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**Objectives:**

1. To develop an understanding of the behavior of individuals and groups inside organizations
2. To enhance skills in understanding and appreciating individuals, interpersonal, and group process for increased effectiveness both within and outside of organizations.
3. To develop theoretical and practical insights and problem-solving capabilities for effectively managing the organizational processes.

**Module-I: (06 Hrs.)**

**Fundamentals of OB:** Definition, scope and importance of OB, Relationship between OB and the individual, Evolution of OB, Theoretical framework (cognitive), behavioristic and social cognitive), Limitations of OB.

**Module-II: (12 Hrs.)**

**Attitude:** Importance of attitude in an organization, Right Attitude, Components of attitude, Relationship between behavior and attitude, Developing Emotional intelligence at the workplace, Job attitude, Barriers to changing attitudes.

**Personality and values:** Definition and importance of Personality for performance, The Myers-Briggs Type Indicator and The Big Five personality model, Significant personality traits suitable to the workplace (personality and job – fit theory), Personality Tests and their practical applications.

**Perception:** Meaning and concept of perception, Factors influencing perception, Selective perception, Attribution theory, Perceptual process, Social perception (stereotyping and halo effect).

**Motivation:** Definition & Concept of Motive & Motivation, The Content Theories of Motivation (Maslow's Need Hierarchy & Herzberg's Two Factor model Theory), The Process Theories (Vroom's expectancy Theory & Porter Lawler model), Contemporary Theories – Equity Theory of Work Motivation.

**Module-III: (10 Hrs.)**

**Foundations of Group Behavior:** The Meaning of Group & Group behavior & Group Dynamics, Types of Groups, The Five – Stage Model of Group Development.

**Managing Teams:** Why Work Teams, Work Teams in Organization, Developing Work Teams, Team Effectiveness & Team Building.

**Leadership:** Concept of Leadership, Styles of Leadership, Trait Approach Contingency Leadership Approach, Contemporary leadership, Meaning and significance of contemporary leadership, Concept of transformations leadership, Contemporary theories of leadership, Success stories of today's Global and Indian leaders.

**Module-IV: (08 Hrs.)**

**Organizational Culture :** Meaning & Definition of Organizational Culture, creating & Sustaining Organizational Culture, Types of Culture (Strong vs. Weak Culture, Soft Vs. Hard Culture & Formal vs. Informal Culture), Creating Positive Organizational Culture, Concept of Workplace Spirituality.

  
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**Module-V:** (09 Hrs.)

**Organizational Change:** Meaning, Definition & Nature of Organizational Change, Types of Organizational Change, Forces that acts as stimulants to change.

Implementing Organizational Change : How to overcome the Resistance to Change, Approaches to managing Organizational Change, Kurt Lewin's-Three step model, Seven Stage model of Change & Kotter's Eight-Step plan for Implementing Change, Leading the Change Process, Facilitating Change, Dealing with Individual & Group Resistance, Intervention Strategies for Facilitating Organizational Change, Methods of Implementing Organizational Change, Developing a Learning Organization.

**Books:**

1. Understanding Organizational Behaviour, Parek, Oxford
2. Organizational Behaviour, Robbins, Judge, Sanghi, Pearson.
3. Organizational Behaviour, K. Awathappa, HPH.
4. Organizational Behaviour, VSP Rao, Excel
5. Introduction to Organizational Behaviour, Moorhead, Griffin, Cengage.
6. Organizational Behaviour, Hitt, Miller, Colella, Wiley

  
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<b>4<sup>th</sup> Semester</b>	<b>RCN4F001</b>	<b>Constitution of India</b>	<b>L-T-P 3-0-0</b>	<b>0 CREDIT</b>
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**Basic features and fundamental principles**

The Constitution of India is the supreme law of India. Parliament of India can not make any law which violates the Fundamental Rights enumerated under the Part III of the Constitution. The Parliament of India has been empowered to amend the Constitution under Article 368, however, it cannot use this power to change the “basic structure” of the constitution, which has been ruled and explained by the Supreme Court of India in its historical judgments. The Constitution of India reflects the idea of “Constitutionalism” – a modern and progressive concept historically developed by the thinkers of “liberalism” – an ideology which has been recognized as one of the most popular political ideology and result of historical struggles against arbitrary use of sovereign power by state. The historic revolutions in France, England, America and particularly European Renaissance and Reformation movement have resulted into progressive legal reforms in the form of “constitutionalism” in many countries. The Constitution of India was made by borrowing models and principles from many countries including United Kingdom and America.

The Constitution of India is not only a legal document but it also reflects social, political and economic perspectives of the Indian Society. It reflects India’s legacy of “diversity”. It has been said that Indian constitution reflects ideals of its freedom movement, however, few critics have argued that it does not truly incorporate our own ancient legal heritage and cultural values. No law can be “static” and therefore the Constitution of India has also been amended more than one hundred times. These amendments reflect political, social and economic developments since the year 1950. The Indian judiciary and particularly the Supreme Court of India has played an historic role as the guardian of people. It has been protecting not only basic ideals of the Constitution but also strengthened the same through progressive interpretations of the text of the Constitution. The judicial activism of the Supreme Court of India and its historic contributions has been recognized throughout the world and it gradually made it “as one of the strongest court in the world”.

**Course content**

1. Meaning of the constitution law and constitutionalism
2. Historical perspective of the Constitution of India
3. Salient features and characteristics of the Constitution of India
4. Scheme of the fundamental rights
5. The scheme of the Fundamental Duties and its legal status
6. The Directive Principles of State Policy – Its importance and implementation
7. Federal structure and distribution of legislative and financial powers between the Union and the States
8. Parliamentary Form of Government in India – The constitution powers and status of the President of India
9. Amendment of the Constitutional Powers and Procedure
10. The historical perspectives of the constitutional amendments in India

**B.Tech (Mechanical Engineering) Syllabus from Admission Batch 2018-19 4<sup>th</sup> Semester**

11. Emergency Provisions : National Emergency, President Rule, Financial Emergency
12. Local Self Government – Constitutional Scheme in India
13. Scheme of the Fundamental Right to Equality
14. Scheme of the Fundamental Right to certain Freedom under Article 19
15. Scope of the Right to Life and Personal Liberty under Article 21.



<b>4<sup>th</sup> Semester</b>	<b>RCN4F001</b>	<b>Constitution of India</b>	<b>L-T-P 3-0-0</b>	<b>0 CREDIT</b>
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