

MECHANICAL ENGINEERING



Home to the Victoria falls



Victoria Falls

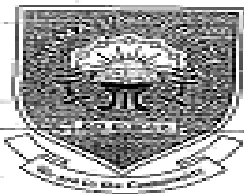


Victoria Falls bridge



VALIDATION PROCESS CHALLENGES

- ▶ Detailed process may differ from country to country
- ▶ Different stages some have just finished curriculum reform, some are just starting
- ▶ Some have already validated the meta profiles as tuning program coincided with reform process (DRC) and Ethiopia
- ▶ General acceptability of developed meta profiles?
- ▶ What to validate and motivation?

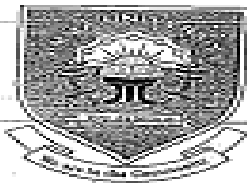


Course Category based on Knowledge and Skills to be developed

- Please check the course syllabus on the existing curriculum to categorise as knowledge and skill based course.
- Select by using "X" mark for each course listed and return by email as soon as possible(before Wednesday, Aug 8th, 2012)

S.N.	Courses Title	Knowledge based	Skill based
1.	Strength of Materials I		
2.	Strength of Materials II		
3.	Mechanical Vibration		
4.	Machine Design Project		
5.	Finite-Element Method		
6.	Product design and Development		
7.	IC Engines and Reciprocating Machines		
8.	Refrigeration and air conditioning		
9.	Thermo fluid Laboratory		
10.	IC engine and turbo machine Lab		
11.	Design of Renewable Energy Systems		
12.	Thermo-Fluid System Design		
13.	Waste Heat Recovery and Co-generation		
14.	Manufacturing Engineering I		
15.	Workshop Practice II		
16.	Entrepreneurship I		
17.	Entrepreneurship II		
18.	Plant layout and Design		
19.	Design of Manufacturing tools and Dies		
20.	Industrial Management & Engineering Economy		
21.	Manufacturing Engineering II		

Knowledge based: collection of important information to perform some function.
Skill based: observable competency or the know-how to apply practically requiring longer time to process internally.



JIMMA UNIVERSITY
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MECHANICAL ENGINEERING DEPARTMENT
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#TIC/Ref.No: ME/JIT/198/2004
 #W/ Date: 06/08/2012

To: Scientific director, JIT

Subject: Mechanical Engineering DC meeting Minutes

Agendas:

- Curriculum modularization assessment
- Distributing tasks for course syllabus preparation
- Selecting curriculum organizing coordinators
- Personal scorecard preparation reminder

Attendees:

- | | | |
|--------------------------------------------|---------------------------------------------------|------------------------------------------|
| <input type="checkbox"/> Balewgiye Amare | <input type="checkbox"/> Shewangizaw Workagegnehu | <input type="checkbox"/> Yehonisk Miskru |
| <input type="checkbox"/> Tegegnach Tesfaye | <input type="checkbox"/> Wanelmu Fanta | <input type="checkbox"/> Hormano |
| <input type="checkbox"/> Getachew Shumil | <input type="checkbox"/> Ephrem Amare | <input type="checkbox"/> Abiyou Solomon |
| <input type="checkbox"/> Desta Goytom | <input type="checkbox"/> Addisu Alemayehu | <input type="checkbox"/> Nebiyu bogale |
| <input type="checkbox"/> Mesay Alemu | <input type="checkbox"/> AKEU Tariku | |
| <input type="checkbox"/> Solomon Bayu | | |

- **Course Mapping:** After discussing the concept of modularization, it was agreed to assess the possibility of modularization by starting categorizing courses in the department to knowledge and skilled based courses.
- **Module Preparation (course Clustering):** Nine representatives from the three core streams, based on staffs availability, were selected for discussing the courses in so modules

- | | | |
|------------------------------------------------------|----------------------|---------------------|
| I. Thermal Engineering: | • Balewgiye Amare, | • Desta Goytom and |
| | • Getachew Shumil, | Nebiyu Bogale |
| II. Manufacturing and Industrial Engineering: | • Mesay Alemu, | • Tegegnach Tesfaye |
| | • Hormano and | |
| III. Design and Materials Engineering: | • Abiyou Solomon and | • Solomon Bayu |

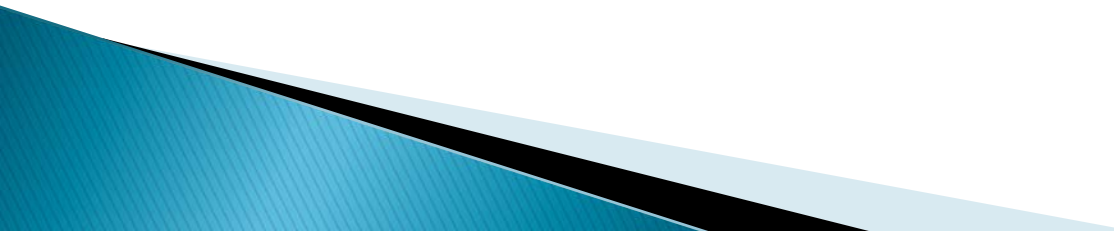
- **Selecting curriculum organizing coordinators:** The curriculum whole content will be revised as in the following and coordinators has been selected:

- i. Curriculum Background updating: Desta Goytom
- ii. Modules organization: Balewgiye Amare
- iii. Syllabus organization: Dawit Kebede
- iv. CV organization: Shewangizaw Workagegnehu

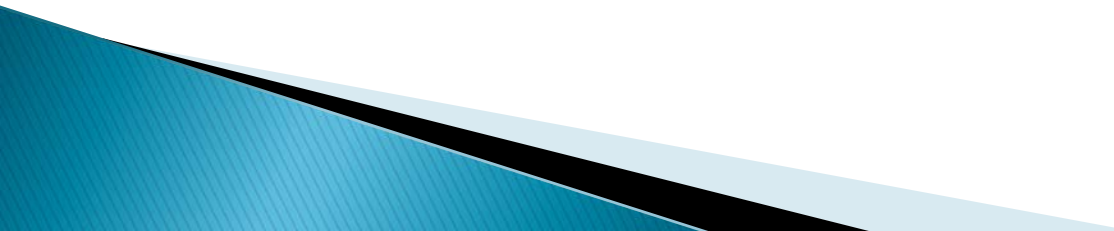
Syllabus Preparation: the draft course distribution for modularization approach has been discussed and some modifications were made considering staffs comments. Those staff members who were not present in the meeting were assumed to accept the assignments and any changed made by the DC meeting. Courses are assigned as in the following.

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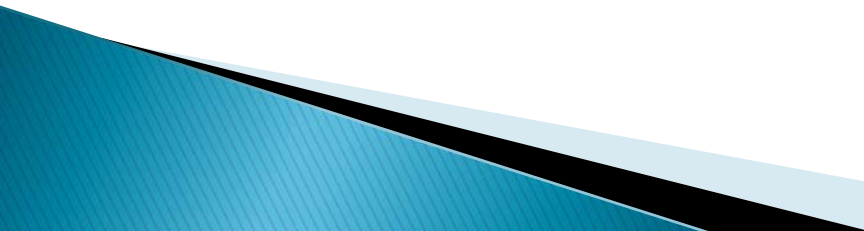
S.No	Instructor's Name	No.	Course	Course Count
1.	Abiyou Solomon	1.	Design of Machine Elements I	2
		2.	Design of Machine Elements II	2
		3.	Entrepreneurship II	2
		4.	Mechanical Vibration	4
		5.	Machine Design Project	3
		6.	Finite Element Method	6
		7.	Product design and Development	2
2.	Balewgiye Amare	1.	IC Engines and Reciprocating Machines	8
		2.	Refrigeration and air conditioning	9
		3.	Thermo fluid Laboratory	10

- ▶ Need to establish a framework for African mobility
 - ▶ Demonstrate that tuning vehicle for establishing framework
 - ▶ Some profiles already exist for some countries
 - ▶ no overarching drive in Africa such as the Bologna
 - ▶ How tuning can be used to improve the curricula
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KEY VALIDATION THEMES

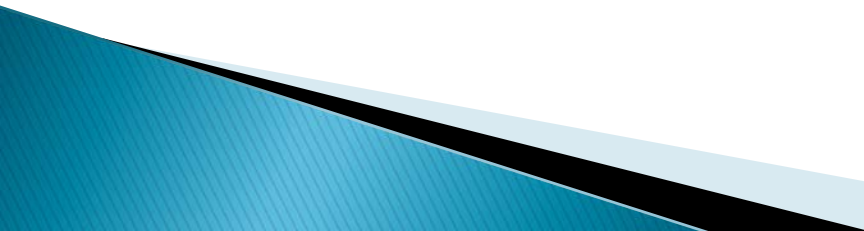
- ▶ How the developed meta profiles matches with the professional ideal of the experts
 - ▶ Validation must encompass all stake holders
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VALIDATION PROCESS TARGET GROUPS

- ▶ Experts in Mechanical Engineering in the country, HOD's, Deans, professors
 - ▶ Representatives of National Professional Engineering bodies
 - ▶ Students and graduate students
 - ▶ How to assess the skills of graduate engineer
 - ▶ supreme council of universities (Egypt).
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VALIDATION PROCESS

Consortia of universities where these exist.

- ▶ Ministries of HE – Permanent secretaries
 - ▶ Engineering alumni
 - ▶ Commissions for university education
 - ▶ Engineers Registration Boards
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DISSEMINATION PROCESS

- ▶ Annual national and regional engineering networks
- ▶ National and regional Engineering research conferences
- ▶ Meetings of policy makers
- ▶ Commissions for higher education
- ▶ Discussions on National radio and TV platforms
- ▶ Briefs to the Ministries of education
- ▶ HE relevance and quality assurance agencies

DISSEMINATION PROCESS

- ▶ Stake holders internal conferences
- ▶ Research conferences at University, national and regional levels
- ▶ Employers
- ▶ Syndicate accreditation bodies and engineering societies
- ▶ Conference of rectors
- ▶ Economic community meetings such as COMESA, SADDDC, ECOWAS etc

DISSEMINATION INSTRUMENTS

- ▶ Tuning journal
- ▶ On line resources
- ▶ 1 000 copies of the tuning africa report that will be produced
- ▶ Improved Tuning Africa website
- ▶ CD rom describing tuning methodology and the tuning approach in general
- ▶ Journal articles on tuning methodology in ME Journals

DISSEMINATION INSTRUMENTS

- ▶ Four paged leaflet outlining
 - history of tuning, methodology for tuning, information highlighting the bigger picture of tuning
 - Potential for credit transfer enhancement, facilitation of mobility among scholars
 - Enhancement of partnerships across African universities, admission of graduate students

DISSEMINATION INSTRUMENTS

- Enhancement for employability
 - Improvement of relations across African universities
 - Need to have an influential Tuning Africa champion at the policy making levels
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FUTURE DEVELOPMENTS

- ▶ Deepen the Mechanical engineering process by defining detailed learning objectives and out outcomes.
- ▶ Carrying out gap analysis between the existing curricula and the developed meta profiles
- ▶ Broaden the engineering areas to reflect the four core engineering disciplines
 - Mechanical, Civil, Electrical and Chemical engineering
 - Develop generic competences for engineering disciplines

FUTURE DEVELOPMENTS

- ▶ Deepen by developing meta profiles for masters and PhD degrees

