



UNDERGRADUATE PROJECT (UGP) GUIDELINE

**FACULTY OF MECHANICAL ENGINEERING,
UNIVERSITI TEKNOLOGI MALAYSIA**

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UNDERGRADUATE PROJECT GUIDELINE

FACULTY of MECHANICAL ENGINEERING

1.0 INTRODUCTION

- 1.1 The undergraduate Project (UGP) is an investigation or research work carried out by a final year undergraduate as a partial requirement for the award of Bachelor degree in Mechanical Engineering for the following programmes:-
 - i) Bachelor of Engineering (Mechanical)
 - ii) Bachelor of Engineering (Mechanical - Industrial)
 - iii) Bachelor of Engineering (Mechanical - Manufacturing)
 - iv) Bachelor of Engineering (Mechanical - Aeronautics)
 - v) Bachelor of Engineering (Naval Architecture & Offshore)
 - vi) Bachelor of Engineering (Mechanical - Materials)
 - vii) Bachelor of Engineering (Mechanical - Automotive)
- 1.2 A graduate in engineering should obtain knowledge not only through learning and training, but should also develop skills in solving various engineering problems. As such, the student should be able to identify and solve engineering problems as an enhancement to the knowledge obtained through lectures.
- 1.3 In the learning process, students are taught various courses related to fundamental sciences and mathematics, as well as specialized courses in Mechanical Engineering. They will be trained in experimental techniques through practical laboratory work and exposed to engineering practice through industrial training. Management and university general courses are taught so that they are more sensitive of their responsibilities towards God and the community as well as be aware of the nation's social development, politics and economy.
- 1.4 Once these fundamental courses have been covered, students are then required to use their knowledge to complete a project or dissertation to enhance their ability in identifying, carrying out research and presenting the problems and its solution. A project report which complies with academic writing standards must be submitted at the end of the academic semester. The student's achievement is assessed through a set of methods and formats of assessment.

The purpose of this guide book is to outline important aspects of the UGP to ensure that the project can be carried out more smoothly and effectively in achieving its purpose and objectives.

2.0 DEFINITION OF UNDERGRADUATE PROJECT (UGP)

UGP is an academic investigation related to a field of study in the Faculty which must be undertaken by every student as a partial fulfilment for obtaining the bachelor degree. This academic study is undertaken individually under the guidance of a supervisor in order to expand the student's potential by applying knowledge and experience in the student's respective area.

3.0 AIM

The aim of the UGP is to improve a student's understanding and experience in the process of applying knowledge through ideas generation and creative problem solving in order to produce graduates who are skilled, creative and capable in line with UTM's student attributes.

4.0 OBJECTIVE

The objectives of the UGP are:

- i) To train and enhance students' ability to identify, investigate, collect data, conduct analysis and then solve a research problem or scientific study as well as improve the students' knowledge in a particular engineering field.
- ii) To train students to present and defend their research work through seminars and to present it effectively in writing in the form of dissertation or report.
- iii) To train students to be able to carry out work with minimum supervision and be more independent in searching, exploring and developing knowledge and experience.
- iv) To foster interest and increase students' ability in research or develop keenness in research work after they graduated from FME and UTM.
- v) To instill students generic skills.

5.0 LEARNING OUTCOME

After completing the UGP students should be able to:

- i) integrate knowledge in their field in implementing a project,
- ii) solve a problem in an objective, analytical, critical and systematic way,
- iii) be independent in conducting a project,
- iv) report in writing and to orally present and defend the project outcome,
- v) obtain information related to the project from various sources,
- vi) complete the project individually and ethically in the stipulated time.

6.0 TYPE, SCOPE AND STRUCTURE OF PROJECT

6.1 Type of Project

A UGP topic should have the criteria through which the objectives and aims of UGP can be achieved. It should be related to engineering field and could be

in the form of technical problem analysis, design and manufacturing, development of software and computer programming application in solving a problem. Typical characteristics of the projects are:

- i) Focus on behaviour, phenomena, or any relevant research criteria. The outcomes could be in the form of data or information, analyses and interpretation that enhance knowledge of the respected mechanical engineering domains.
- ii) Focus on project designs to fulfill intended needs and specifications. The outcomes of the research could be in the form of mechanical engineering designs or models.
- iii) Focus on computer programming or software development based on the intended specifications. The outcomes are developed softwares for mechanical engineering applications or knowledge domains.

6.2 Scope and Content of Project

6.2.1 The scope and content of UGP may be one of the following:

- i) A project that has been conducted and has known results or proven methodology. The student's project may aim to impart improvement in one of the said situations or to implement it in a different environment.
- ii) A project must be able to be completed within a specified period of time as stated in Section 8.6.

6.2.2 UGP students must:

- i) review literature and any information pertinent to the project,
- ii) engage in data collection and/or design development and/or software development,
- iii) perform analysis on the obtained data,
- iv) provide written report and oral presentation.

6.3 Proposal for UGP Topic

6.3.1 Proposals for UGP topics can be submitted by the following three parties:

- i) Lecturers of FME; or
- ii) Final year FME students who will be taking UGP in the subsequent semester; or
- iii) Other parties besides FME – either lecturers from other faculties or staff from external institutions collaborating with FME.

6.3.2 Notice to submit the proposed UGP topics to the parties mentioned above is usually given out on the 8th week and ends on the 12th week

for any particular semester. After the closing date, application from any parties will not be considered by the Faculty.

6.3.3 Procedure, form and regulations of UGP topics proposal

- i) The proposed UGP topic by the above mentioned parties should be submitted by completing the following forms, which can be obtained from the FME Academic Office:
 - Form UGP4912/1(92): UGP topic proposed by FME students.
 - Form UGP45912/2(92): UGP topic proposed by FME academic staff and external parties to FME/UTM.
- ii) Incomplete application of UGP topic proposal may not be considered or rejected by Course Panel Committee and Faculty (UGP Committee).
- iii) The forms are available at the FME Academic Office or through FME P-Maya Website and should be submitted within the deadline set by the FME.

6.3.4 Students with rejected UGP topic proposal should undergo the UGP topics selection process prepared/provided by FME, similar to and together with students who do not propose any UGP title.

6.3.5 The procedure in processing the UGP topics proposed by the parties mentioned above is shown in the flow chart in **Appendix A**.

6.4 Selection of UGP Topic

6.4.1 Selection of UGP topics by students should be made according to the rules and guidelines as set by FME. The UGP4912/3/(92) form is used to select the UGP topic. The rules and guidelines in selecting UGP topics are attached together with the form.

6.4.2 Selection of UGP topics made by students should be based on the listed UGP topics offered by the Faculty. The UGP topics offered are listed and coded in accordance with FME course fields as in **Table 1**:

Table 1 Title code and course field

Title Code	Course Field
AE	Aeronautics
MR	Naval Architecture & Offshore
FD	Fluid Mechanics
TD	Thermodynamics
RB	Engineering Design
MM	Mechanics of Machine
MB	Mechanics of Material & Structure
PR	Manufacturing
IN	Industrial Engineering
SB	Materials Engineering
AV	Automotive
SK	System and Control

- 6.4.3 Normally, the list of UGP topics for selection process is issued by FME at the latest 3 weeks before the revision week commences. The closing date for submitting the topic will be set by FME for that particular semester.
- 6.4.4 Students who are successful in getting their topics, are required to complete UGP4912/4(92) form. The form must be endorsed by the appropriate supervisor and submitted to the FME Academic Office on the first week of the subsequent semester.

7.0 FORMAT OF UGP

- 7.1 UGP is to be conducted for two (2) semesters. UGP 1 - SME4912 followed by UGP 2 - SME4924. The total credit hours for UGP is 6 credits. 2 credits for UGP I and 4 credits for UGP 2. Students must allocate 80 hrs/semester for UGP 1 and 160 hrs/semester for UGP 2.
- 7.2 UGP has the same course code for all programmes in FME as in **Table 2**.

Table 2 UGP course code

No	Programme	Programme code	UGP Course Code	
			Semester I	Semester II
1	Bachelor of Engineering (Mechanical)	SKMM	SKMM 4912	SKMM 4924
2	Bachelor of Engineering (Mechanical - Industrial)	SKMI		
3	Bachelor of Engineering (Mechanical - Manufacturing)	SKMP		
4	Bachelor of Engineering (Mechanical - Materials)	SKMB		
5	Bachelor of Engineering (Mechanical - Automotive)	SKMV		
6	Bachelor of Engineering (Mechanical - Aeronautic)	SKMT		
7	Bachelor of Engineering (Naval Architecture & Offshore)	SKMO	SKMO 4912	SKMO 4924

- 7.3 UGP 1 covers activities related to topic and problem identification, literature study, and proposed method of solving the problem. Students are strongly encouraged to attend 'How to Conduct UGP' seminar conducted by FME.
- 7.4 Any changes (or alterations) of supervisor, topic, objective and research scope of UGP must first obtain the agreement and approval from the **supervisor, Head of Course Panel** and **the UGP Committee** (on behalf of FME). However, such change/alteration is not encouraged unless there is strong and reasonable reason/cause through written/formal letter to the FME for consideration. The **UGP 4912/9/(92) Form** obtainable from the FME Academic Office, must be used to propose such change or alteration.
- 7.5 UGP 2 covers activities including but not limited to: data collection and design implementation, analysis of research results, discussion, conclusion and suggestions for future research.

8.0 CONDITION FOR REGISTERING UGP

- 8.1 A student is allowed to register UGP when the following conditions are fulfilled:
- has achieved the status of final year student based on credits obtained;
 - preferably has completed the Industrial Training;

- iii) has taken all pre-requisite courses (as listed in **Appendix B**), obtaining at least grade D-.
- 8.2 UGP 1 is the pre-requisite for UGP 2. Therefore, students should pass UGP 1 in order to proceed to UGP 2.
- 8.3 A student has to repeat UGP 1 if he/she failed, i.e. obtained grade D or E. The student can repeat UGP I with the same topic or change to a new one. If the student decides to repeat UGP 1 with a new topic, the rules in selecting the UGP topic, as set by FME shall be followed. The student should re-register the course.
- 8.4 Within the UGP 1 period, students are allowed to **withdraw** (TD), with the condition that it is done before the last date of withdrawal as specified by the University. In such a case, the UGP topic will be **cancelled** and students are allowed to re-register this course in the subsequent semester. **UGP4912/4/(92) Form and UTM.E/3-2 Form** must be used by students who wish to withdraw from UGP.
- 8.5 UGP 2 must be registered in the **subsequent** semester.
- 8.6 Students who have passed their UGP 1 **MUST** complete their UGP 2 within **TWO (2)** consecutive semesters.
- 8.7 Students are **ALLOWED** to withdraw (TD) their UGP 2 registration provided they have sufficient number of semesters left to complete their UGP. This must be done before the final date to withdraw courses as stipulated by UTM. The students must then re-register UGP 2 in the subsequent semester.
- 8.8 Students who failed UGP 2 should only repeat the course with the same topic. The course repetition code (UM) should be used when registering.

9.0 CONDUCT AND IMPLEMENTATION

All matters related to UGP are under the responsibility of the UGP Committee comprising academic staff representing all the fields of study in FME. This committee is responsible to the Deputy Dean (Academic) of FME. All matters arising related to UGP should be referred to the Deputy Dean (Academic) or the Chairman or any committee member of the UGP Committee. The UGP Chairman and committee members are elected by FME for a two-year term.

9.1 Role and Function of the FME UGP Committee

Among the roles and functions of the FME UGP committee are:

- i) Prepare detail schedules for the yearly implementation of UGP.
- ii) Ensure students fulfill all terms and regulation relating to qualifications to undertake UGP.
- iii) Ensure that the UGP is conducted as per standard specifications set by the FME.

- iv) Ensure that students undertake topics of fields of study that pertain to the awarding degree.
- v) Ensure that there is an adequate procedure on the distribution of students to the topics in order that the students will be allocated with the most appropriate topics and supervisors.
- vi) Ensure that all equipment and instruments including raw materials are adequately provided for by FME.
- vii) Monitor the presence of conflict of interest, if any, between students and supervisors and between students and evaluators.
- viii) Provide procedures and guidelines pertaining to evaluation and marking schemes of UGP of FME.
- ix) Ensure that evaluation is conducted according to the stipulated schedules in a just and fair manner.
- x) Ensure that all final marks are submitted to the academic office on the date and time declared by FME.

9.2 Supervision and Responsibilities of UGP Supervisor

9.2.1 Supervision

- i) Each UGP topic and each student undertaking a UGP course will be assigned to at least one lecturer who will act as the first supervisor. The first supervisor is an academic staff who proposed the topic or is being assigned to supervise a topic by the panel.
- ii) The first supervisor for any UGP topic must be a FME academic staff who has knowledge and expertise in the particular field of the UGP.
- iii) As and when required a co-supervisor from FME or a different faculty or from a governmental organisation or from the private sector can be appointed to assist the first supervisor. The first supervisor will have to consent the appointment of a co-supervisor through the appropriate panel.
- iv) In the event of the requirement of joint supervision, the first supervisor will act as the main authority and will be the main person in full charge of the UGP topic.

9.2.2 Roles and responsibilities of UGP supervisor and co-supervisor

The main function of a supervisor and co-supervisor are as follows:

- i) Provide guidance, encouragement and advice to students regarding all matters related to UGP from the start until its objectives and the required scopes have been achieved.
- ii) Assist the students in all official matters with the Faculty and other related parties. These include the management of UGP

expenditure, acquiring equipment, facilities, preparing materials/tools and other matters related to UGP implementation.

- iii) Responsible for monitoring the progress and development of UGP, starting from the verification of UGP topic until the submission of bound copies of the UGP dissertation.
- iv) Schedule a meeting time in his/her time table for students under his/her supervision. The allocated time must be agreeable to the students concerned.
- v) Check and verify (signing in the appropriate section) the student's UGP log book at least once a week. This will allow the supervisor to monitor the progress of the UGP.
- vi) Evaluate students under his/her supervision both through the UGP draft report, and based on the overall implementation of UGP at the date/time stipulated by FME.
- vii) Provide guidance and advice to the student in preparing the UGP report (dissertation) according to the writing format and standard used by UTM.
- viii) Responsible in providing guidance and advice to student (if necessary) concerning appropriate personal attitude and values needed in carrying out the job/task on hand.
- ix) Inform the chairman of UGP committee or any UGP committee member or department representative of the occurrence of conflict of interest between supervisors and students and between students and evaluators.
- x) Advise and assist students on the necessary safety requirements, health issues and work etiques at the workplace where appropriate.
- xi) Advise students when the project schedule is not met as required and proposed a plan to help devise a contingency plan.
- xii) Report and inform the UGP committee of any problems regarding students performance and students with specific problems that would jeopardise the UGP project.
- xiii) Review, minor editing and provide feedback and comments concerning UGP reports within the stipulated time.
- xiv) Evaluate the final output of students project.

9.3 Roles and responsibilities of students undertaking UGP

The conduct and implementation of the UGP are the student's full responsibility for the approved UGP topic, under the supervision of one (or more) supervisor starting from the date of topic verification until the student submits the final bound UGP report (dissertation) within the stipulated time

The student must carry out UGP in accordance with the topic, objectives and scopes set for the UGP. Every student must understand clearly, in detail and thoroughly what needs to be done during the implementation of the UGP.

The responsibilities of the student undertaking UGP are:

- i) Maintain a regular meeting with the supervisor as scheduled (at least **once a week**).
- ii) Immediately inform the supervisor of changes in the registration status of the student or if the student falls sick.
- iii) Comply with the instruction of the supervisor according to the schedule already agreed.
- iv) Fully responsible towards the quality and outcome of the UGP work.
- v) Inform the FME UGP committee/Department UGP representative if problems with the supervisor are encountered.

Appendix C explains the amenities provided by FME in implementing UGP.

9.4 Supervision System

UGP supervision is a continuous process over the stipulated time allocated for the project. In ensuring a smooth supervision, the supervisor must monitor every student by constantly reviewing the project log book, review presentation materials for UGP seminar, critically review UGP 1 and UGP 2 reports.

9.4.1 Log book

A log book is an important tool for the proper implementation of the UGP. It keeps track of the thinking, thoughts, reviews, actions and procedures involved in the project. A log book maintains the discipline that is required to ensure a good project output.

9.4.1.1 It is **MANDATORY** for a student undertaking UGP to maintain a log book. Students can either use the log book available from FME academic office or create his/her own log book.

9.4.1.2 The log book must at all times be taken to the meeting with the supervisor and all points and notes discussed should be documented in the log book.

9.4.1.3 Making entries in the log book is a **must** for every student. It reflects deeply the determination and the attitude of the student.

9.4.1.4 The supervisor will make comments, proposals and suggestions on the log book at every meeting and will certify by signing the log book.

9.4.1.5 Among the items that need to be recorded and written in the log book are as follows:

- i) Topic, objective and scope of study for UGP and project schedule must be written at the beginning of the log book. This information is normally determined through discussion with the supervisor, in the early stage/week of UGP implementation.
- ii) Tabulate or list of activities or work that need to be done in implementing the UGP. The strategy and planning in implementing them need to be shown.
- iii) The steps / methods for experiments / work / study implemented.
- iv) Recorded data, results (either by measurement or calculation), experimental observation and etc.
- v) Sketches of figures/experimental set-up, initial design and ideas/facts that are useful for future references.
- vi) Notes or summary from reading materials, reference list, discussion with supervisor or anybody referred to.
- vii) Any record (notes) deemed to be related and useful to the UGP.

9.4.2 UGP Seminar

It is mandatory for students undertaking UGP to formally present their results in a UGP seminar organised by the FME. Students will be required to present their project orally to a panel of experts determined by the Faculty. Students who fail to present orally their work in a seminar organised by FME will be considered to have not fulfilled the UGP requirements and thus have failed the course.

Students who failed to comply with 80% of the attendance of meeting with their supervisors shall not be allowed from presenting in the UGP seminar.

The scopes for the oral presentation of UGP 1 and UGP 2 are as follows:

9.4.2.1 UGP 1 seminar

- i) The topic and the description of the problem statement.

- ii) A review of literature pertaining to the topic.
- iii) Research methodology and problem solving method used.
- iv) Expected output and conceptual design (where necessary).
- v) Work schedule and implementation.

9.4.2.2 UGP 2 Seminar

Students undertaking UGP 2 project are required to present the following:

- i) Methods or design or other requirements necessary to fulfill the problem statement made during UGP 1 seminar.
- ii) Discussions on results and project output.
- iii) Review of results obtained against initial project objectives.
- iv) Analysis of project output and its influence on the general objectives.
- v) Summary and recommendations.

9.4.3 Project Report

Project report consists of UGP 1 report and UGP 2 report.

9.4.3.1 UGP 1 Report

Topics that are require in UGP1 report are:

- i) Background, problem statement, objective and the scope of the project
- ii) Literature study
- iii) Research methodology
- iv) Expected result
- v) Reference

9.4.3.2 UGP 2 Report

UGP 2 report is a complete write-up for the topic undertaken by the student. It consists of the findings for UGP 1 and UGP 2. The writing of UGP 2 report must be based a standard format given by **Panduan Menulis Tesis UTM (2007)**. The number of pages for the UGP 2 report is between 60 – 100 pages excluding appendices unless approved by the supervisor.

The final UGP 2 report shall be proofread before submitting to their respective supervisor and second examiner.

9.4.4 Technical Paper

A technical paper is a concise report that is used to disseminate the findings to the public. It is an important document for a researcher.

- i) At the end of UGP student **must** submit a technical paper on the topic that he/she has undertaken.
- ii) The technical paper written **must** be submitted to the supervisor together with the UGP 2 report.
- iii) The technical paper **must** be written in the format of **FME's Jurnal Mekanikal**.

9.5 Submission of UGP Report

- 9.5.1 Submission of the final draft of the UGP report must be made to the respective supervisor and second examiner (for UGP2 only) on or before the date stipulated by FME.
- 9.5.2 Submission of bound UGP 2 report together with an electronic copy and the log book must be made to the Academic Office of FME on or before the date gazetted by the Faculty.
- 9.5.3 The bound copies will have a red-hard cover according to the requirements of the FME.

10.0 ASSESSMENT

UGP assessment is based on the student's performance and ability in preparing project report, maintaining the log book, delivering seminar presentation and writing articles (for UGP2 only). The elements of assessment, assessment criteria, weightage of scores for each element and rubrics for each criterion are given in **Appendix D**. The elements evaluated are as the following:

10.1 Report

10.1.1 UGP 1 report

- i) Report presentation:
 - Flow of chapters
 - Overall presentation
- ii) Content:
 - Problem statement
 - Objective of study
 - Comments on theories related to the study (literature review)
 - Project methodology (solution methods)

- Tools and equipment involved
- Findings of initial study that have been carried out
- The overall strength of the report

iii) Clarity of writing:

- Quality of language and writing
- Explanation of facts

Evaluation of the UGP1 report is done by the supervisor.

10.1.2 UGP 2 report

i) Report presentation:

- Overall arrangement
- Tables/graphs
- Flow and arrangement of material

ii) Content:

- Problem statement
- Objective of study
- Comments on theories related to the study (literature review)
- Project methodology (solution methods)
- Tools and equipment involved
- Introduction to problem or case of study and data preparation
- Depth of study – scope and number of dependant variables studied
- Analysis of data/case
- Findings and opinions
- Analysis of results, discussion, conclusions and recommendations
- References
- Appendices

iii) Clarity of writing:

- Quality of language and writing
- Data interpretation and case argumentation

iv) Creativity /innovativeness:

- Graphs, charts, illustrations, tables
- Use of external facts to support study

The assessment of the UGP2 report is carried out by the supervisor and a second examiner. Both parties use the same evaluation form and give equal assessment weightage. The total score for the UGP2 report is obtained by directly adding up the score given by both the supervisor and second examiner.

10.2 Log Book

Elements evaluated on the log book:

- i) Record of work and discussion with supervisor (Notes or summary from reading materials, discussion with supervisor or anybody that was referred to. List of activities or work that need to be done. Strategy and planning).
- ii) Record of references, sketch of job and equipment (Steps/methods for experiments/work/study. Sketches of figures/experimental set-up, initial design and ideas/facts for future references).
- iii) Data and computation (if any). (Recorded data, results, experimental observation).

Evaluation of the log book is done by the supervisor.

10.3 Seminar

Components evaluated in the presentation:

10.3.1 Content

Refer items 10.1.1(ii) for UGP 1 and 10.1.2(ii) for UGP 2.

10.3.2 Presentation

- Flow of presentation.
- Language proficiency.
- Appropriateness of presentation (Presentation organization – clearly defined objectives, scope of study and summary. Appropriate arrangement of slides. Appropriate level of details).
- Use of presentation aid and presentation of data/material (Layout/ Visuals – clear, consistent, readable, understandable. All requested deliverables included).
- Understanding (Topic Mastery – technical correctness. Completeness of analysis & data interpretation. Response to Questions – clear & sufficient/brief & concise).
- Behaviour, appearance and ability in responding to questions (Presenter – dressing, language, style, appropriate body language, vocal quality, pace).

Seminar evaluation is to be carried out by a panel of assessors (exclusive of the supervisor) to be appointed by the Department UGP coordinator.

For each seminar the student is allocated 25 minutes, that is 15 minutes for presentation and the other 10 minutes for question and answer session with the audience. A seminar presentation exceeding this time limits will not be evaluated.

During the assessment of the seminar, all marks given by the panel of assessors must be on the scale of 0 to 10. Actual full mark for each student will be determined by factoring the assessors' marks by certain coefficients.

Question and answer session (10 minutes) is a duration for the seminar presenter to interact/communicate with the audience. Therefore, the faculty does not allow the supervisor to assist his/her student to answer any issue raised by the audience. The seminar presenter (the student) is fully responsible to defend, give answers or response to all questions put forward by the audience).

10.4 Technical Paper

Components evaluated in working paper/article:

- i) Abstract
- ii) Content:
 - Introduction/literature study
 - Methodology/approach used in study
 - Results and discussion
 - Conclusions
 - Reference
- iii) Overall quality of write up:
 - grammar
 - formatting
 - figures & tables

Evaluation of technical paper/article is done by the supervisor.

10.5 Evaluation Weightage

10.5.1 Weightage of scores for the whole project work is as shown in **Table 3:**

Table 3 Elements of assessment and their weightage of scores

Elements of Assessment	UGP 1 (%)	UGP 2 (%)
Seminar		
- Evaluators	30	20
Report		
- Supervisor	20	20
- 2 nd Examiner	-	20
Technical paper		
- Supervisor	-	5
Log book & overall implementation		
- Supervisor	50	35
Total	100	100

10.5.2 The items to be evaluated during UGP1 and UGP2 seminars are listed in **Tables 4** and **5**, respectively.

Table 4 Criteria of evaluation and the weightage of scores for UGP1 seminar

Criteria of Evaluation	UGP 1 (%)
Problem Identification, Objectives and Scope of Work	15
Review of Literature	15
Methodology	20
Work Planning	5
Quality of Slides	15
Voice & Eye Contact	5
Attire	10
Response to Questions	15
Total	100

Table 5 Criteria of evaluation and the weightage of scores for UGP2 seminar

Criteria of Evaluation	UGP 2 (%)
Subject Knowledge	10
Depth of Study	15
Contents of Presentation	10
Analysis & Results Interpretation	20
Quality of Slides	15
Voice & Eye Contact	5
Attire	10
Response to Questions	15
Total	100

10.5.3 Details of assessment weightage for UGP1 and UGP2 reports are shown in **Tables 6** and **7**, respectively.

Table 6 Weightage of scores for UGP1report

Criteria of Evaluation	Scores (%)
Problem statement	4
Objectives and Scopes	4
Literature review & Project background	6
Methodology	6
Total	20

Table 7 Weightage of scores for UGP2 report

Criteria of Evaluation	Scores (%)	
	Supervisor	2 nd examiner
Abstract	2	2
Problem statement	1	1
Objectives & scopes	1	1
Literature review & project background	1	1
Methodology	1	1
Results	5	5
Analysis & discussion	5	5
Conclusion & recommendation	2	2
Report format & writing skill	2	2
Total (40%)	20	20

NB: The assessment of the UGP2 report is carried out by the supervisor and a second examiner. Both parties use the same evaluation form and give equal assessment weightage. The total score for the UGP2 report is obtained by directly adding up the score given by both the supervisor and second examiner.

10.5.4 Details of assessment weightage for technical paper are shown in **Table 8**.

Table 8 Weightage of scores for technical paper

Items of Evaluation	Weightage
Abstract	0.5
Introduction/Literature review	1
Methodology	1
Results & discussion	1
Conclusion	0.5
References	0.5
Overall quality of write up (grammar, format, figures & tables)	0.5
Total	5

10.5.5 Details of assessment weightage for overall implementation of the project are as in **Table 9**.

Table 9 Weightage of scores for overall implementation

Items of Evaluation	UGP 1 (%)	UGP 2 (%)
Log book	5	5
Student's interest and attitude	10	5
Work Planning & Execution	10	5
Effort, Creativity and Independence	10	10
Problem Understanding and Solution	15	5
Total	50	35

10.6 Seminar Evaluator and Second Examiner

- i) Evaluators and second examiners must be among lecturers in the field and / or any party appointed by the Faculty.
- ii) Evaluators are appointed to assess the seminar presentation.
- iii) Second examiners are appointed to assess the UGP2 report.
- iv) Evaluators and second examiners may offer suggestions for improvement of the project.

- v) If there is a significant difference in scores between the supervisor and evaluator or among evaluators, a third assessor may be appointed.

11.0 REQUIREMENTS TO PASS UGP

- i) The components of assessment stipulated by the Faculty **must** be fully accomplished by the students. A student who fails to do that will be awarded grade E.
- ii) For students who obtained grade A and A+, they are required to submit **TWO (2)** copies of permanently bound UGP 2 report complete with **TWO (2)** digital copies in the form of compact disc (documents must be in pdf or jpeg format) to the Faculty and they will become the property of UTM. For the rest, only ONE copy is required. Delay in submitting the report in the stipulated time will result in grade E.

12.0 ACADEMIC MISCONDUCTS

Academic misconduct is any type of cheating that occurs in relation to a formal academic exercise. It includes the following:

12.1 Plagiarism

Plagiarism is defined as “using someone’s work without giving recognition to the person, as if it is of one’s own”. Ideas and writing taken from a source without stating its original source is plagiarism.

The followings are among misconducts that are considered plagiarising:

- i) Copying some/all excerpts from texts as if they are of one’s own. Such excerpts must be re-phrased in one’s own way and using own words and the sources duly indicated.
- ii) Ideas taken directly from a reference without reporting the source. Instead they should be placed in the form of quotation and the sources indicated.
- iii) Taking someone else’s work, images or ideas and passing it off as their own.

Further information on plagiarism may be referred in Gaya Dewan (1995). Plagiarism is a serious academic misconduct punishable under the University disciplinary statute.

12.2 Other misconducts

Examples of other forms of academic misconduct would include:

- i) Getting someone else to produce part or all of the work submitted.
- ii) Colluding with one or more student(s) to produce a piece of work and submitting it individually as one’s own.

- iii) Copying the work of another student, with or without their permission.
- iv) Knowingly allowing another student to copy one's own work.
- v) Resubmitting one's own previously graded work.
- vi) Using forbidden notes or books in producing assigned work or tests.
- vii) Fabrication of results (including experiments, research, interviews, observations).

13.0 COPYRIGHT

- 13.1 All new findings, designs or patents are copyright of the University. However the University may consider application for sharing of copyright ownership from researchers or external sponsors.
- 13.2 The copyright of written report is that of the authors'.

APPENDICES