

# GUJARAT TECHNOLOGICAL UNIVERSITY

## Mechatronics (47)

w.e.f. July 2014

<b>Semester I</b>					
<b>Subject Code</b>	<b>Subject Name</b>	<b>Theory</b>	<b>Tutorial/ Presentation</b>	<b>Practical</b>	<b>Credits</b>
	Computational Methods**	3	2	0	4
	Concepts in Mechatronics Engineering	4	0	2#	5
	Sensor Technology	3	2#	2	5
	Major Elective - I	4	0	2#	5
	Communication and Research Skills	1	2	0	2
	<b>Total Credits</b>				<b>21</b>

### Major Elective I

Advance Control Systems

w.e.f. Jan 2015

<b>Semester II</b>					
<b>Subject Code</b>	<b>Subject Name</b>	<b>Theory</b>	<b>Tutorial/ Presentation</b>	<b>Practical</b>	<b>Credits</b>
	Advance Oil Hydraulic and Pneumatic systems	3	0	2#	4
	Advance Microcontrollers and Logic Controllers	4	0	2#	5
	Major Elective - II	3	2#	2	5
	Major Elective - III	3	0	2#	4
	Open Elective	3	2#	2	5
	<b>Total Credits</b>				<b>23</b>

### Major Elective II

Fundamentals of Micro Mechatronics Systems

Diagnostic Maintenance and Monitoring

Finite Elemental Methods

### Major Elective III

Advance Machine Vision and Applications

Mechatronics Signal Processing

Total Quality Management

### Open Elective

Optimization Theory and Practice

w.e.f July 2015

<b>Semester III</b>					
<b>Subject Code</b>	<b>Subject Name</b>	<b>Theory</b>	<b>Tutorial/ Presentation</b>	<b>Practical</b>	<b>Credits</b>
	Major Elective - IV	3	2#	2	5
	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2
	Internal Review\$	0	2	0	1
	Dissertation Phase - I (Literature Review, Problem Formulation, Progress and Work Plan)	–	–	–	10
	<b>Total Credits</b>				<b>18</b>

<b>Major Elective IV</b>	
	Robotic engineering
	Dynamics of Machines

w.e.f Jan 2016

<b>Semester IV</b>					
<b>Subject Code</b>	<b>Subject Name</b>	<b>Theory</b>	<b>Tutorial/ Presentation</b>	<b>Practical</b>	<b>Credits</b>
	Major Elective - V	3	2#	0	4
	Seminar (Presentation + Attendance@ + Preparation of learning material*)#	0	4	0	2
	External Mid Sem Review (Brief Lit. Rev, Problem Statement and Major Outcomes)	0	2	0	10
	Dissertation Phase - I (Literature Review, Problem Formulation, Progress and Work Plan)	–	–	–	12
	<b>Total Credits</b>				<b>28</b>

<b>Major Elective V</b>	
	Automation and Computer Integrated Manufacturing

# The concerned faculty member shall provide the list of peer reviewed Journals and Tier-I & Tier-II Conferences relating to the subject (or relating to the area of thesis for seminar) of the students in the beginning of the semester i.e. within 10 days. The same list will be uploaded on GTU website within the first two weeks of the start of the semester. Every student or a group of students shall critically study 2 research papers, integrate the details and make presentation in the last two weeks of the semester. The GTU marks entry portal will allow entry of marks to institutes only after uploading of the best 3 presentations of the students. A unique id number will be generated only after uploading the presentations. Thereafter the entry of marks will be allowed. The best 3 presentations of each college will be uploaded on GTU website.

@ Every student is required to remain present during presentations made by all other students without fail.

\* Students are required to prepare teaching material alongwith associated labwork which can bring excitement to learning as a part of the seminar component, in topic of interest relating to any subject including Bachelor's work, as approved by the faculty.

\*\* Every Student should be allocated a chapter each and find Engineering applications for that chapter. He/ She should prepare a write up including graphics/pictures/video to illustrate the application. These should be submitted online to GTU on the portal. The write up should give proper references along with a certificate that it is not a plagiarized material. GTU will upload it on the website for its stakeholder

\$ In case thesis is on a patentable idea, the student should study patents relating to his/her field and prepare a patent study and analysis report for 5 such patents. For one of the patents, he should do a complete technical analysis and prepare a presentation explaining the technical part to other students of the class. The PSAR and presentations should be uploaded on GTU website and submitted as a part of the thesis report.

**Note:** Major Elective – IV, Major Elective – V and Seminar may be conducted on weekends as a special case for the students permitted by the University.