

Punjab University of Technology Rasul

BS in Technology Management

Introduction

The BS in Technology Management degree program connects your area of interest from amongst the technology disciplines offered at the PUT Rasul with an extensive training in Business Administration. This program aims at preparing graduates to take-up roles in businesses and industry as Technically Oriented Management Professionals who plan, direct, organize and control projects or operations in a variety of technical environments. In addition, the graduates desiring to start their own Entrepreneurial Ventures or planning to take-up succession in any family businesses will also find themselves adequately skilled and ready to do so.

Our technology management program aims at enhancing a student's career prospects by combining marketable skills with proficiencies in management, leadership, analytics, communication and commerce with a reasonably broad know-how in a technical discipline of an individual's liking.

With this combination a competitive edge is created over the common-place business degrees offered by many other institutions due to which our Technology Management Graduates are expected to find success in careers throughout many business sectors including but not limited to the ones listed below.

Although, this program has bright career prospects for all the students regardless of what background they come from but it may be much more suitable for those students who have earned a prior diploma or some other equivalent qualification in a technical discipline but, for their further education, they find themselves more interested in pursuing a career in business.

Technology Concentrations currently, available

- Civil Engineering Technology
- Electrical Engineering Technology
- Mechanical Engineering Technology
- Software Engineering Technology

Program Structure (Minimum of 132 Credit Hours)

Technology management students will take courses in management, leadership, accounting, finance and marketing, as well as several other critical elements of business. In addition, they will choose a Technical Concentration, of their liking, and will take recommended number of undergrad level courses in that concentration. Table below gives more details on the structure.

No.	Category of Academic Work	Minimum Required Credit Hours
A.	General Education Courses	22
B.	Management Foundation Courses	26

C.	Management Core Courses	33
D.	Management Electives	15
E.	Management Specialization Electives	12
F.	Technology Concentration Electives	15
G.	Technology Management Internship	06
H.	Technology Management Project	03

Possible career paths

Technology Management graduates shall be professionally ready to take up careers such as:

- Entrepreneurship
- Supervisory positions
- Sales and marketing
- Product development
- Public relations
- Management both in projects and operations contexts

Who is eligible for admission?

Required minimum qualification	Required minimum marks	Acceptable entry tests
<ul style="list-style-type: none"> • DAE in any technology • FSc (Pre-Eng.) • FSc (Pre-Med with Add. Math.) • ICS or Equivalent as per IBCC Certificate 	<ul style="list-style-type: none"> • Minimum of 50% marks in DAE or HSSC etc. 	<ul style="list-style-type: none"> • SAT, OR • ECAT Test by UET Lahore, OR • Entry Test by PUT Rasul

Merit Criteria and Calculations:

Only those candidates who are found to be eligible for admission in their desired BS Degree Program shall be considered for merit calculation and then the Merit Score shall be calculated in the following manner:

$$Part - A = \frac{\text{Marks Obtained in DAE or HSSC}}{\text{Total Marks of DAE or HSSC}}$$

$$Part - B = \frac{\text{Marks Obtained in Entry Test}}{\text{Total Marks of Entry Test}}$$

$$\text{Merit Score} = (Part - A) \times 70 + (Part - B) \times 30$$

Candidates with Merit Score less than 50 shall not be considered for admission.

Minimum duration

Minimum duration allowed for completion of any of the Bachelor's Degree Programs at the Punjab University of Technology Rasul is 8-Semesters (4-academic years).

Maximum duration

Maximum duration allowed for completion of any of the Bachelor's Degree Programs at the Punjab University of Technology Rasul is 12-Semesters (6-academic years).

Minimum requirements for the award of degree

In order to successfully complete BS in Technology Management Degree a students must have:

1. completed the minimum required Credit Hours in each of the applicable Category of Academic Work prescribed for the degree program; AND
2. completed a total of 132 or more Credit Hours of the overall prescribed study with no less than 2.00 Grade Point in any of the study units; AND
3. have obtained an overall CGPA of 2.25 or more.

Details of the categories of academic work

Below are some of the details of each category of academic work.

A. General Education Courses (22 Credit Hours)

The following courses are considered to be the General Education Courses aimed at developing essential terminology, language, general competencies and communication skills of the students to be able to effectively operate in a professional environment and also to give them a good grasp of the social as well as the business environment around.

No.	Course Code	Course Title	Credit Hours
1.	HUM-212	Islamic Studies / Ethics (for non-Muslims)	2(2 + 0)
2.	HUM-223	Pakistan Studies	2(2 + 0)
3.	ENG-111	Functional English	3(3 + 0)
4.	ICT-103	ICT for Business	3(2 + 1)
5.	ENG-212	Business Communication	3(3 + 0)
6.	HUM-115	Sociology	3(3 + 0)
7.	HUM-232	Psychology	3(3 + 0)
8.	ENG-323	Technical Writing	3(3 + 0)

B. Management Foundation Courses (26 Credit Hours)

Following courses are taught to develop strong foundations in essential and allied knowledge areas in order to prepare a student to undertake the advanced courses and be able to comprehend them well. Each student must pass all the courses in this list.

No.	Course Code	Course Title	Credit Hours
1.	MAT-112	Business Mathematics	3(3 + 0)
2.	MAT-123	Business Statistics	3(3 + 0)
3.	ECO-213	Principles of Micro Economics	3(3 + 0)
4.	ECO-224	Principles of Macro Economics	3(3 + 0)
5.	HRM-241	Organizational Behavior	3(3 + 0)
6.	MAT-324	Statistical Inference	3(3 + 0)
7.	MGT-243	Business Ethics and CSR	3(3 + 0)
8.	LAW-302	Business Law	3(3 + 0)
9.	MGT-412	Occupational Health and Safety Management	2(2 + 0)

C. Management Core Courses (33 Credit Hours)

The courses listed in the table below are aimed at developing essential Business Management skills among the students covering a significant breadth of the business functions as well as providing a good depth of knowledge necessary to perform these functions. Each student must pass all of the courses in this list.

No.	Course Code	Course Title	Credit Hours
1.	MKT-211	Essentials of Modern Marketing	3(3 + 0)
2.	MGT-121	Principals of Management	3(3 + 0)
3.	MKT-232	Marketing Management	3(3 + 0)
4.	ACC-111	Fundamentals of Accounting	3(3 + 0)
5.	ACC-212	Financial Accounting	3(3 + 0)
6.	ACC-343	Management Accounting	3(3 + 0)
7.	FIN-232	Financial Management	3(3 + 0)
8.	ICT-314	E-Commerce	3(3 + 0)
9.	HRM-332	Human Resource Management	3(3 + 0)
10.	MGT-272	Entrepreneurship	3(3 + 0)
11.	MGT-321	Research Methods in Business	3(3 + 0)

D. Management Electives (minimum of 15 Credit Hours)

Below is a list of the, currently available, Management Elective courses. All the BS Technology Management students will need to choose a minimum of fifteen credit hours of courses from this list depending on their respective career aspirations and interests. It is advised that the students

should make careful choices that suit their desired career paths and should not hesitate consulting the faculty for a professional advice.

No.	Course Code	Course Title	Credit Hours
1.	HRM-343	Personal and Professional Development	3(3 + 0)
2.	ICT-335	Management Information Systems	3(3 + 0)
3.	TOM-311	Technical Operations Management	3(3 + 0)
4.	TOM-423	Project Management	3(3 + 0)
5.	TOM-414	Quality Management	3(3 + 0)
6.	TOM-412	Supply Chain Management	3(3 + 0)
7.	HRM-414	Organizational Theory and Design	3(3 + 0)
8.	MGT-406	Leadership Theories and Practices	3(3 + 0)
9.	FIN-313	Corporate Finance	3(3 + 0)
10.	ICT-416	Business Applications of Artificial Intelligence	3(3 + 0)
11.	MKT-323	Services Marketing	3(3 + 0)
12.	MGT-418	Sustainable Environment	3(3 + 0)

E. Management Specialization Electives (minimum of 12 Credit Hours)

Currently three areas of management specialization namely Human Resource Management, Marketing and Finance are available. A student must, before the start of the semester when the first Management Specialization Elective course is to be enrolled, choose one from amongst the three areas of specialization and then successively enroll and pass a minimum of twelve credit hours of the courses from the selected specialization.

Generally, a student shall have freedom to choose from the available options, however, in special circumstances the department may apply some conditions depending on the aptitude of a student, past performance in the related foundation and core courses as well as the availability of faculty.

Specialization Option – Human Resource Management			
No.	Course Code	Course Title	Credit Hours
1.	HRM-445	Workforce Planning and Management	3(3 + 0)
2.	HRM-446	Strategic Human Resource Management	3(3 + 0)
3.	HRM-457	Employee Relations and Labor Laws	3(3 + 0)
4.	HRM-458	Change Management	3(3 + 0)
5.	HRM-469	Talent Attraction Management	3(3 + 0)
6.	HRM-463	Workforce Diversity	3(3 + 0)

7.	HRM-475	Compensation Management	3(3 + 0)
8.	HRM-477	Trends in Human Resource Management	3(3 + 0)
Specialization Option – Marketing			
No.	Course Code	Course Title	Credit Hours
1.	MKT-441	Digital Marketing	3(3 + 0)
2.	MKT-442	Advertising and Promotion	3(3 + 0)
3.	MKT-453	Marketing Strategy	3(3 + 0)
4.	MKT-454	Brand Management	3(3 + 0)
5.	MKT-463	Sales Management	3(3 + 0)
6.	MKT-465	Marketing Research	3(3 + 0)
7.	MKT-477	International Marketing	3(3 + 0)
8.	MKT-479	Trends in Marketing	3(3 + 0)
Specialization Option – Finance			
No.	Course Code	Course Title	Credit Hours
1.	FIN-442	Business Taxation	3(3 + 0)
2.	FIN-444	Analysis of Financial Statements	3(3 + 0)
3.	FIN-456	Islamic Finance	3(3 + 0)
4.	FIN-458	Principles of Investments and Portfolio Management	3(3 + 0)
5.	FIN-463	Essentials of Risk Management	3(3 + 0)
6.	FIN-465	Valuation Techniques and Concepts	3(3 + 0)
7.	FIN-477	Project Evaluation	3(3 + 0)
8.	FIN-479	Financial Institutions and Markets	3(3 + 0)

F. Technology Concentration Electives (minimum of 15 Credit Hours)

Every student of BS in Technology Management, at an appropriate stage of study, will have to choose an area of Technology Concentration from amongst the available areas and will have to study and pass a minimum of fifteen credit hours in that chosen concentration. A list of recommended courses in each of the available concentration options is given below.

Technology Option – Civil Engineering Technology			
No.	Course Code	Course Title	Credit Hours
1.	MAT-214	Applied Mathematics-I	3(3 + 0)
2.	CET -123	Engineering Drawing	3(1 + 2)
3.	CET -124	Surveying	4(2 + 2)
4.	CET -134	Concrete Technology	4(2 + 2)
5.	CET -154	Materials and Methods of Construction	4(2 + 2)
6.	CET -212	Introduction to Architecture and Town Planning	2(2 + 0)
7.	CET -223	Quantity Surveying and Contract Management	3(1 + 2)
8.	CET-264	Transportation Engineering	4(2 + 2)
Technology Option – Electrical Engineering Technology			
No.	Course Code	Course Title	Credit Hours
1.	MAT-214	Applied Mathematics-I	3(3 + 0)
2.	EET -114	Linear Circuits Analysis	3(2 + 1)
3.	EET -123	Engineering Drawing	3(1 + 2)
4.	EET -134	Electronics	4(2 + 2)
5.	EET -153	Electrical Machines-I	3(2 + 1)
6.	EET -212	Power Generation Systems	2(2 + 0)
7.	EET-283	Electrical Power Distribution and Utilization	3(2 + 1)
8.	EET -384	Industrial Electronics	4(2 + 2)
Technology Option – Mechanical Engineering Technology			
No.	Course Code	Course Title	Credit Hours
1.	MAT-214	Applied Mathematics-I	3(3 + 0)
2.	MET-123	Engineering Drawing	3(1 + 2)
3.	MET-113	Workshop Technology	3(1 + 2)
4.	MET-134	Applied Thermodynamics-1	4(2 + 2)
5.	MET-144	Basic Electrical and Electronics	4(2 + 2)

6.	MET-233	Mechanics of Materials	3(2 + 1)
7.	MET-253	Machine Design	3(3 + 0)
8.	MET-343	Manufacturing Processes	3(2 + 1)
Technology Option – Software Engineering Technology			
No.	Course Code	Course Title	Credit Hours
1.	SET-114	Programming Fundamentals	4(3 + 1)
2.	SET-200	Introduction to Software Engineering	3(3 + 0)
3.	SET-220	Database Systems	4(3 + 1)
4.	MAT-225	Calculus & Analytical Geometry	3(3 + 0)
5.	SET-311	Software Requirements Engineering	3(3 + 0)
6.	SET-321	Software Quality Engineering	3(3 + 0)
7.	MAT-401	Discrete Structures	3(3 + 0)
8.	SET-415	Human Computer Interaction	3(3 + 0)

G. Technology Management Internship (06 Credit Hours)

Technology Management Internship shall constitute a successful completion of On-Job Practical Work as a full-time worker for the period of at least 08-Weeks (i.e., a minimum of 40-hours of on-job work every week for 08 weeks) in professional/industrial settings performing tasks commensurate with a student's specific study program.

Students shall, generally, be required to prepare for the internship during the 6th Semester in consultation with the designated faculty/officer at the University, shall, preferably undertake the Internship during the Summer-Break between the 6th and 7th Semesters, enroll the Internship during the 7th Semester and submit Assessment Requirements as scheduled by the Department. Securing a Passing Grade in Internship is a compulsory requirement for the Degree.

H. Technology Management Project (03 Credit Hours)

Technology Management Project shall constitute a successful completion of exploratory research and/or solving of a practical problem at the cross-roads of the Management Specialization and the Technology Concentration opted by a student. The students taking Project shall work individually or in small groups, not exceeding four students, under the supervision of a designated faculty member on an approved topic/problem of study and shall, normally, be required to submit a detailed written report describing their work and/or exhibit the prototypes, as the case may be, followed by an oral presentation for assessment of learning achievement or knowledge contribution.

The students taking projects shall generally start working on them during the 7th Semester for preparatory work and approval of the topic/problem for the study and after enrolling this Study Unit in the 8th Semester will continue working on it, completing their work and submitting it for

assessment towards the end of the 8th Semester as per Departmental Schedule. Securing a Passing Grade in Project is a compulsory requirement for the Degree.

Further information

- For more details on the process of admission please read the ***General Guidelines for Admission in Undergraduate Degree Programs*** at <https://www.putrasul.edu.pk/>
- For any further information or queries regarding the BS in Technology Management program or any other degree programs offered at the ***Punjab University of Technology Rasul*** please explore the relevant sections of the website and keep coming back as the information is being actively updated.
- Alternatively, you may also write to the ***Admissions Committee for Undergraduate Degree Programs*** at admissions@putrasul.edu.pk.

A Typical Semester Plan for BS in Technology Management

Semester-1			
Sr.#	Course Code	Course Title	Credit Hours
1.	MAT-112	Business Mathematics	3(3 + 0)
2.	MGT-121	Principals of Management	3(3 + 0)
3.	ICT-103	ICT for Business	3(2 + 1)
4.	ECO-213	Principles of Micro Economics	3(3 + 0)
5.	ENG-111	Functional English	3(3 + 0)
6.	HUM-212	Islamic Studies / Ethics (for non-Muslims)	2(2 + 0)

Semester-2			
Sr.#	Course Code	Course Title	Credit Hours
1.	MKT-211	Essentials of Modern Marketing	3(3 + 0)
2.	ENG-212	Business Communication	3(3 + 0)
3.	ACC-111	Fundamentals of Accounting	3(3 + 0)
4.	ECO-224	Principles of Macro Economics	3(3 + 0)
5.	HUM-223	Pakistan Studies	2(2 + 0)

Semester-3			
Sr.#	Course Code	Course Title	Credit Hours
1.	ACC-212	Financial Accounting	3(3 + 0)
2.	HRM-241	Organizational Behavior	3(3 + 0)
3.	MAT-123	Business Statistics	3(3 + 0)
4.	HUM-232	Psychology	3(3 + 0)
5.		Technology Elective-1	
6.		Technology Elective-2	

Semester-4			
Sr.#	Course Code	Course Title	Credit Hours
1.	ACC-343	Management Accounting	3(3 + 0)
2.	HRM-332	Human Resource Management	3(3 + 0)
3.	MKT-232	Marketing Management	3(3 + 0)
4.	ENG-323	Technical Writing	3(3 + 0)
5.		Management Elective-1	3(3 + 0)
6.		Technology Elective-3	

Semester-5			
Sr.#	Course Code	Course Title	Credit Hours
1.	FIN-232	Financial Management	3(3 + 0)
2.	MAT-324	Statistical Inference	3(3 + 0)
3.	MGT-412	Occupational Health and Safety Management	2(2 + 0)
4.		Management Elective-2	3(3 + 0)
5.		Technology Elective-4	

Semester-6			
Sr.#	Course Code	Course Title	Credit Hours
1.	MGT-243	Business Ethics and CSR	3(3 + 0)
2.	MGT-272	Entrepreneurship	3(3 + 0)
3.		Management Elective-3	3(3 + 0)
4.		Specialization Elective-1	3(3 + 0)
5.		Technology Elective-5	

Semester-7			
Sr.#	Course Code	Course Title	Credit Hours
1.	LAW-302	Business Law	3(3 + 0)
2.	MGT-321	Research Methods in Business	3(3 + 0)
3.		Management Elective-4	3(3 + 0)
4.		Specialization Elective-2	3(3 + 0)
5.	HUM-115	Sociology	3(3 + 0)
6.	MGT-489	Tech. Management Internship	6(0 + 6)

Semester-8			
Sr.#	Course Code	Course Title	Credit Hours
1.	ICT-314	E-Commerce	3(3 + 0)
2.		Management Elective-5	3(3 + 0)
3.		Specialization Elective-3	3(3 + 0)
4.		Specialization Elective-4	3(3 + 0)
5.	MGT-499	Tech. Management Project	3(0 + 3)