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INSTITUTE OF AERONAUTICAL ENGINEERING

Outcome Based Education (OBE) Manual

(MB23)

Department of Master of Business Administration

Contents

Contents

OVERVIEW

Outcome Based Education (OBE) is an educational model that forms the base of a quality education system. There is no single specified style of teaching or assessment in OBE. All educational activities carried out in OBE should help the students to achieve the set goals. The faculty may adapt the role of instructor, trainer, facilitator, and/or mentor, based on the outcomes targeted.

OBE enhances the traditional methods and focuses on what the Institute provides to students. It shows the success by making or demonstrating outcomes using statements" able to do" in favour of students. OBE provides clear standards for observable and measurable outcomes.

National Board of Accreditation (NBA) is an authorised body for the accreditation of higher education institutions in India. NBA is also a full member of the Washington Accord. NBA accredited programmes and not the institutions.

Higher Education Institutions are classified into two categories by NBA

Tier – 1: Institutions consists of all IITs, NITs, Central Universities, State Universities and Autonomous Institutions. Tier - 1 institution can also claim the benefits as per the Washington Accord.

Tier - 2 Institutions consists of affiliated colleges of universities.

What is Outcome Based Education (OBE)?

Institutions adopting OBE try to bring changes to the curriculum by dynamically adapting to the requirements of the different stakeholders like Students, Parents, Industry Personnel and Recruiters.OBE is all about feedback and outcomes.

Four levels of outcomes from OBE are:

1. Program Educational Objectives (PEOs)
2. Program Outcomes (POs)
3. Course Outcomes (COs)

Why OBE?

1. International recognition and global employment opportunities.
2. More employable and innovative graduates with professional and soft skills, social responsibility and ethics.
3. Better visibility and reputation of the technical institution among stakeholders.
4. Improving the commitment and involvement of all the stakeholders.
5. Enabling graduates to excel in their profession and accomplish greater heights in their careers.
6. Preparing graduates for the leadership positions and challenging them and making them aware of the opportunities in the technology development.

Benefits of OBE

Clarity: The focus on outcome creates a clear expectation of what needs to be accomplished by the end of the course.
Flexibility: With a clear sense of what needs to be accomplished, instructors will be able to structure their lessons around the students' needs.
Comparison: OBE can be compared across the individual, class, batch, program and institute levels.
Involvement: Students are expected to do their own learning. Increased student's involvement allows them to feel responsible for their own learning, and they should learn more through this individual learning.

- Teaching will become a far more creative and innovative career
- Faculty members will no longer feel the pressure of having to be the "source of all knowledge".
- Faculty members shape the thinking and vision of students towards a course.

India, OBE and Accreditation:

From 13 June 2014, India has become the permanent signatory member of the Washington Accord. Implementation of OBE in higher technical education also started in India. The National Assessment and Accreditation Council (NAAC) and National Board of Accreditation (NBA) are the autonomous bodies for promoting global quality standards for technical education in India. NBA has started accrediting only the programs running with OBE from 2013.

The National Board of Accreditation mandates establishing a culture of outcome-based education in institutions that offer Engineering, Pharmacy, Management program. Reports of outcome analysis help to find gaps and carryout continuous improvements in the education system of an Institute, which is very essential.

1 Vision, Mission, Quality Policy, Philosophy & Core Values

Vision

To excel in management education and research by nurturing the youth to become global management leaders

Mission

We intend to empower the capabilities of the young managers to face various challenges in the global community by raising their acquired skills and knowledge.

In pursuit of excellence, we provide training and development activities, cultivate research skills, enhance entrepreneurship abilities and offer employability in multi-domain business organizations.

Quality Policy

Our policy is to nurture and build diligent and dedicated community of engineers providing a professional and unprejudiced environment, thus justifying the purpose of teaching and satisfying the stake holders.

A team of well qualified and experienced professionals ensure quality education with its practical application in all areas of the Institute.

Philosophy

The essence of learning lies in pursuing the truth that liberates one from the darkness of ignorance and Institute of Aeronautical Engineering firmly believes that education is for liberation.

Contained therein is the notion that management education includes all fields of administration that plays a pivotal role in the development of world-wide community contributing to the progress of civilization. This institute, adhering to the above understanding, is committed to the development of science and technology in congruence with the natural environs. It lays great emphasis on intensive research and education that blends professional skills and high moral standards with a sense of individuality and humanity. We thus promote ties with local communities and encourage transnational interactions in order to be socially accountable. This accelerates the process of transfiguring the students into complete human beings making the learning process relevant to life, instilling inthem a sense of courtesy and responsibility.

Core Values

Excellence: All activities are conducted according to the highest international standards.

Integrity: Adheres to the principles of honesty, trustworthiness, reliability, transparency and accountability.

Inclusiveness: To show respect for ethics, cultural and religious diversity and freedom of thought.

Social Responsibility: Promotes community engagement, environmental sustainability, and global

citizenship. It also promotes awareness of, and support for, the needs and challenges of the local and global communities.

Innovation: Supports creative activities that approach challenges and issues from multiple perspectives in order to find solutions and advance knowledge.

2 Program Educational Objectives (PEOs)

Program Educational Objectives (PEOs) should be defined by the Head of the Department in consultation with the faculty members. PEOs are a promise by the department to the aspiring students about what they will achieve once they join the programme. PEO assessment is not made compulsory by NBA as it is quite difficult to measure in Indian context. NBA assessors usually do not ask for PEO assessment. PEOs are about professional and career accomplishment after 4 to 5 years of graduation. PEOs can be written from different perspectives like Career, Professional Competency and Behaviour. While writing the PEOs do not use the technical terms asit will be read by prospective students who wants to join the programme. Three to five PEOs arerecommended.

Program Educational Objective – I: Managerial Skills:
To impart adequate knowledge of management theories and concepts to enhance research and learning for continuous growth and development.

Program Educational Objective – II: Professional Effectiveness and Contribution to Society:
To provide the learners with exposure to solve business situations using management tools, to analyze and create newer opportunities in industry.

Program Educational Objective – III: Professional Education:
To achieve appropriate communication skills and higher levels of proficiency for successful career in Industry, Business and Entrepreneurship.

Program Educational Objective – IV: Exercising Leadership:
To demonstrate the ability to maintain knowledge of emerging technologies to address the critical needs of the seamless strategic business operations.

With a view to challenge ourselves and to nurture diverse capabilities for professional and intellectual growth for our students it is important for the department to define departmental objectives in generalized and broad format. Adherence to these objectives is proposed to be demonstrated through actions or achievements.

The department of Master of Business Administration periodically reviews these objectives and as part of this review process, encourages comments from all interested parties including current students, alumni, prospective students, faculty, teaching assistants and members of related professional organizations, and colleagues from other educational institutions.

2.1 Mapping of program educational objectives to program outcomes:

The following Figure 1 shows the correlation between the PEOs and the POs

PEO-I	PEO-II	PEO-III	PEO-IV
PO1 and PO3	PO2 and PO5	PO4 and PO6	PO7 and PO8

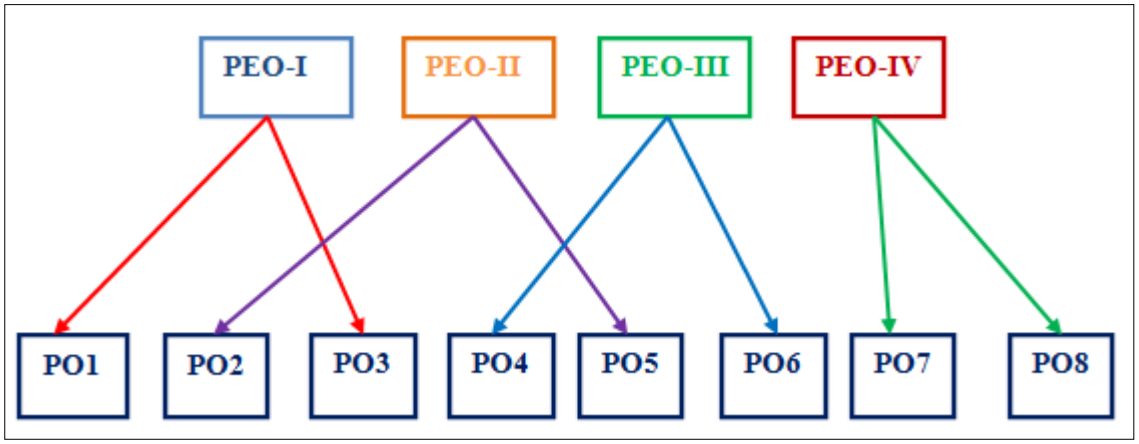

FIGURE 1: Correlation between the PEOs and the POs

3 Program Outcomes (POs)

A Program Outcome is broad in scope and be able to do at the end of the programme. POs are to be in line with the post graduate attributes as specified in the Washington Accord. POsare to be specific, measurable and achievable. NBA has defined 5 POs which is common for all the institutions in India and department added 3 additional POs. In the syllabus book given to students, there should be clear mention of course objectives and course outcomes for all the courses.

MBA - PROGRAM OUTCOMES (PO's)	
A post graduate of the Master of Business Administration Program will demonstrate:	
PO1	**Managerial Skills:** Apply knowledge of management theories and practices to solve business problems
PO2	**Decision-making Skills:** Foster Analytical and critical thinking abilities for data-based decision making
PO3	**Ethics:** Ability to develop Value based Leadership ability
PO4	**Communication Skills:** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business
PO5	**Leadership Skills:** Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to team environment

PO6	**Entrepreneurial Skills:** Ability to demonstrate the skills and evaluate issues related to entrepreneurship and to develop as entrepreneurs
PO7	**Strategic analysis:** Ability to conduct strategic analysis using theoretical and practical applications
PO8	**Technology Skills:** Inculcate and develop technical skills to face the competitive world successfully career paths, to be an entrepreneur, and a zest for higher studies.

4 Relation between the Program Educational Objectives and thePOs

Broad relationship between the program objectives and the program outcomes is given in the following Table below:

		(1)	(2)	(3)	(4)
PEO's→ ↓ PO's		**Managerial Skills**	**Professional Effectiveness And Contribution to Society**	**Professional Education**	**Exercising Leadership**
PO1	**Managerial Skills:** Apply knowledge of management theories and practices to solve business problems	3			
PO2	**Decision-making Skills:** Foster Analytical and critical thinking abilities for data-based decision making		3		
PO3	**Ethics:** Ability to develop Value based Leadership ability	2			
PO4	**Communication Skills:** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business			3	
PO5	**Leadership Skills:** Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to team environment		3		

PO6	**Entrepreneurial Skills:** Ability to demonstrate the skills and evaluate issues related to entrepreneurship and to develop as entrepreneurs			3	
PO7	**Strategic analysis:** Ability to conduct strategic analysis using theoretical and practical applications				3
PO8	**Technology Skills:** Inculcate and develop technical skills to face the competitive world successfully career paths, to be an entrepreneur, and a zest for higher studies.				3

Relationship between Program Outcomes and Program Educational Objectives

Key: 3 = High; 2 = Medium; 1= Low

Note:

- The assessment process of POs can be direct or indirect.
- The direct assessment will be done through interim assessment by conducting continuous internal exam and semester end exams.
- The indirect assessment on the other hand could be done through student's programme exit questionnaire, alumni survey and employment survey.

5 Blooms Taxonomy

Bloom's taxonomy is considered as the global language for education. Bloom's Taxonomy is frequently used by teachers in writing the course outcomes as it provides a readymade structure and list of action verbs. The stages ascend in complexity and what they demand of students. First students need to simply remember information provided to them — but reciting something doesn't demonstrate having learned it, only memorization. With understanding comes the ability to explain the ideas and concepts to others. The students are then challenged to apply the information and use it in new ways, helping to gain a deeper understanding of previously covered material and demonstrating it moving forward. Questioning information is a vital part of learning, and both analysis and evaluation do just this. Analysing asks a student to examine the information in a new way, and evaluation demands the student appraise the material in a way that lets them defend

or argue against it as they determine. The final step in the revised taxonomy is creating, which entails a developing new product or point of view. How does this learned information impact your world? How can it be used to impact not just your education but the way you interact with your surroundings? By utilizing Bloom's Taxonomy, students are not going to forget the information as soon as the class ends - rather, they retain and apply the information as they continue to grow as a student and in their careers, staying one step ahead of the competition.

5.1 Incorporating Critical Thinking Skills into Course Outcome Statements

Many faculty members choose to incorporate words that reflect critical or higher-order thinking into their learning outcome statements. Bloom (1956) developed a taxonomy outlining the different types of thinking skills people use in the learning process. Bloom argued that people use different levels of thinking skills to process different types of information and situations. Some of these are basic cognitive skills (such as memorization) while others are complex skills (such as creating new ways to apply information). These skills are often referred to as critical thinkingskills or higher-order thinking skills.

Bloom proposed the following taxonomy of thinking skills. All levels of Bloom's taxonomy of thinking skills can be incorporated into expected learning outcome statements. Recently, Anderson and Krathwohl (2001) adapted Bloom's model to include language that is oriented towards the language used in expected learning outcome statements. A summary of Anderson and Krathwohl's revised version of Bloom's taxonomy of critical thinking is provided in Figure 2.

FIGURE 2: Revised version of Bloom's taxonomy

5.2 Definitions of the different levels of thinking skills in Bloom's taxonomy:

1. **Remember** –recalling relevant terminology, specific facts, or different procedures related to in- formation and/or course topics. At this level, a student can remember something, but may not really understand it.

2. **Understand** –the ability to grasp the meaning of information (facts, definitions, concepts, etc.)that has been presented.

3. **Apply** –being able to use previously learned information in different situations or in problem solving.

4. **Analyze** –the ability to break information down into its component parts. Analysis also refers tothe process of examining information in order to make conclusions regarding cause and effect, interpreting motives, making inferences, or finding evidence to support statements/arguments.

5. **Evaluate** –being able to judge the value of information and/or sources of information based onpersonal values or opinions.

6. **Create** –the ability to creatively or uniquely apply prior knowledge and/or skills to produce new and original thoughts, ideas, processes, etc. At this level, students are involved in creating theirown thoughts and ideas.

5.3 List of Action Words Related to Critical Thinking Skills

Here is a list of action words that can be used when creating the expected student learning outcomes related to critical thinking skills in a course. These terms are organized according to the different levels of higher-order thinking skills contained in Anderson and Krathwohl's (2001) revised version of Bloom's taxonomy.
Here is the revised Bloom's document with action verbs, which we frequently refer to while writing COs for our courses.

The cognitive process dimensions- categories:

Lower Order of Thinking (LOT)			**Higher Order of Thinking (HOT)**		
Remember	**Understand**	**Apply**	**Analyse**	**Evaluate**	**Create**
Interpreting Illustrating Classifying Summarizing Inferring (concluding) comparing explaining	Recognizing (identifying) Recalling (retrieving)	Executing Implementing	Differentiating Organizing Attributing	Checking (coordinating, detecting, testing, monitoring) Critiquing (judging)	Planning Generating Producing (constructing)

The Knowledge Dimension			
Concrete Knowledge → Abstract knowledge			
Factual	**Conceptual**	**Procedural**	**Metacognitive**
• Knowledge of terminologies • Knowledge of specific details and elements	• Knowledge of classifications and categories • Knowledge of principles and generalizations • Knowledge of theories, models andstructures	• Knowledge of subject specific skillsand algorithms • Knowledge of subject specific techniques and methods • Knowledge of criteria for determining when to use appropriate procedures	• Strategic Knowledge • Knowledge about cognitive task, including appropriate contextual and conditional Knowledge • Self- Knowledge

Action Verbs for Course Outcomes

Lower Order of Thinking (LOT)				Higher Order of Thinking (HOT)		
Definitions	**Remember**	**Understand**	**Apply**	**Analyse**	**Evaluate**	**Create**
Bloom's Definition	Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.	Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas.	Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations.	Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.	Compile information together in a different way by combining elements in a new pattern or proposing alternative solution.
Verbs	• Choose • Define • Find • How • Label • List • Match • Extend	• Classify • Compare • Contrast • Demonstrate • Explain • Illustrate • Infer • Interpret	• Apply • Build • Choose • Construct • Develop • Interview • Make use of • Model	• Analyze • Assume • Categorize • Classify • Compare • Discover • Dissect • Distinguish	• Agree • Appraise • Assess • Award • Choose • Criticize • Decide • Deduct • Importance	• Adapt • Build • Solve • Choose • Combine • Invent • Compile • Compose • Construct

Action Verbs for Course Outcomes

Lower Order of Thinking (LOT)				Higher Order of Thinking (HOT)		
Definitions	**Remember**	**Understand**	**Apply**	**Analyse**	**Evaluate**	**Create**
Verbs	• Name • Omit • Recall • Relate • Select • Show • Spell • Tell • What • When • Where • Which • Who • Why	• Outline • Relate • Rephrase • Show • Summarize • Translate • Experiment with • Illustrate • Infer • Interpret • Outline • Relate • Rephrase • Show • Summarize • Translate • Experiment with	• Organize • Plan • Select • Solve • Utilize • Identify • Interview • Make use of • Model • Organize • Plan • Select • Solve • Utilize • Identify	• Divide • Examine • Function • Inference • Inspect • List Motive • Simplify • Survey • Take part in • Test for Theme • Conclusion • Contrast	• Defend • Determine • Disprove • Estimate • Evaluate • Influence • Interpret • Judge • Justify Mark • Measure • Opinion • Perceive • Prioritize • Prove • Criteria • Criticize • Compare • Conclude	• Create • Design • Develop • Estimate • Formulate • Happen • Imagine • Improve • Make up • Maximize • Minimize • Modify • Original • Originate • Plan • Predict • Propose • Solution

6 Guidelines for writing Course Outcome Statements:

Well-written course outcomes involve the following parts:

1. Action verb
2. Subject content
3. Level of achievement as per BTL
4. Modes of performing task (if applicable)

6.1 Course Outcomes (COs)

A Course Outcome is a formal statement of what students are expected to learn in a course. When creating Course Outcomes remember that the outcomes should clearly state what students will do or produce to determine and/or demonstrate their learning. Course learning outcome statements refer to specific knowledge, practical skills, areas of professional development, attitudes, higher- order thinking skills, etc. that faculty members expect students to develop, learn, or master duringa course.

A well-formulated set of Course Outcomes will describe what a faculty member hopes to successfully accomplish in offering their particular course(s) to prospective students, or what specific skills, competencies, and knowledge the faculty member believes that students will have attainedonce the course is completed. The learning outcomes need to be concise descriptions of what learning is expected to take place by course completion.

6.2 Developing Course Outcomes

When creating course outcomes consider the following guidelines will helps to develop either individually or as part of a multi-section group:

- Limit the course outcomes to 6 statements for the entire course [more detailed outcomescan be developed for individual units, assignments, chapters, etc. if the instructor(s) wish (es)].
- Focus on overarching knowledge and/or skills rather than small or trivial details
- Focus on knowledge and skills that are central to the course topic and/or discipline.
- Create statements that have a student focus rather than an instructor centric approach (basice.g., “upon completion of this course students will be able to list the names of the 28 states and 8 union territories” versus “one objective of this course is to teach the names of the 28states and 8 union territories”).
- Focus on the learning that results from the course rather than describing activities or lessonsthat are in the course.
- Incorporate and/or reflect the institutional and departmental missions.

- Include various ways for students to show success (outlining, describing, modelling, depicting, etc.) rather than using a single statement such as "at the end of the course, students will know_"as the stem for each expected outcome statement.

When developing learning outcomes, here are the core questions to satisfy:

- What do we want students in the course to learn?
- What do we want the students to be able to do?
- Are the outcomes observable, measurable and are they able to be performed by the students?

Course outcome statements on the course level describe:

- What faculty members want students to know at the end of the course AND
- What faculty members want students to be able to do at the end of the course?

Course outcomes have three major characteristics

- They specify an action by the students/learners that is observable
- They specify an action by the students/learners that is measurable
- They specify an action that is done by the students/learners rather than the faculty members

Effectively developed expected learning outcome statements should possess all three of these characteristics. When this is done, the expected learning outcomes for a course are designed so that they can be assessed. When stating expected learning outcomes, it is important to use verbs that describe exactly what the student(s) / learner(s) will be able to do upon completion of the course.

6.3 Relationship of Course Outcome to Program Outcome

The Course Outcomes need to link to the Program Outcomes.

Learning outcomes formula:

STUDENTS SHOULD BE ABLE TO + BEHAVIOR + RESULTING EVIDENCE

For example, instructor can use the following template to write an appropriate course level learning outcome.

"Upon completion of this course students will be able to (knowledge, concept, rule or skill you expect them to acquire) by (how will they apply the knowledge or skill/how will the instructor assess the learning)."

6.4 Characteristics of Effective Course Outcomes

Well written course outcomes:

- Describe what instructor wants from students to learn in the course.
- Are aligned with program goals and objectives.
- Tell how to know an instructional goal has been achieved.
- Use action words that specify definite, observable behaviour.
- Are assessable through one or more indicators (papers, quizzes, projects, presentations, journals, portfolios, etc.)
- Are realistic and achievable.
- Use simple language

6.5 Examples of Effective Course Outcomes

After successful completion of the course, Students will be able to:

- Demonstrate the basic concepts and levels of management to make better organizational decisions.
- Illustrate the significance of pre and final accounts and causes of depreciation on fixed assets to measure its impact on business accounting.
- Discuss various forms of production functions to know its affects in the cost of production.
- Discuss about company and companies acts that helps to initiate enterprises.
- Facilitate a group to achieve agreed-upon goals.
- Determine and apply the appropriate statistical procedures to analyze the results of simpleexperiments.
- Recognize the significance, limitations, origin and different branches of statistics for better managerial analysis.
- Produce a strategic plan for a small manufacturing business.
- Analyse a character's motivation and portray that character before an audience.
- Differentiate among five major approaches to literary analysis
- List the major ethical issues one must consider when planning a human-subjects study.
- Locate and critically evaluate information on current political issues on the Web.
- List and describe the functions of the major components of the human nervous system.
- Correctly classify rock samples found in...
- Conduct a systems analysis of a group interaction.
- Demonstrate active listening skills when interviewing clients.
- Apply social psychological principles to suggest solutions to contemporary social problems.

A more detailed model for stating learning objectives requires that objectives have three parts: acondition, an observable behaviour, and a standard. The table below provides three examples.

S No	Condition	Observable Behaviour	Standard
1	Given a list of management decisions	The student will be able to classify each statement as event or case study	with at least 70% accuracy

2	Immediately following a fifteen-minute discussion on a topic.	The student will be able to summarize in writing the major issues being discussed.	Mentioning at least three of the five major topics.
3	Given an algebraic equation with one unknown.	the student will be able to correctly solve a simple linear equation	Within a period of five minutes.

The following examples describe a course outcome that is not measurable as written, an explanation for why the course outcome is not considered measurable, and a suggested edit that improvesthe course outcome

Original course out-come	**Evaluation of language used in this course outcome**	**Improved course outcome**
Explore in depth the literature on an aspect of teaching strategies.	Exploration is not a measurable activity but the quality of the product of exploration would be measurable with a suitable rubric.	Upon completion of this course the students will be able to: write a paper based on an in-depth exploration of the literature on an aspect of teaching strategies.

Examples that is TOO general and VERY HARD to measure. . .

- . . . Will appreciate the benefits of learning a foreign language.
- . . . Will be able to access resources at the Institute library.
- . . . Will develop problem-solving skills.
- . . . Will have more confidence in their knowledge of the subject matter.

Examples that arestill general and HARD to measure. . .

- . . . Will value knowing a second language as a communication tool.
- . . . Will develop and apply effective problem-solving skills that will enable one to adequatelynavigate through the proper resources within the institute library.
- . . . Will demonstrate the ability to resolve problems that occur in the field.
- . . . Will demonstrate critical thinking skills, such as problem solving as it relates to socialissues.

Examples that is SPECIFIC and relatively EASY to measure. . .

- . . . Will be able to read and demonstrate good comprehension of text in areas of the student'sinterest or professional field.

- . . . Will demonstrate the ability to apply basic research methods in psychology, includingresearch design, data analysis, and interpretation.

- . . . Will be able to identify environmental problems, evaluate problem-solving strategies, anddevelop science-based solutions.
- . . . Will demonstrate the ability to evaluate, integrate, and apply appropriate information fromvarious sources to create cohesive, persuasive arguments, and to propose design concepts.

An Introspection - Examine Your Own Course Outcomes

- If you have written statements of broad course goals, take a look at them. If you do not havea written list of course goals, reflect on your course and list the four to six most important student outcomes you want your course to produce.
- Look over your list and check the one most important student outcome. If you could only achieve one outcome, which one would it be?
- Look for your outcome on the list of key competencies or outcomes society is asking us toproduce. Is it there? If not, is the reason a compelling one?
- Check each of your other" most important" outcomes against the list of outcomes. How many are on the list of key competencies?
- Take stock. What can you learn from this exercise about what you are trying to accomplish as a teacher? How clear and how important are your statements of outcomes for your use and for your students'? Are they very specifically worded to avoid misunderstanding? Are they supporting important needs on the part of the students?

Write Your Course Outcomes!

One of the first steps you take in identifying the expected learning outcomes for your course is identifying the purpose of teaching the course. By clarifying and specifying the purpose of the course, you will be able to discover the main topics or themes related to students' learning. Oncediscovered, these themes will help you to outline the expected learning outcomes for the course. Ask yourself:

- What role does this course play within the program?
- How is the course unique or different from other courses?
- Why should/do students take this course? What essential knowledge or skills should theygain from this experience?
- What knowledge or skills from this course will students need to have mastered to performwell in future classes or jobs?
- Why is this course important for students to take?

6.6 CO-PO Course Articulation Matrix (CAM) Mapping

Course Articulation Matrix shows the educational relationship (Level of Learning achieved) be- tween course outcomes and program outcomes for a course. This matrix strongly indicates whether the students are able to achieve the course learning objectives. The matrix can be used for any course and is a good way to evaluate a course syllabus.

The below table gives information about the action verbs used in the POs and the nature of POs, stating whether the POs are technical or non-technical. Instructor need to understand the intention of each POsand the Bloom's level to which each of these action verbs in the POs correlates to. Once it hasunderstood the POs then can write the COs for a course and see to what extent each of thoseCO's correlate with the POs.

TABLE: Process for mapping the values for CO-PO Matrix

<table>
<tr><th>Type</th><th>POs</th><th>Action Verb(s) in POs</th><th>Bloom's level(s) for POs</th><th>Bloom's level(s) for COs</th></tr>
<tr><td rowspan="14">Professional</td><td>PO 1</td><td>Apply</td><td>L3</td><td rowspan="14">• Bloom's L1 to L4 for Theory Courses.
• Bloom's L1 to L5 for Laboratory Courses.
• Bloom's L1 to L6 for Mini Project and Main Project.</td></tr>
<tr><td rowspan="3">PO 2</td><td>Identify</td><td>L2</td></tr>
<tr><td>Formulate</td><td>L6</td></tr>
<tr><td>Review</td><td>L2</td></tr>
<tr><td rowspan="2">PO 3</td><td>Design</td><td>L6</td></tr>
<tr><td>Develop</td><td>L3, L6</td></tr>
<tr><td rowspan="3">PO 4</td><td>Analyze</td><td>L4</td></tr>
<tr><td>Interpret</td><td>L2, L3</td></tr>
<tr><td>Design</td><td>L6</td></tr>
<tr><td rowspan="3">PO 5</td><td>Create</td><td>L6</td></tr>
<tr><td>Select</td><td>L1, L2, L6</td></tr>
<tr><td>Apply</td><td>L3</td></tr>
<tr><td rowspan="2">PO 6</td><td>Interpret</td><td>L2, L3</td></tr>
<tr><td>Select</td><td>L1, L2, L6</td></tr>
<tr><td>PO 7</td><td>Create</td><td>L6</td></tr>
<tr><td>Non-Professional</td><td>PO 8</td><td colspan="3">THUMB RULE
• If Bloom's L1 Action Verbs of a CO: Correlates with any of PO8, then assign1.
• If Bloom's L2 to L3ActionVerbs of a CO: Correlates with any of PO8, then assign 2.
• If Bloom's L4 to L6 Action Verbs of a CO: Correlates with any of PO8, then assign3.</td></tr>
</table>

At the end, the POs can be calculated using various descriptors that you may define. The mappingof CO towards a PO is evaluated using descriptors such as High, Medium, Low etc. . .

Observations:

1. The PO1, PO2 and PO5 are purely of knowledge based aspects required for effective managerial decisions.
2. The PO3 and PO4 are about the behavioral aspects for sustainable management implications.

3. PO6 and PO7 are relates to the explorative actions for the knowledge gained through the program.
4. The PO8 is about the skills to develop and succeed in the competitive world.
5. The core subjects while writing the Course Outcomes (CO) the Blooms Level 1 to Level4 is suggestible, where as if it is the professional elective, seminar or the laboratory the Blooms Level1 to Level 5 is most preferable.
6. In the case of Project work almost all six levels of Blooms can appropriate based on the need and importance of the work.
7. For a given course, the course in-charge has to involve all the other course coordinators who taught that course and ask for suggestions in the CO-PO mapping. The course in-charge has to take the average value of all of these CO-PO mappings and finalize the values or the course in-charge can go with what the majority of the faculty members prefer for.
8. While mapping the CO with respective PO, the action verbs used in the CO has to correlate with intention of PO based on the thumb rule given in the table and map the values along with justification. (Applies only for mapping COs to non-technical POs).

6.7 Tips for Assigning the values while mapping COs to POs.

1. Select action verbs for a CO from different Bloom's levels based on the importance of theparticular CO for the given course.
2. Stick on to single action verbs while composing COs but you may go for multiple action verbs if the need arises.
3. You need to justify for marking of the values in CO-PO articulation matrix. Use a combination of words found in the COs, POs and your course syllabus for writing the justification.Restrict yourself to one or two lines.
4. Values to CO-PO (technical POs in particular) matrix can be assigned by
   (a) Judging the importance of the particular CO in relation to the POs. If the CO matches strongly with a particular PO criterion then assign 3, if it matches moderately then assign 2 or if the match is low then assign 1 else mark with " - " symbol.
   (b) If an action verb used in a CO is repeated at multiple Bloom's levels, then you need tojudge which Bloom's level is the best fit for that action verb.

6.8 Method for Articulation

1. Identify the key competencies of POs to each CO and make a corresponding mappingtable with assigning ✓ mark at the corresponding cell. One observation to be noted is that the first five POs are purely of professional in nature, while the other POs are nonprofessional.
2. Justify each CO - PO mapping with a justification statement and recognize the numberof vital features mentioned in the justification statement that are matching with the given Key Attributes for Assessing Program Outcomes. Use a combination of words found in theCOs, POs and your course syllabus for writing

the justification.

3. Make a table with number of key competencies for CO – PO mapping with reference to the maximum given Key Attributes for Assessing Program Outcomes.
4. Make a table with percentage of key competencies for CO – PO mapping with reference to the maximum given Key Attributes for Assessing Program Outcomes.
5. Finally, Course Articulation Matrix (CO - PO Mapping) is prepared with COs and POs on the scale of 0 to 3, 0 being no correlation (marked with " -"), 1 being the low/slight correlation, 2 being medium/moderate correlation and 3 being substantial/high correlation based on the following strategy

$0 - 0 \leqq C \leqq 5\%$ - No correlation.

$1 - 5 < C \leqq 40\%$ - Low / Slight.

$2 - 40\% < C < 60\%$ - Moderate

$3 - 60\% \leqq C < 100\%$ - Substantial / High

7 Key Competencies for Assessing Program Outcomes:

PO	NBA statement / Vital features	No. of vital features
PO1	Managerial Skills: Apply knowledge of management theories and practices to solve business problems Knowledge, understanding and application of 1. Managerial theories which may be used to achieve managerial objectives within that context 2. Management practices and techniques used to solve the business problems	**2**
PO2	Decision making Skills: Foster Analytical and critical thinking abilities for data-based decision making 1. Strategies and tools used to solve the identified problem 2. Analytical Solutions that are applied or implemented 3. Design processes and Approaches for the complex problems decision making	**3**
PO3	Ethics: Ability to develop value based Leadership ability 1. Comprises four components: ability to make informed ethical choices, knowledge of professional codes of ethics, evaluates the ethical dimensions of professional practice, and demonstrates ethical behavior. 2. Stood up for what they believed in identifying the ethical dilemmas 3. High degree of trust and integrity to solve ethical problems in management work and to make decisions	**3**
PO4	Communication Skills: Ability to understand, analyze and communicate global, economic, legal and ethical aspects of business "Students should demonstrate the ability to communicate effectively in writing / Orally." 1. Communication using in the Organization & Structure (Oral/Writing) 2. Communication in content delivery, written communication& Speaking Skills 3. Communication through personal appearance & rapport with audience	**3**

PO5	Leadership Skills: Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment 1. Take Responsibility and Independence in the activities 2. Contribution to Team Effort , Work and Maturity – requiring only the achievement of goals to drive their performance 3. Respect, Civility, Communication and self-direction 4. Ability to work with all levels of people in an organization 5. Demonstrated ability to work well with a team	**5**
PO6	Entrepreneurial Skills: Ability to demonstrate the skills and evaluate issues related to entrepreneurship and to develop as entrepreneurs 1. Knowledge of Job Market 2. Planning Budget, Insurance, & Investment 3. Ability to Engage in Conversation about Political, Economic, National, Regional, and international events	**3**
PO7	Strategic Analysis: Ability to conduct strategic analysis using theoretical and practical applications 1. Understanding of Impact of management Solutions in Global and Societal Context 2. Familiarity with Applications of management Tools, Methods & Techniques in Global and Societal Context 3. Breadth and Depth of the Impact of Management Solutions in Global and Societal Context 4. Understanding of management principles and the ability to apply them to analyze key professional processes	**4**
PO8	Technology Skills: Inculcate and develop technical skills to face the competitive world successfully 1. Adoption and usage level of technology in classroom 2. Technology scope and sequence in place to fulfill Educational Technology Standards	**2**

8 Program Outcomes Attained throughcourse modules:

Courses offered in Master of Business Administration Curriculum (IARE-R18) and POs attained through course modules for I, II, III, and IV semesters.

Course Code	Course Name	Program Outcome(s)
I Semester		
CMBC01	Management and Organizational Behaviour	PO 1, PO 3, PO 5, PO 6, PO 7
CMBC02	Accounting for Management	PO 1, PO 2, PO 3, PO 4, PO 7
CMBC03	Managerial Economics	PO 1, PO 2, PO 3, PO 4, PO 5
CMBC04	Business Law	PO 2, PO 3, PO 4, PO 8
CMBC05	Statistics for Management	PO 1, PO 2, PO 4, PO 6
CMBC06	Business Environment	PO 1, PO 2, PO 4, PO7
CMBC07	Intellectual Property Rights	PO 1, PO 4, PO 7, PO 8
CMBC13	Technical Skills for Business Management Laboratory	PO4,PO5, PO8
CMBC14	Business Communication and Soft Skills Seminar	PO4

II Semester		
CMBC15	Human Resource Management	PO1, PO2, PO3, PO4, PO5, PO7
CMBC16	Financial Management	PO1, PO2, PO4, PO6, PO7
CMBC17	Marketing Management	PO2, PO3, PO5, PO6, PO7
CMBC18	Entrepreneurship Development	PO1, PO2, PO4, PO5, PO6, PO7
CMBC19	Management Information Systems	PO1, PO2, PO5, PO8
CMBC20	Quantitative Analysis for Business Decisions	PO1, PO2, PO6, PO7
CMBC24	Disaster Management	PO1, PO2, PO3, PO5, PO7
CMBC27	Industry Analysis and Report Presentation - Seminar	PO1, PO2, PO4, PO6, PO7, PO8
CMBC28	Personal Effectiveness - Seminar	PO1, PO2, PO4, PO5
III Semester		
CMBC29	Business Research Methods	PO1, PO2, PO3, PO4, PO7, PO8
CMBC30	Production and Operation Management	PO1, PO2, PO4, PO6, PO7
CMBC31	Business Analytics	PO1, PO2, PO4, PO7, PO8
CMBC35	Security Analysis and Portfolio Management	PO1, PO2, PO6, PO 7
CMBC36	Strategic Management Accounting	PO1, PO2, PO4, PO7
CMBC37	Financial Institutions, Markets and Services	PO1, PO2, PO4, PO7
CMBC38	Training and Development	PO1, PO2, PO4, PO5, PO7, PO8
CMBC39	HR Metrics and Analysis	PO1, PO2, PO4, PO6, PO7
CMBC40	Strategic Human Resource Management	PO1, PO2, PO5, PO7
CMBC41	Business Intelligence	PO1, PO2, PO5, PO7, PO8
CMBC42	Database Management Systems	PO1, PO2, PO5, PO7, PO8
CMBC43	Cloud Computing	PO1, PO2, PO5, PO7, PO8
CMBC47	Summer Internship (Field Work)	PO1, PO2, PO4, PO5, PO6, PO7, PO8
IV Semester		
CMBC48	Strategic Management	PO1, PO2, PO3, PO4, PO5, PO6, PO7
CMBC52	Financial Derivatives	PO1, PO2, PO4, PO6,
CMBC53	Banking, Insurance and Risk Management	PO1, PO4, PO7, PO8
CMBC54	International Financial Management	PO1, PO2, PO7, PO8
CMBC55	Compensation and Reward Management	PO1, PO2, PO4, PO7, PO8
CMBC56	Management of Industrial Relations	PO1, PO2, PO4, PO5
CMBC57	International Human Resource Management	PO1, PO2, PO5, PO7
CMBC58	Cyber Security	PO1, PO2, PO3, PO7, PO8
CMBC59	Data Mining, Warehousing and Visualization	PO1, PO2, PO3, PO7, PO8
CMBC60	Machine Learning and Artificial Intelligence	PO2, PO3, PO7, PO8
CMBC64	Project Work and Viva Voce	PO1,PO2,PO3,PO4,PO5,PO6,PO7, PO8

9 Methods for measuring Learning Outcomes and Value Addition:

There are many different ways to assess student learning. In this section, we present the different types of assessment approaches available and the different frame works to interpret the results.

i) Continuous Internal Examination (CIE)
ii) Alternate Assessment Tools (AAT)
iii) Semester end examination (SEE)
iv) Laboratory and project work
v) Course exit survey
vi) Program exit survey
vii) Alumni survey
viii) Employer survey
ix) Course expert committee
x) Program Assessment and Quality Improvement Committee (PAQIC)
xi) Department Advisory Board (DAB)
xii) Faculty meetings
xiii) Professional societies

The above assessment indicators are detailed below.

9.1 Continuous Internal Assessment (CIA)

Two CIE exams shall be conducted at the end of the 8th and 16th week of the semester respectively for 10 marks each of 2 hours duration consisting of five descriptive type questions out of which four questions have to be answered. The valuation and verification of answer scripts of CIE exams shall be completed within a week after the conduct of the Examination.

9.2 Assignment and Alternate Assessment Tools (AAT)

Assignment:

To improve the writing skills in the course an assignment will be evaluated for 05 marks. One assignment has to submit at the end of the CIE 1 or CIE2 for the for the case study questions provided by each course coordinator in that semester. Assignments to be handed in as loose paper collection stapled together at the top left corner. The assignment should be presented as a professional report. It must consist of a cover sheet, content page, and should have an introduction, a body, a conclusion or recommendation, and a reference page.

Management Talk:

To inculcate the presentation skills in the course a concept-based power point presentation will be evaluated for 05 marks as Management Talk. One presentation has to present at the end of the CIE1 or CIE2 to each course teacher in that semester.

Alternative Assessment Tool (AAT) / Quiz:

In order to encourage innovative methods while delivering a course, the faculty members are encouraged to use the Alternative Assessment Tool (AAT). This AAT enables faculty to design own assessment patterns during the CIA. The AAT enhances the autonomy (freedom and flexibility) of individual faculty and enables them to create innovative pedagogical practices. If properly applied, the AAT converts the classroom into an effective learning center. **The AAT may include, Course related term paper, Poster presentation, Paper presentations conducted by reputed organizations relevant to the course, Survey, Field Study, Group discussion, Role Play on a topic in the concerned subject etc.**

Definitions and Terminology / Quiz:
The definitions and terminology / Quiz paper is set with module wise definitions, multiple choice questions, fill-in the blanks etc. type of questions for a total of 05 marks each.
However, it is mandatory for a faculty to obtain prior permission from the concerned HOD and spell out the teaching/assessment pattern of the AAT prior to commencement of the classes.
First mid-term examination shall be conducted on 50% of the syllabus, and the second mid-term examination shall be conducted on the remaining 50% of the syllabus.
Note: The choice of selection of AAT is based on course handling faculty.
The semester end examinations (SEE), for theory subjects, will be conducted for 60 marks consisting of five questions (numbered from 1 to 5) carrying 12 marks each. Each of these questions is from each unit and may contain sub-questions, for each question there will be an "either" "or" choice, which means that there will be two questions from each unit and the student should answer either of the two questions. **The duration of Semester End Examination is 3 hours.**

9.3 Semester End Examination (SEE)

The semester end examination assessment is conducted for all the courses in the department. Before the Semester end examinations course reviews are conducted, feedback taken from students and remedial measures will be taken up such that the student gets benefited before going for end exams.The positive and negative comments made by the students about the course are recorded and submitted to the departmental academic board (DAB) and to the principal for taking necessary actions to better the course for subsequent semesters.

9.4 Laboratory, seminars and Project Works

Laboratory Course: For practical subjects there shall be a Continuous Internal Assessment (CIA) during the semester for 40 marks and 60 marks for semester end examination. Out of the 40 marks for internal evaluation:

1. A write-up on day-to-day experiment in the laboratory (in terms of Preparation / Performance in the laboratory / Calculations / Results and error analysis / Viva-voce) which shall be evaluated for **10 marks.**
2. **10 marks** for viva-voce (or) tutorial (or) case study (or) application (or) poster presentation of the course concerned.
3. Internal practical examination conducted by the laboratory teacher concerned shall be evaluated for **10 marks.**
4. The remaining **10 marks** are for Laboratory Project, which consists of the Project design / Program execution / field study submission which shall be evaluated after completion of laboratory course and before semester end practical examination.

   The Semester End Examination shall be conducted with an external examiner and the laboratory handling faculty. The external examiner shall be appointed from the other colleges which will be decided by the head of the institute.
   Semester End Examination held for 3 hours and total 60 marks are divided and allocated as shown below:

   1. 10 marks for write-up
   2. 15 for experiment/program
   3. 15 for evaluation of results
   4. 10 marks for presentation on another experiment/program in the same laboratory course
   5. 10 marks for viva-voce on concerned laboratory course

Seminar

There shall be separate seminar presentations on Business Communications, Summer Internship, Pre-submission of project viva-voce as per the course catalogue. The seminars shall be only internally evaluated for a total of 100 marks consisting of 40 marks for internal assessment and 60 marks for semester end examination each. A candidate has to secure a minimum of 50% of total marks. If s/he fails to fulfill minimum marks, he has to reappear during the supplementary examination.

The assessment will be made by a Board consisting of Head of the Department and two senior faculty members of the department.

There shall be a summer internship during the summer vacation of II semester and the evaluation is done in III semester. In the III semester students has to presents the work carried out in that period. The internal evaluation has done for 40 marks and external evaluation for remaining 60 marks based on report submitted to the department after approved by the concerned supervisor / mentor and the Head of the department. Summer internship Report is evaluated for 100 marks. A candidate has to secure a minimum of 50% of marks. If s/he fails to obtain the minimum marks, has to reappear for the same during the supplementary examinations as and when conducted.

Pre Submission of the Project Seminar

The student can initiate the Project work after obtaining the approval of the PRC. The Supervisor and PRC will examine the progress of the Project Work during pre-submission project seminar. For the course 'pre-submission project seminar', there will be only internal evaluation for 100 marks. Evaluation shall be done by the PRC for 60 marks and the Supervisor shall evaluate the work for another 40 marks. A candidate has to secure a minimum of 50% of marks to be declared successful. If s/he fails to obtain the minimum marks, he has to reappear for the same during the supplementary examination as and when notification is issued,

Project Work and Viva Voce

- The Project Work and Viva Voce should be carried out in the premises of Institute. However, it can also be carried out in any of the recognized Educational Institutions, Audit Firms, Industrial / Research Organizations, Service Organizations or Government Organizations with the prior permission from the guide and Head of the Department concerned.

A student shall submit the outcome of the project work in the form of a dissertation.

- A candidate shall be allowed to submit the project report only after fulfilling the attendance requirements of all the semesters.

Every candidate shall work on projects approved by the PRC of the institute.

- The student shall submit the project work in the form of dissertation at least four weeks prior to the completion of the program. Head of the Department shall constitute an Internal Evaluation Committee (IEC) comprising of the Chairman BOS (PG), HOD and Guide and convenes its meeting for open pre-submission seminar evaluation of the student.
- The Project thesis shall be adjudicated by one external examiner appointed by the Principal. The external examiner will be appointed by the Principal from the panel of experts recommended by Chairman, BOS.
- If the report of the examiner is favorable, viva-voce examination shall be conducted by a Board consisting of the Head of the Department, supervisor and the external examiner who adjudicated the thesis.

- If the report of the examiner is **Unsatisfactory**, the candidate shall revise and resubmit the dissertation, in the time frame as prescribed by PAC. If the report of the examiner is unsatisfactory again, the thesis shall be summarily rejected. The candidates can re- register only once for conduct of project and evaluation of thesis, and will go through the entire process as mentioned above.
- The external evaluation is for 70 marks and the same is evaluated by the External Examiner. The internal evaluation should be conducted by PRC for 30 marks. The candidate has to secure minimum of 50% marks in Project Evaluation (internal and external evaluation put together) for successful completion.
- If s/he fails to fulfill, s/he will reappear for the Viva Voice examination only after three months. In the reappeared examination also, fails to fulfill, s/he will not be eligible for the award of the degree.
- The student will be allowed to appear for an open seminar followed by final viva voce examination at the end of last semester only, if s/he has submitted the project work in the form of paper for presentation/ publication in a conference/journal and produce the proof of acceptance of the paper from the organizers/publishers.

Project reports of MBA students who have not completed their course work successfully will be evaluated in that semester itself and the result sent confidentially to the Controller of Examinations. The result of the project work evaluation will be declared by the Controller of Examinations only after the successful completion of the courses by those students.

9.5 Course Exit Surveys

Students are encouraged to fill-out a brief survey on the fulfillment of course objectives. The data is reviewed by the concerned course faculty and the results are kept open for the entire faculty. Based on this, alterations or changes to the course objectives are undertaken by thorough discussions infaculty and DAB meetings.

9.6 Programme Exit Survey

The programme exist questionnaire form is to be filled by all the students leaving the institution. The questionnaire is designed in such a way to gather information from the students regarding the program educational objectives, solicit about program experiences, carrier choices, as well as any suggestions and comments for the improvement of the program. The opinions expressed in exit interview forms are reviewed by the DAB for implementation purposes.

9.7 Alumni Survey

The survey asks former students of the department about the status of their employment and further education, perceptions of institutional emphasis, estimated gains in knowledge and skills, involvement a sunder graduate student, and continuing involvement with Institute of Aeronautical Engineering. This survey is administered every three years. The data obtained will be analyzed and used in continuous improvement.

9.8 Employer Survey

The main purpose of this employer questionnaire is to know employer's views about the skills they require of employees compared to the skills actually possessed by them. The purpose e is also to identify gaps in technical and vocational skills, need for required training practices to fill these gaps and criteria for hiring new employees. These employer surveys are reviewed by the College Academic Council (CAC) to affect the present curriculum to suit the requirement so the employer.

9.9 Course Expert Committee

The course expert team is responsible in exercising the central domain of expertise in developing and renewing the curriculum and assessing its quality and effectiveness to the highest of professional standards. Inform the Academic Committee the 'day-to-day' matters as are relevant to the offered courses. This committee will consider the student and staff feedback on the efficient and effective development of the relevant courses. The committee also review the course full stack content developed by the respective course coordinator.

9.10 Programme Assessment Committee (PAC)

PAC Monitors the achievements of Program Outcomes (POs) and Program Educational Objectives (PEOs). It will evaluate the program effectiveness and proposes the necessary changes. It also prepares the periodic reports on program activities, progress, status or other special reports for management. It also motives the faculty and students towards attending workshops, developing projects, working models, paper publications and engaging in research activities.

9.11 Department Advisory Board (DAB)

Departmental Advisory Board plays an important role in the development of the department. Department level Advisory Board will be established for providing guidance and direction for qualitative growth of the department. The Board interacts and maintains liaison with key stakeholders. DAB will Monitor the progress of the program and develop or recommend the new or revised goals and objectives for the program. Also, the DAB will review and analyze the gaps between curriculum and Industry requirement and gives necessary feedback or advices to be taken to improve thecurriculum.

9.12 Faculty Meetings

The DAB meets bi-annually for every academic year to review the strategic planning and modification of PEOs. Faculty meetings are conducted at least once in fortnight for ensuring the implementation of DAB's suggestions and guidelines. All these proceedings are recorded and kept forthe availability of all faculties.

9.13 Professional Societies

The importance of professional societies like HMA,ISTD,IMA etc., are explained to the students and they are encouraged to become members of the above to carry out their continuous search for knowledge. Student and faculty chapters of the above societies are constituted for a better technical and entrepreneurial environment. These professional societies promote excellence in instruction, research, public service and practice.

10 CO - Assessment processes and tools:

Course outcomes are evaluated based on two approaches namely direct and indirect assessment methods. The direct assessment methods are based on the Continuous Internal Assessment (CIA) and Semester End Examination (SEE) whereas the indirect assessment methods are based on the course end survey and program exit survey provided by the students, Alumni and Employer. The weightage in CO attainment of Direct and Indirect assessments are illustrated in Table.

Assessment Method	Assessment Tool	Weightage in CO attainment
Direct Assessment	Continuous Internal Assessment (CIE & AAT)	80%
	Semester End Examination	
Indirect Assessment	Course End Survey	20%

10.1 Direct Assessment:

Direct assessment methods are based on the student's knowledge and performance in the variousassessments and examinations. These assessment methods provide evidence that a student has command over a specific course, content, or skill, or that the students work demonstrates a specific quality such as creativity, analysis, or synthesis.

The various direct assessment tools used to assess the impact of delivery of course content is listedin Table.

- Continuous internal examination, semester end examinations, AAT (includes assignment, 5 minutes videos, seminars etc.) are used for CO calculation.
- The attainment values are calculated for individual courses and are formulated and summedfor assessing the POs.
- Performance in AAT is indicative of the student's communication skills.

S No	Courses	Components	Frequency	Max. Marks	Evidence
1	Core / Elective	Continuous Internal Examination	Twice in a semester	10+10	Answer script
		Alternative Assessment Tools (AAT)	Once in a semester	5	Video / Quiz / assignment
		Assignment	Twice in a semester	5	Work sheets
		Semester End Examination	Once in a semester	70	Answer script
2	Laboratory/Seminar	Conduction of activity	Once in a week	4	Work sheets
		Observation	Once in a week	4	Work sheets
		Record	Once in a week	4	Work sheets
		Viva	Once in a week	4	Work sheets
		Internal laboratory assessment	Once in a semester	10	Answer script
		Semester End Examination	Once in a semester	70	Answer script
3	Project Work	Presentation	Twice in a semester	30	Presentation
		Semester End Examination	Once in a semester	70	Thesis report
4	Comprehensive Examination	Written examination (objective type)	Once in a semester	100	Online assessment

10.2 Indirect Assessment:

Course End Survey - In this survey, questionnaires are prepared based on the level of understanding of the course and the questions are mapped to Course Outcomes. The tools and processes used inindirect assessment are shown in Table.

TABLE: Tools used in Indirect assessment

Tools	Process	Frequency
Course end survey	• Taken for every course at the end of the semester • Gives an overall view that helps to assess the extent of coverage/ compliance of COs • Helps the faculty to improve upon the various teaching methodologies	Once in a semester

Direct Tools: (Measurable in terms of marks and w.r.t. CO) Assessment done by faculty at department level

Indirect Tools: (Non measurable (surveys) in terms of marks and w.r.t. CO) Assessment done atinstitute level.

11 PO - Assessment tools and Processes

The institute has the following methods for assessing attainment of POs.

1. Direct method
2. Indirect method

The attainment levels of course outcomes help in computing the PO based upon the mappingdone.

TABLE 16: Attainment of PO

	Assessment	Tools	Weight
POs Attainment	Direct Assessment	CO attainment of courses	80%
	Indirect Assessment	Student exit survey	20%
		Alumni survey	
		Employer survey	

The CO values of both theory and laboratory courses with appropriate weightage as per CO-PO mapping, as per Program Articulation Matrix are considered for calculation of direct attainment of PO.

11.1 PO Direct Attainment is calculated using the following rubric:

PO Direct Attainment = (Strength of CO-PO)*CO attainment / Sum of CO-PO strength.

The below figure represents the evaluation process of POs attainment through course outcomes attainment

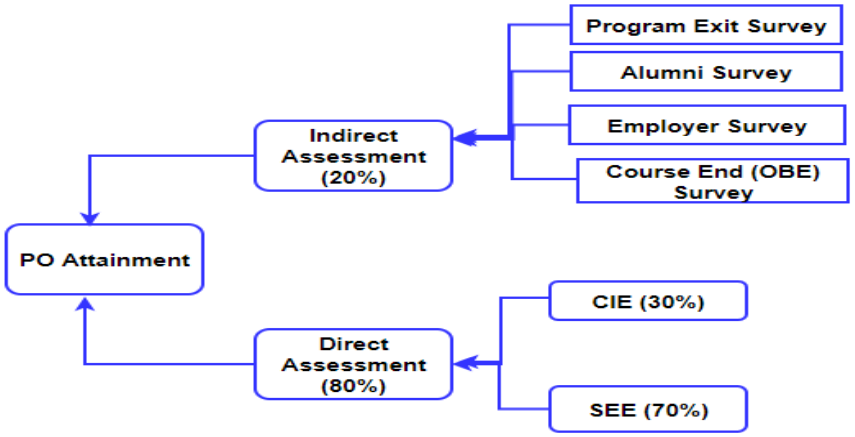

FIGURE 3: Evaluation process of POs attainment

12 Course Description:

The “Course Description” provides general information regarding the topics and content addressedin the course. A sample course description is given in Annexure – A for the reference.

The “Course Description” contains the following contents:

- Course Overview
- Prerequisite(s)
- Marks Distribution
- Content delivery / Instructional methodologies
- Evaluation Methodology
- Course Objectives
- Course Outcomes
- Program Outcomes
- How Program Outcomes are assessed
- Mapping of each CO with PO(s)
- Justification for CO – PO mapping- direct
- Total count of key competencies for CO – PO mapping
- Percentage of key competencies for CO – PO
- Course articulation matrix (PO mapping)
- Assessment methodology-direct
- Assessment methodology-indirect
- Syllabus
- List of Text Books / References / Websites
- Course Plan

MASTER OF BUSINESS ADMINISTRATION

COURSE DESCRIPTOR

Course Title	**FINANCIAL MANAGEMENT**				
Course Code	**CMBD15**				
Program	MBA				
Semester	SECOND				
Course Type	**CORE**				
Regulation	**IARE – MB23**				
Course Structure	**Theory**			**Practical**	
	Lectures	**Tutorials**	**Credits**	**Laboratory**	**Credits**
	4	-	4	-	-
Course Coordinator	Dr. T Vara Lakshmi, Professor				

I. COURSE OVERVIEW:

The course focuses on the nature, scope, evolution of finance function; goals of finance function enable students to understand maximizing profit, wealth, welfare and earnings per share of business concern. Financial management is also very useful to the business concerns to take investment decisions, capital structure decisions and dividend decisions from time to time for the growth and development of business. This course includes management of cash, receivables, inventory and current assets in working capital planning. This course uses the analytical techniques and arriving at conclusions from financial information for the purpose of decision making.

II. COURSE PRE-REQUISITES:

Level	Course Code	Semester	Prerequisites
PG	CMBD02	I	Accounting for management

III. MARKSDISTRIBUTION:

Subject	SEE Examination	CIA Examination	Total Marks
Financial Management	60 Marks	40 Marks	100

IV. DELIVERY / INSTRUCTIONAL METHODOLOGIES:

✔	*Chalk & Talk*	✘	Quiz	✔	*Assignments*	✘	MOOCs

✔	*LCD / PPT*	✔	Seminars	✘	*Mini Project*	✔	Videos
✘	Open Ended Experiments						

V. EVALUATION METHODOLOGY:

The course will be evaluated for a total of 100 marks, with 40 marks for Continuous Internal Assessment (CIA) and 60 marks for Semester End Examination (SEE). Out of 40 marks allotted for CIA during the semester, marks are awarded by taking all the CIA examinations.

Semester End Examination (SEE):

The SEE is conducted for 60 marks of 3 hours' duration. The syllabus for the theory courses is divided into FIVE modules and each modules carries equal weightage in terms of marks distribution. The question paper pattern is as follows:

Two full questions with either '_or 'choice will be drawn from each module. Each question carries 12 marks.

The emphasis on the questions is broadly based on the following criteria:

50 %	To test the objectiveness of the concept
30 %	To test the analytical skill of the concept
20 %	To test the application skill of the concept

Continuous Internal Assessment (CIA):

CIA is conducted for a total of 30 marks (Table 2), with 25 marks for Continuous Internal Examination (CIE), 05 marks for Alternative Assessment Tool (AAT).

Table 2: Assessment pattern for CIA

Activities	CIA-1	CIA-2	SEE	Total Marks
Continuous Internal Examination (CIE)	10 marks	10 marks	--	20 marks
Mngt Talk / Assignment	05 marks	05 marks		10 marks
DQT / AAT	05 marks	05 marks	--	10 marks
Semester End Examination (SEE)			60 marks	60 marks
Total	--	--	100 Marks	

Continuous Internal Examination (CIE):

Two CIE exams shall be conducted at the end of the 8th and 16th week of the semester respectively for 10 marks each of 2 hours duration consisting of five descriptive type questions out of which four questions have to be answered. The valuation and verification of answer scripts of CIE exams shall be completed within a week after the conduct of the Examination.

Assignment:

To improve the writing skills in the course an assignment will be evaluated for 05 marks. One assignment has to submit at the end of the CIE 1 or CIE2 for the for the case study questions provided by each course coordinator in that semester. Assignments to be handed in as loose paper

collection stapled together at the top left corner. The assignment should be presented as a professional report. It must consist of a cover sheet, content page, and should have an introduction, a body, a conclusion or recommendation, and a reference page.

Management Talk:

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Alternative Assessment Tool (AAT) / Quiz:

In order to encourage innovative methods while delivering a course, the faculty members are encouraged to use the Alternative Assessment Tool (AAT). This AAT enables faculty to design own assessment patterns during the CIA. The AAT enhances the autonomy (freedom and flexibility) of individual faculty and enables them to create innovative pedagogical practices. If properly applied, the AAT converts the classroom into an effective learning center. **The AAT may include, Course related term paper, Poster presentation, Paper presentations conducted by reputed organizations relevant to the course, Survey, Field Study, Group discussion, Role Play on a topic in the concerned subject etc.**

Definitions and Terminology / Quiz:

The definitions and terminology / Quiz paper is set with module wise definitions, multiple choice questions, fill-in the blanks etc. type of questions for a total of 05 marks each.

However, it is mandatory for a faculty to obtain prior permission from the concerned HOD and spell out the teaching/assessment pattern of the AAT prior to commencement of the classes.

First mid-term examination shall be conducted on 50% of the syllabus, and the second mid-term examination shall be conducted on the remaining 50% of the syllabus.

VI. COURSE OBJECTIVES:

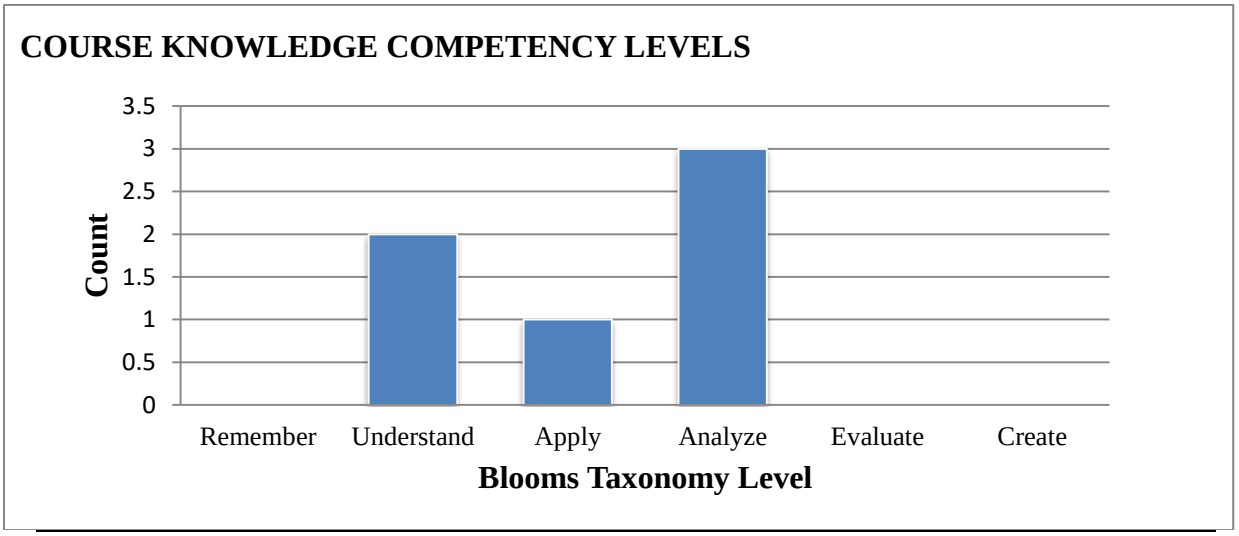
The students will try to learn:	
I	The basic functions and goals of financial management for better utilization of funds.
II	Investment strategies for effective utilization of financial resources.
III	Capital structure decisions for proper utilization of funds.
IV	Dividend decisions and related theories to help investors earn a high return on their investment.
V	Strategies and techniques of current asset management to fund day-to-day business operations.

VII. COURSE OUTCOMES:

After successful completion of the course, students will be able to:		
N **Course Outcomes**		**Knowledge Level (Bloom's Taxonomy)**
CO 1	Describe the basic functions and goals of financial management to know the importance of finance function in the contemporary scenario.	Understand
CO 2	Discuss the characteristics and importance of investment decisions and capital budgeting principles to evaluate the cash flows	Analyze

CO 3	Demonstrate the importance of financial structure and leverages decisions to analyze the capital structure.	Analyze
CO 4	Explain the measurement of cost of capital to help the business organizations in expanding the operations.	Analyze
CO 5	Enumerate the dividend decisions, value of the firm and relevance for dividends declaration and payments.	Apply
CO 6	Examine the concept of working capital and committees recommendations on this concept to identify the fund requirement for day to day operations.	Understand

COURSE KNOWLEDGE COMPETENCY LEVELS



VIII. HOW PROGRAM OUTCOMES ARE ASSESSED:

Program Outcomes		Strength	Proficiency Assessed by
PO1	**Managerial Skills**: Apply knowledge of management theories and practices to solve business problems.	3	Assignments
PO2	**Decision making Skills**: Foster analytical and critical thinking abilities for data-based decision making.	3	Seminars
PO4	**Ethics**: An ability to understand professional and ethical responsibility**.**	3	Assignments
PO6	**Entrepreneurial Skills:** Ability to demonstrate the skills and evaluate issues related to entrepreneurship and to develop as entrepreneurs.	3	Seminars
PO7	**Strategic analysis**: Ability to conduct strategic analysis using theoretical and practical applications.	2.75	Seminars

3 = High; 2 = Medium; 1 = Low

IX. MAPPING OF EACH CO WITH PO(s):

Course Outcomes	Program Outcomes							
	1	2	3	4	5	6	7	8
CO 1	√	√	-	√	-	-	-	-
CO 2	-	√	-	-	-	-	√	-

CO 3	√	√	-	-	-	-	-	-
CO 4	√	-	-	√	-	-	-	-
CO 5	√	-	-	-	-	√	√	-
CO 6	-	-	-	-	-	√	√	-

X. JUSTIFICATIONS FOR CO – (PO) MAPPING –DIRECT

Course Outcomes	POs / PSOs	Justification for mapping (Students will be able to)	No. of key competencies
CO 1	**PO 1**	**Recollect (knowledge)** the basic concept of financial management concepts and to an extent appreciate (understand) the importance of **finance management system to promote the organized economy system and solve the business problems.**	2
	PO 2	**Describe (knowledge)** the importance of time value of money in the investments for **business developments in the context of risk return decisions.**	3
	PO 4	**Interpret (knowledge)** about the risk return tradeoff to **communicate effectively with the users to contribute to the development of the company.**	3
CO 2	**PO 2**	**Comprehend** and write effective reports on the capital budgeting techniques by developing good **communicational aspects with investors.**	3
	PO 7	**Recognizing (knowledge)** the contribution of capital budgeting (application) by its functional **strategic principles and methodology**	3
CO 3	**PO 1**	**Apply (knowledge)** the leverages and its importance of **managing the statistical analysis of the financing.**	2
	PO 2	**Recognize** the importance of financial structure in implementing **strategies of the funds maintenance**.	3
CO 4	**PO 1**	**Construct** the managerial models in the capital structure activities to **communicate with the investors.**	2
	PO 4	**Examine** the significance of breakeven analysis of financial leverage to **formulate profitable strategies in quantitative restrictions.**	2
CO 5	**PO 1**	**Derive** the existence possibility of dividend decisions in **meeting the practical solutions of the organization.**	2
	PO 6	**Differentiate** the value of the firm and relevance for dividends declaration to analyze the **managerial strategies in the funding business environment**.	2
	PO 7	**Outline** the contribution of dividend to meet the **funding activities of the investments**.	3
CO 6	**PO 6**	**Explain** the working capital techniques with **appropriate implementable strategies.**	2
	PO 7	**Examine** the strategies in cash, receivables and inventory management while implementing the managerial decisions of businesses**.**	3

XI. TOTAL COUNT OF KEY COMPETENCIES FOR CO – (PO) MAPPING

Course Outcomes	Program Outcomes / No. of Key Competencies Matched							
	1	2	3	4	5	6	7	8
	2	3	3	3	5	3	4	2
CO 1	2	3	-	3	-	-	-	-
CO 2	-	3	-	-	-	-	3	-
CO 3	2	3	-	-	-	-	-	-
CO 4	2	-	-	3	-	-	-	-
CO 5	2	-	-	-	-	3	3	-
CO 6	-	-	-	-	-	3	2	-

XII. PERCENTAGE OF KEY COMPETENCIES FOR CO – (PO):

Course Outcomes	Program Outcomes / No. of key competencies							
	1	2	3	4	5	6	7	8
	2	3	3	3	5	3	4	2
CO 1	100.00	100.00	-	100.00	-	-	-	-
CO 2	-	100.00	-	-	-	-	75.00	-
CO 3	100.00	100.00	-	-	-	-	-	-
CO 4	100.00	-	-	100.00	-	-	-	-
CO 5	100.00	-	-	-	-	100.00	75.00	-
CO 6	-	-	-	-	-	100.00	50.00	-

XIII. COURSE ARTICULATION MATRIX (PO MAPPING)

COs and POs and COs and PSOs on the scale of 0 to 3, **0** being **no correlation**, **1** being the **low correlation**, **2** being **medium correlation** and **3** being **high correlation**.

0 – **0**≤ ***C***≤ 5% –No correlation; **2** – 40 % <***C***< 60% –Moderate.

1 – 5 <***C***≤ 40% – Low/ Slight; **3** – 60% ≤ ***C***< 100% – Substantial /High

Course Outcomes	Program Outcomes							
	2	3	3	3	5	3	4	2
CO 1	3	3	-	3	-	-	-	-
CO 2	-	3	-	-	-	-	3	-
CO 3	3	3	-	-	-	-	-	-

CO 4	3	-	-	3	-	-	-	-
CO 5	3	-	-	-	-	3	3	-
CO 6	-	-	-	-	-	3	2	-
TOTAL	12	9	-	6	-	6	8	-
AVERAGE	**3**	**3**	-	**3**	-	**3**	**2.75**	-

XIV. ASSESSMENT METHODOLOGY - DIRECT

CIE Exams	PO1, PO2, PO4, PO6, PO7	SEE Exams	PO1, PO2, PO4, PO6, PO7.	Assignments	PO1, PO4	Seminars	PO 2, PO 6, PO 7.
Laboratory Practices	-	Student Viva	-	Mini Project	-	Certification	-
Term Paper	-						

XV. ASSESSMENT METHODOLOGY - INDIRECT

✔	Early Semester Feedback	✔	End Semester OBE Feedback
✗	Assessment of Mini Projects by Experts		

XVI. SYLLABUS

UNIT-I	**THE FINANCE FUNCTION**
Nature and scope, evolution of finance function , new role in the contemporary scenario , goals of finance function, maximizing vs. satisfying, profit vs. wealth vs. welfare, the agency relationship and costs, risk-return trade off, concept of time value of money ,future value and present value.	
UNIT-II	**THE INVESTMENT DECISION**
Investmentdecisionprocess,developingcashflow,datafornewprojects,capitalbudgetingtechniques :traditional and discounted cash flow methods: payback period method, average rate of return method, net present value method, profitability index method, internal rate of return method (problems), the net present value vs. internal rate return; approaches for reconciliation, capital budgeting decision under conditions of risk and uncertainty.	
UNIT-III	**CAPITAL STRUCTURE DECISIONS**
Cost of capital: concept and measurement of cost of capital, debt vs. equity, cost of equity, preference shares, equity capital and retained earnings, weighted average cost of capital and marginal cost of capital. Importance of cost of capital in capital budgeting decisions. Capital structure vs. financial structure: capitalization, financial leverage, operating leverage and composite leverage, earnings before interest and tax, Earning Per Share Analysis (problems).	
UNIT-IV	**DIVIDEND DECISIONS**
Dividends and value of the firm ,Relevance of dividends, MM hypothesis, Factors determining dividend policy, dividends and valuation of the firm, the basic models. Declaration and payment	

of dividends, bonus shares, rights issue, share-splits, and major forms of dividends: cash and bonus shares, The theoretical backdrop: dividends and valuation, Major theories centered on the works of Gordon and Walter models (problems). A brief discussion on dividend policies of Indian companies.
UNIT-V **WORKING CAPITAL MANAGEMENT**
Components of working capital, gross vs. net working capital, determinants of working capital needs, the operating cycle approach. Management of cash, basic strategies for cash management, cash budget (problems) , cash management techniques/processes; management of receivables and management of inventory (problems), the importance of current assets management in working capital planning, planning of working capital, financing of working capital through bank finance and trade credit, recommendations of Tandon and Daheja committee on working capital, cases.
Textbooks:
1 Chandra, Prasanna, "Fundamentals of Financial Management", McGraw-Hill Education, 9th Edition, 2020. 2. Rajesh Kothari, "Financial Management a contemporary Approach", Sage publications, 1st Edition, 2017. 3. Srivastava, "Financial Management", Himalaya Publication House, Mumbai, 6th Edition, 2016. 4. Prasanna Chandra, "Financial Management Theory and Practice", McGraw Hill, New Delhi, 9th Edition, 2015. 5. I.M. Pandey, "Financial Management", Vikas Publishing House, New Delhi, 11th Edition, 2015. 6. Brigham, E. F. and Ehrhardt. M. C. "Financial Management Theory and Practice", Cengage Learning, USA, 15th Edition, 2015. 7. I.M. Pandey, "Financial Management", Vikas Publishing House Publications, 10th Edition, 2010. 8. Jonathan Berk, Peter De Marzo and Ashok Thampy, "Financial Management", Pearson Publications, 4th Edition, 2010.
Reference Books:
1. Brigham, E. F. and Ehrhardt. M. C., "Financial Management Theory and Practice", Thomson South- Western Publications, 10th Edition, 2006. 2. Vishwanath S. R., "Corporate Finance Theory and Practice", Sage Publications, 2nd Edition, 2007. 3. Prasanna Chandra, "Financial Management Theory and Practice", Tata McGraw Hill, 4. 7th Edition, 2005. 5. Sudershana Reddy, "Financial Management", HPH Publications, 6th Edition, 2010. 6. Rajiv Srivastava and Anil Misra, "Financial Management", Oxford Higher Education Publications, 4th Edition, 2009.

XVII. COURSE PLAN:

The course plan is meant as a guideline. Probably there may be changes.

Lecture No	Topics to be Covered	COs	Reference
1	Definition, nature, scope and evolution of finance function.	CO1	T-1, R-2
2	New role of finance function in the contemporary scenario.	CO1	T-2, R-2

Lecture No	Topics to be Covered	COs	Reference
3	Goals of finance function.	CO1	T-1, R-2
4	Maximizing profit Vs wealth Vs welfare maximization.	CO1	T-1, R-2
5	The agency relationship and costs	CO1	T-2, R-2
6	Basic finance function concept i.e., risk return trade-off.	CO1	T-1, R-1
7	Concept of time value of money.	CO1	T-2, R-2
8	Concept of future value and present value.	CO1	T-1, R-2
9	Investment decision process.	CO2	T-2, R-2
10	Developing cash flow, data for new projects.	CO2	T-1, R-2
11	Capital budgeting techniques- traditional and discounted cash flow methods.	CO2	T-1, R-2
12	Net present value Vs Internal rate of return debate.	CO2	T-2, R-2
13	Approaches for reconciliation.	CO2	T-1, R-2
14	Capital budgeting decision under conditions of risk and uncertainty.	CO2	T-2, R-2
15	Concept and measurement of cost of capital. Debt Vs Equity.	CO2	T-1, R-1
16	Cost of equity.	CO3	T-2, R-2
17	Cost of preference shares.	CO3	T-1, R-2
18	Cost of retained earnings.	CO3	T-2, R-2
19	Weighted average cost of capital and marginal cost of capital.	CO3	T-2, R-1
20	Importance of cost of capital in capital budgeting decisions.	CO3	T-2, R-2
21	Capital structure Vs financial structure.	CO4	T-1, R-1
22	Over and under capitalizations.	CO4	T-2, R-2
23	Financial leverage.	CO4	T-1, R-2
24	Operating leverage and composite leverage.	CO4	T-1, R-1
25	Earnings before interest and tax.	CO4	T-1, R-1
26	Earnings per share analysis	CO4	T-2, R-1
27	Break even analysis of financial leverage.	CO4	T-1, R-1
28	The Modigliani miller theory.	CO4	T-1, R-2
29	Net Income theory of Financial Management	CO4	T-1, R-1
30	Traditional theory and NOI theory		
31	Dividends and value of the firm.	CO5	T-1, R-1

Lecture No	Topics to be Covered	COs	Reference
32	Relevance of dividends, the MM hypothesis.	CO5	T-1, R-1
33	Factors determining dividend policy.	CO5	T-2, R-1
34	Dividends and valuation of the firm, the basic models.	CO5	T-1, R-1
35	Declaration and payment of dividends, bonus shares, Rights issue, share-splits.	CO5	T-1, R-1
36	Major forms of dividends: cash and bonus shares.	CO5	T-1, R-1
37	Major theories cantered on the works of GORDON, WALTER and LITNER.	CO5	T-1, R-2
38	A brief discussion on dividend policies of Indian companies.	CO5	T-1, R-1
39	Components of working capital, gross vs. net working capital.	CO6	T-1, R-1
40	Determinants of working capital needs.	CO6	T-1, R-1
41	The operating cycle approach.	CO6	T-1, R-1
42	Management of cash	CO6	T-1, R-2
43	Functions, characteristics of cash management	CO6	T-1, R-2
44	Basic strategies for cash management	CO6	T-1, R-2
45	Problems on the cash budget.	CO6	T-1, R-1
46	Problems on the cash budget	CO6	T-1, R-1
47	Problems on the cash budget	CO6	T-1, R-1
48	Management of receivables and management of inventory.	CO6	T-2, R-1
49	The importance of current assets management in working capital planning.	CO6	T-1, R-1
50	working capital planning mechanisms	CO6	T-1, R-1
51	Planning of working capital.	CO6	T-1, R-1
52	Working Capital strategies	CO6	T-1, R-1
53	Financing of working capital through bank finance	CO6	T-2, R-1
54	Financing of working capital through trade credit	CO6	T-2, R-1
55	Recommendations of Tendon committee on working capital.	CO6	T-2, R-1
56	Recommendations of other committees on working capital.	CO6	T-2, R-1
57	Discussion of Case studies on Unit 1		
58	Discussion of Case studies on Unit 2		
59	Discussion of Case studies on Unit 3		
60	Discussion of Case studies on Unit 4		
61	Discussion of Case studies on Unit 5		
62	Discussion of Question Bank Unit 1		
63	Discussion of Question Bank Unit 2		
64	Discussion of Question Bank Unit 3		
65	Discussion of Question Bank Unit 4		
66	Discussion of Question Bank Unit 5		

Prepared By:
Dr. Vara Lakshmi Thavva, Professor **HOD, MBA**