Contents

Chapter 1
INTRODUCTION ................................................................. 01 - 30
1.1 Background of the Study .............................................. 01
1.2 Statement of the Problem ........................................... 03
1.3 Significance of the Study ............................................ 07
1.4 Research Questions .................................................. 08
1.5 Objectives of the Study .............................................. 09
1.6 Conceptual Framework ............................................. 10
  1.6.1 Unemployment – Its Economic Meaning and Theoretical
       Framework ................................................................. 14
  1.6.2 Theories of Unemployment ...................................... 14
1.7 Operational Definitions .............................................. 19
1.8 Methodology ............................................................ 20
  1.8.1 Data ....................................................................... 20
  1.8.2 Sample Design ..................................................... 22
  1.8.3 Tool Design ......................................................... 25
  1.8.4 Pretest ................................................................. 25
  1.8.5 Collection of Data .................................................. 26
  1.8.6 Method of Analysis ................................................ 26
1.9 Scope and Coverage of the Study ................................... 27
1.10 Scheme of the Study .................................................. 27

Chapter 2
EDUCATION SYSTEM IN INDIA WITH SPECIAL
REFERENCE TO ENGINEERING EDUCATION IN
INDIA AND KERALA ........................................................... 31 - 59
2.1 Introduction ............................................................... 31
2.2 Education System in Modern India ................................. 35
2.3 Higher Education Enrolment in India and Kerala: Prospects
   and Future ..................................................................... 38
2.4 Technical Education in India: Its Evolution and Growth
   before and after Independence ........................................ 44
  2.4.1 Technical Education Development in the pre Independence
         period ....................................................................... 44
  2.4.2 Technical Education Developments in India, post Independence ....... 47
2.5 Engineering Education in Economic Planning and the
   Beginning of Manpower Planning Process in India .............. 48
2.6 Engineering Education in India: Its Present Global Position, Stature and Characteristics .......................................................... 52
2.7 Engineering Education, Scope and Importance in Kerala Perspective .................................................................................. 54
2.8 The Framework of the Analysis ....................................................................................................................... 58

Chapter 3
ACTIVITY STATUS OF FRESH DEGREE AND DIPLOMA ENGINEERS IN KERALA: ISSUES AND CHALLENGES ................................................................. 61 - 97
3.1 Introduction .......................................................................................................................... 61
3.2 Activity Status of Present Diploma and Graduate Engineers in Kerala – an overview .......................................................... 63
3.3 Activity Status: its Different forms ................................................................................... 63
3.4 Activity Status of the Diploma and Graduate Engineers in Kerala During the Period of 1980’s to 2008: Descriptive Analysis of Secondary Data .......................................................... 66
3.5 Activity Status of the Diploma and Graduate Engineers in Kerala: Inferential Analysis of the Secondary Data ........................................ 69
3.6 Present Activity Status of the Diploma and Graduate Engineers in Kerala and Their Branch of study: Descriptive Analysis of the Primary Data ........................................................................ 72
3.6.1 Activity Status of the Diploma and Graduate Engineers and Their Branch of Study ........................................................................ 72
3.6.2 Regional-wise Activity Status of Diploma and Graduate Engineers in Kerala ........................................................................ 79
3.6.3 The Gender Perspective of the Employment Status among the Diploma and Graduate Engineers .................................................. 81
3.6.4 The Present Activity Status of the Diploma and Graduate Engineers: Their Social category ......................................................... 84
3.6.5 Analysis of the Employment Status of the Diploma and Graduate Engineers: Institutional background ........................................... 86
3.6.6 Activity Status of the Diploma and Graduate Engineers and Their Area of Residence ........................................................................ 90
3.6.7 Activity Status of the Diploma and Graduate Engineers and Their Level of Parental Education.................................................... 92
3.7 Activity Status of the Diploma and Graduate Engineers in Kerala: Inferential Analysis of Primary Data ........................................ 93
3.8 Findings and Conclusion .................................................................................................... 95
4.3.3.6 Employment Function of the Engineers in Kerala and Their Type of Institution of Study ........................................ 146

4.3.4 Employment Function of the Diploma and Graduate Engineers in Kerala- Inferential Analysis of Primary Data ........ 149

4.4 Sector of Employment of the Diploma and Graduate Engineers of Kerala ................................................................................................. 151

4.4.1 Sector of Employment of the Diploma and Graduate Engineers: Descriptive Analysis of Secondary Data .................. 155

4.4.2 Sectors of Employment of the Diploma and Graduate Engineers: Inferential Analysis of the Secondary Data ............... 158

4.4.3 Sector of Employment of the Diploma and Graduate Engineers of Kerala- Descriptive analysis of the Primary Data .................................................................................................................. 159

4.4.3.1 Sector of Employment of the Diploma and Graduate Engineers and Their Branch of Study ................................................. 159

4.4.3.2 Sector of Employment of the Engineers in Kerala and Their Gender Characteristics ......................................................... 164

4.4.3.3 Sector of Employment of the Engineers of Kerala and Their Social Category ................................................................. 167

4.4.3.4 Sector of Employment of the Engineers of Kerala and Their Type of Institution of Study .................................................. 170

4.4.4 Sector of Employment of the Diploma and Graduate Engineers: Inferential Analysis of the Primary Data .................. 173

4.5 Means of Getting Employment among the Diploma and Graduate Engineers in Kerala ......................................................................................... 174

4.5.1 Means of Getting Employment among the Engineers: Descriptive Analysis of the Secondary Data ................................................. 177

4.5.2 Means of Getting Employment of Diploma and Graduate Engineers: Descriptive Analysis of the Primary Data ........... 180

4.5.2.1 Means of Getting Employment of the Engineers in Kerala and Their Branch of Study ....................................................... 180

4.5.2.2 Means of Getting Employment among the Male and Female Diploma and Graduate Engineers in Kerala ..................... 185

4.5.2.3 Means of Getting Employment of the Engineers in Kerala and Their Social Category ....................................................... 187

4.5.2.4 Means of Getting Employment of the Engineers in Kerala and the Type of Institution of Study .......................................... 189

4.5.3 Means of Getting Employment among the Diploma and Graduate Engineers in Kerala- Inferential Analysis of the Primary Data .................................................................................................. 193

4.6 Job Satisfaction from Employment of the Diploma and Graduate Engineers of Kerala ................................................................................... 194
4.6.1 Level of Job Satisfaction of the Diploma and Graduate Engineers- Descriptive Analysis of the Primary Data .......... 196

4.6.1.1 Level of the Job Satisfaction of the Engineers and Their Branches of Study ........................................... 197

4.6.1.2 Level of Job Satisfaction of the Diploma and Graduate Engineers and Their Gender Profile .......................... 200

4.6.1.3 Level of Job Satisfaction of the Diploma and Graduate Engineers and Their Social Profile .......................... 203

4.6.1.4 Level of Job Satisfaction of the Engineers and the Type of Institution of Study ................................................. 206

4.6.1.5 Level of Job Satisfaction of the Engineers and the Employment Function of the Engineers .......................... 209

4.6.1.6 Level of Job Satisfaction of the Engineers and the Sector of Employment of the Engineers .................................. 211

4.6.2 Level of Job Satisfaction of the Diploma and Graduate Engineers in Kerala: Inferential Analysis of Primary Data ........ 212

4.7 Monthly Income of the Diploma and Graduate Engineers and the Level of Satisfaction among the Employed Engineers in Kerala ................................................................. 214

4.7.1 Level of Monthly Income of the Diploma and Graduate Engineers and Their Level of Monetary Satisfaction: Descriptive Analysis of the Primary Data ........................................ 216

4.7.1.1 Level of Income of the Engineers, Their Satisfaction Level and the Branch of Study ............................................. 217

4.7.1.2 Monthly Income and Level of Satisfaction of the Engineers among the Gender Groups .................................. 222

4.7.1.3 Monthly Income and Level of Satisfaction of the Engineers in Kerala and Their Social Category ..................... 225

4.7.1.4 Monthly Income of the Engineers in Kerala, Their Level of Satisfaction and the Type of Institution of Study ........ 228

4.7.1.5 Monthly Income of the Rural and Urban Engineers in Kerala and their Level of Satisfaction ................................ 232

4.7.1.6 Employment Function of the Engineers and Their Monthly Income ............................................................... 235

4.7.1.7 Sector of Employment of the Engineers and Their Monthly Income ............................................................... 237

4.7.2 Level of Monthly Income of the Diploma and Graduate Engineers in Kerala, Their Level of Satisfaction: Inferential Analysis of the Primary Data .................................................. 238

4.8 Findings and Conclusions ......................................................................................................................... 241
Chapter 5

ACADEMIC ACHIEVEMENT OF THE DIPLOMA
AND THE GRADUATE ENGINEERS: HIGHER
STUDIES AS AN ALTERNATIVE AVENUE OF
EMPLOYMENT ............................................................... 245 - 282

5.1 Introduction .................................................................................................................. 245

5.2 The Academic Achievement of the Diploma and Graduate
Engineers – Its Meaning and Measurement: Descriptive and
Inferential analysis ........................................................................................................... 248

5.2.1 Academic Achievement of the Diploma and Graduate
Engineers of Kerala and Their Branch of study ........................................................ 249

5.2.2 Academic Achievement of the Male and Female Diploma
and Graduate Engineers ............................................................................................... 253

5.2.3 Academic Achievement of the Diploma and Graduate
Engineers and Their Social Background ...................................................................... 255

5.2.4 Academic Achievement of the Diploma and Graduate
Engineers and Their Area of Residence ....................................................................... 257

5.2.5 Academic Achievement of the Diploma and Graduate
Engineers and the Type of Institution of Study ......................................................... 260

5.2.6 Academic Achievement of the Diploma and Graduate
Engineers and the Level of Parental Education ......................................................... 262

5.3 Engineers Opting for Higher Studies and the Reasons for
Opting Higher Studies: Descriptive Analysis of the Primary
Data .................................................................................................................................. 264

5.3.1 Engineers Opting for Higher Studies and the Reason for
Joining Higher Studies: The Branch-wise Analysis .................................................... 265

5.3.2 Engineers Opting for Higher Studies and the Reason for
Joining Higher Studies- Their Gender Dimension ...................................................... 271

5.3.3 Engineers Opting for Higher Studies and the Reason for
Joining Higher studies- Their Social Dimension ....................................................... 273

5.3.4 Engineers Opting for Higher Studies and the Reason for
Joining Higher Studies- Comparison between the Rural and
Urban Engineers .............................................................................................................. 275

5.3.5 Engineers Opting for Higher Studies and the Reason for
Joining Higher Studies- A Comparison Based on Their
Levels of Parental Education ....................................................................................... 277

5.4 The Reasons for Joining Higher Studies among the Diploma
and Graduate Engineers- Inferential Analysis ............................................................. 279

5.5 Findings and Conclusions .......................................................................................... 280
Chapter 6
THE PROBLEM OF UNEMPLOYMENT AND UNDEREMPLOYMENT AMONG THE ENGINEERS IN KERALA: ITS DIMENSION AND CAUSES ................................. 283 - 360

6.1 Introduction .......................................................... 283

6.2 Unemployment and Underemployment: Its Meaning and Significance in Global and Indian Context ......................................... 284

6.2.1 The Problem of Underemployment ....................................... 285

6.2.2 Unemployment and Underemployment: Its Meaning and Measurement in Indian Context ...................................................... 286

6.2.3 The General Causes of Unemployment ....................................... 290

6.3 Educated Unemployment and Underemployment – Challenges for India ................................................................. 292

6.4 The Dimensions of the Problem of Engineering Unemployment and Underemployment in India ................................................................. 295

6.5 The Incidence of Engineering Unemployment and Underemployment in the State of Kerala ................................................................. 297

6.5.1 Engineering Unemployment in Kerala: Data Analysis ........... 298

6.5.1.1 Engineering Unemployment in Kerala-Analysis of the Secondary data ................................................................. 298

6.5.1.1.1 Engineering Unemployment in Kerala among the Diploma Holders and Graduate Engineers and Their Branch of Study: Analysis of Secondary Data .................. 300

6.5.1.2 Rate of Unemployment among the Diploma and Graduate Engineers for the Period 1984 to 2008 - Trend Analysis ................................................................. 303

6.5.1.2 Engineering Employment, Underemployment and Unemployment in Kerala: Descriptive Analysis of the Primary data ................................................................. 310

6.5.1.2.1 Engineering Employment, Underemployment and Unemployment among the Diploma and Graduate Engineers: Their Branch of Study ........................................ 311

6.5.1.2.2 Engineering Employment, Underemployment and Unemployment among the Diploma and Graduate Engineers in Kerala: Their Gender Features ........................................ 317

6.5.1.2.3 Engineering Employment, Underemployment and Unemployment among the Diploma and Graduate Engineers in Kerala: Their Social Background ........................................ 319

6.5.1.2.4 Engineering Employment, Underemployment and Unemployment among the Diploma and Graduate Engineers in Kerala and Their Area of Residence ........................................ 321

6.5.1.2.5 Engineering Employment, Underemployment and Unemployment among the Diploma and Graduate Engineers in Kerala and Their Institution of study ........................................ 324
6.5.1.3 Engineering Employment Underemployment and Unemployment in Kerala: Inferential Analysis of the Primary data.............................................................. 327

6.6 Factors Determining Unemployment of the Engineers: Analysis of the Primary Data Based on Logistic Regression ..........328

6.7 Unemployment Estimation of the Diploma and Graduate Engineers Based on Apprenticeship Registration .......................333

6.7.1 Unemployment of the Diploma Engineers Based on Apprenticeship Registration................................................. 333

6.7.2 Unemployment of the Graduate Engineers Based on Apprenticeship Registration ................................................. 335

6.8 The Problem of Employability of Engineers and the Causes of Unemployment among the Diploma and Graduate Engineers in Kerala.................................................337

6.8.1 The Problem of Employability of Engineers and Lack of Demand for Engineers......................................................... 338

6.8.2 The Supply of Engineers and Unemployment ................................. 346

6.8.3 The Causes of Unemployment among the Engineers in Kerala ...... 347

6.8.3.1 Unemployment Cause among the Diploma Engineers: Primary Data Analysis................................................. 349

6.8.3.2 Unemployment Cause among the Graduate Engineers: Primary Data Analysis...................................................... 352

6.9 The Factors Leading to Unemployment – A Comparative Study between the Diploma and Graduate Engineers Based on Canonical Discriminant Analysis ...........................................354

6.10 Findings and Conclusions................................................................. 355

Chapter 7

CONCLUDING OBSERVATIONS........................................... 361 - 375

7.1 Activity Status of the Diploma and Graduate Engineers in Kerala.................................................................................. 362

7.2 Employment Profile of the Diploma and Graduate Engineers in Kerala.............................................................................. 364

7.3 Academic Achievement of the Diploma and Graduate Engineers, the Engineers Pursuing Higher Studies and the Reasons for Pursuing Higher Studies...........................................370

7.4 Unemployment and Underemployment among the Diploma and Graduate Engineers and the Cause of Unemployment ........372

Bibliography.......................................................................................... 377 - 386

Appendices .........................................................................................387 – 412

List of Publications ........................................................................... 413